REMEDIAL ACTION REPORT
SA-6 NORTH CHROMIUM REMEDY

STUDY AREA 6 NORTH
NJDEP SITES 087 AND 088
NJDEP PI #G000008710 AND #G000008711

JERSEY CITY, NEW JERSEY

Prepared for

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EXECUTIVE SUMMARY

Honeywell is submitting this Remedial Action Report (RAR) to document the Chromium Remedy to address chromium-impacted soil and groundwater at Study Area 6 North (SA-6 North or Site), located in Jersey City, Hudson County, New Jersey. The remedial activities were initiated in May 2013 and were completed in December 2016. The Chromium Remedy was implemented successfully in accordance with the following documents:

- New Jersey Department of Environmental Protection (NJDEP)-approved Remedial Action Work Plan (RAWP);
- SA-6 North Consent Decree, In-situ Work Plans, the 100% Design Report and Design Change Bulletins;
- NJDEP's Technical Requirements for Site Remediation; and
- NJDEP's Administrative Requirements for the Remediation of Contaminated Sites.

SA-6 North encompasses approximately 42 acres near Kellogg Street and north of the SA-7 Site and is bounded by Route 440 and the Hackensack River on the east and west sides, respectively. Remediation was completed across the entire Site, with the exception of three small areas where remediation has been deferred ("Deferred Areas"), due to circumstances further detailed below:

- Two narrow portions of the Site adjacent to Route 440 right-of-way (ROW) along the eastern perimeter of the Site; and
- In-situ treatment area (TA-7) located within the Jersey City Municipal Utility Authority (JCMUA) property.

Remediation was partially completed in a portion of in-situ treatment area 10 (TA-10) that is located north of the SA-6 hydraulic barrier and north of the northern curbline of the future Stegman Boulevard. Soil sampling has been performed in this area to confirm achievement of the remedial action objectives (RAOs) for soil, but final validated analytical results are pending. Honeywell will also establish a deed notice on this area until results indicate that the RAOs have been achieved.

Therefore, no further remedial actions are required for SA-6 North other than remediation in the identified Deferred Areas and actions to support the long-term maintenance and operation requirements for the Open Space Area. Remediation of the Deferred Areas will be coordinated with the widening of Route 440 and relocation of a fueling system in the TA-7 Deferred Area.

For the purpose of this RAR, the contaminant of concern (COC) in soils at the Site is hexavalent chromium and the COC for shallow groundwater is total chromium per the NJDEP-approved RAWP. Chromium-impacted soil and groundwater was delineated during multiple phases of remedial investigations and subsequent pre-design investigations. With respect to chromium-impacted soil and groundwater, the RAWP identified one area of concern (AOC) at the Site, AOC-1. AOC-1 is further divided into two sub-areas based on future land use: the "Residential Development Area" and the "Open Space Area." AOC-2 was subsequently defined in the SA-6 North Consent Decree as the entirety of the Site (including AOC-1) where historic fill exists. A separate historic fill remedy is being implemented in AOC-2 which will be documented in a separate non-chromium RAR submittal; therefore, AOC-2 is not the subject of this RAR.

The Residential Development Area portion of AOC-1 was characterized in the RAWP as exhibiting soil with hexavalent chromium concentrations above 20 milligrams per kilogram (mg/kg), but with shallow groundwater concentrations of total chromium below 70 micrograms per liter (µg/L). The Open Space Area portion of AOC-1 was characterized in the RAWP as exhibiting soil with hexavalent chromium concentrations above 20 mg/kg and with shallow groundwater concentrations of total chromium above 70 µg/L.

Specific RAOs established in the NJDEP-approved RAWP for soils in the Residential Development Area included excavation and removal of hexavalent chromium-impacted soil to <20 mg/kg to meet the requirements of an unrestricted use in accordance with NJDEP's Chromium Policy, and with the SA-6 North Consent Decree and 100% Design Report. Additionally, following submission of the RAWP, three areas (TA-7, TA-8, and TA-10-1) within the Residential Development Area at SA-6 North where excavation was determined to be technically impracticable (TI) were identified due to depths of contamination and/or proximity to sewer lines and other critical structures. Thus, instead of excavation, in-situ chemical treatment of hexavalent chromium by injection of a chemical reductant was implemented in these

isolated areas to meet the same RAO for soils in the Residential Development Area as that stated above.

Since total chromium concentrations in shallow groundwater in the Residential Development Area portion of AOC-1 were identified as <70 µg/L, remediation of shallow groundwater outside of the SA-6 North Open Space Area (capped area) was not necessary. Deeper groundwater zones are being addressed by the Study Area 7 (SA-7) regional groundwater remedy.

Specific RAOs established in the NJDEP-approved RAWP for both chromium-impacted soils and shallow groundwater in the Open Space Area included containment and isolation using engineering controls (vertical hydraulic barrier and cap containment system), hydraulic control and establishment of appropriate institutional controls to restrict use. The NJDEP-approved RAWP originally included in-situ groundwater treatment using a permeable reactive barrier along the downgradient boundary of the Open Space Area, but that element was later eliminated based on further feasibility testing.

To meet the specified RAOs, major construction activities associated with the Chromium Remedy included:

- Excavation and offsite disposal of approximately 8,500 cubic yards (CYs) of chromium-impacted soil from the Residential Development Area;
- Excavation of approximately 9,500 CYs of chromium-impacted soil from the Residential Development Area and consolidation of this material in the Open Space Area;
- Reuse of approximately 28,000 CYs of confirmed non-chromium-impacted historic fill soils as backfill in excavations;
- Placement of approximately 41,000 CYs of structural fill material and horizon soils for the cap;
- Implementation of in-situ injections of a chemical reductant to treat chromium-impacted soils at Treatment Areas (TA) TA-7, TA-8, and TA-10-1 within the Residential Development Area;
- Surcharging of the Open Space Area to consolidate underlying compressible strata;

- Construction of approximately 2,400 feet of hydraulic barrier around the Open Space Area;
- Construction of an approximately 10-acre Resource Conservation and Recovery Act (RCRA) cap in the Open Space Area; and
- Construction of a contingent groundwater extraction system within the Open Space Area consisting of two runs 660 feet and 950 feet long.

With the exception of the Deferred Areas along the Route 440 ROW and the TA-7 Deferred Area as described above, the RAO for soils in the SA-6 North Residential Development Area and RAOs for soils and groundwater in the SA-6 North Open Space Area are being met by implementation of the Chromium Remedy and establishment of the necessary institutional controls. The Deferred Areas along the Route 440 ROW will be temporarily deed noticed until a public utility-owned gas main adjacent to the eastern boundary of the Site is relocated as part of a future road-widening project of Route 440. Likewise, the TA-7 Deferred Area will be temporarily deed noticed until JCMUA relocates their adjacent fueling system.

The RAO for soils was achieved with in-situ chemical treatment in the TA-8 TI area. The RAO for soils was achieved for nearly all of the TA-7 and TA-10-1 in-situ treatment TI areas, except for one limited, recalcitrant location in each area. In TA-7, the one recalcitrant shallow soil location will be excavated later to achieve the RAO after JCMUA moves the fuel station adjacent to this area. In TA-10-1, preliminary soil sample results indicate that a final injection of reductant recently implemented should address the one recalcitrant soil location and achieve the RAO for soil in the TA-10-1 area. Interim soil sampling to confirm achievement of the RAO in the TA-10-1 area has been completed, but final validated analytical results are pending. In the interim, both the TA-7 and the TA-10-1 area will be subject to temporary deed notices, which will remain in place until results demonstrate achievement of the RAOs for these areas. Final results for these areas will be submitted under separate cover.

The Long Term Monitoring Plan (LTMP) establishes procedures and schedules for long-term monitoring of shallow groundwater in the Open Space Area to evaluate hydraulic control and determine the need for operation of the contingent groundwater extraction system based on trigger criteria. The LTMP also establishes

the inspection, maintenance, and operation of critical features of the Chromium Remedy at areas where engineering and institutional controls are necessary.

Honeywell will establish appropriate institutional controls at SA-6 North that supplement the remedial actions, including deed notices and remedial action permits for soils for the Open Space Area and each of the deed notice areas. The draft soil remedial action permits are included. The draft remedial action permit for shallow groundwater in the Open Space Area is included. A classification exception area (CEA) has already been established with the NJDEP for the regional shallow groundwater which adequately covers shallow groundwater >70 µg/L in the Open Space Area at SA-6 North. In addition, the existing Conservation Restriction for the SA-6 North Open Space Area will be adjusted as needed to conform to the as-built remedy for Study Area 6 North.

Based on completion of the remedial actions for chromium-impacted soil as documented in this RAR; Honeywell is requesting NJDEP review and approval of this RAR in accordance with paragraph 23G of the Consent Judgment between Honeywell and the NJDEP dated September 7, 2011. It is Honeywell's intention that this document will close out remediation of chromium-impacted soil and groundwater at SA-6 North. As remediation at each Deferred Area is completed, the remedial action permit and deed notice for each area will be terminated by submitting documentation to NJDEP and All Parties.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Honeywell International Inc. (Honeywell) is submitting this Remedial Action Report (RAR) prepared by Amec Foster Wheeler Environment and Infrastructure, Inc. (Amec Foster Wheeler) to document completion of remedial activities associated with the Chromium Remedy at Study Area 6 North (SA-6 North or Site), located in Jersey City, Hudson County, New Jersey. A Site Location Map is included as **Figure 1**. This report was prepared and is being submitted to the New Jersey Department of Environmental Protection (NJDEP) in accordance with the remedial action reporting requirements specified in the Technical Requirements for Site Remediation (TRSR), (New Jersey Administrative Code [N.J.A.C.] 7:26E-5.7). Since NJDEP's Site Remediation Program Case Management Team retained direct oversight of the Chromium Remedy, Honeywell is requesting NJDEP review and approval of this RAR in accordance with paragraph 23G of the Consent Judgment between Honeywell and the NJDEP dated September 7, 2011 (Consent Judgment).

The purpose of this RAR is to provide documentation of the successful execution of the Chromium Remedy and achievement of designated remedial action objectives (RAOs) at the Site to address chromium-impacted soil and groundwater. The Chromium Remedy was implemented at SA-6 North in accordance with the following documents:

- *First Amended Consent Decree regarding the Remediation and Redevelopment of Study Area 6 North* entered in U.S. District Court of New Jersey on August 2, 2012 (SA-6 North Consent Decree);
- July 1, 2013: Technical Requirements for Site Remediation N.J.A.C. 7:26E-1-5 adopted May 7, 2012, revised 2013;
- NJDEP, 2012. New Jersey Administrative Code, Chapter 26C Administrative Requirements for the Remediation of Contaminated Sites (ARRCS); last revised May 7, 2012, Trenton, New Jersey.
- January 4, 2008 (amended February 2008): *Remedial Action Selection Report and Remedial Action Work Plan for Chromium* to address chromium contamination at SA-6 North (SA-6 North Chromium RASR/RAWP). This document was approved by the NJDEP in a letter dated February 19, 2009.

- February 2013: *Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil* for three treatment areas (TA) at SA-6 North where excavation is technically impracticable and the *Updated Work Plan for In-Situ Treatment of Chromium-Impacted Soils at the Northern Area Section of Treatment Area 10* dated August 2015.
- June 28, 2013: *Chromium Remedy 100% Design Report - Issued for Construction* for SA-6 North (SA-6 North 100% Chromium Remedial Design). Portions of this document were reviewed and approved by the NJDEP in an email on May 15, 2013. The Design Report for SA-6 South was issued at the same time. Unless otherwise noted, the design reports are collectively referred to herein as the 100% Design Report.
- Design Change Bulletins (DCBs) to 100% Design Report as indicated in Section 3 below.

As the Chromium Remedy progressed, Honeywell prepared a series of 5 Declarations which were periodically submitted to the Parties to memorialize completion of specific remedial elements of the Chromium Remedy in accordance with the above documents. Each Declaration has a particular focus of work elements as pre-determined by the Parties in accordance with a letter from Honeywell, dated June 19, 2014. In addition, each Declaration is signed by Honeywell and a New Jersey-licensed professional engineer and all Declarations are entered into the Federal Court docket once finalized. As of the writing of this Revised Draft RAR, Declarations No. 1 and No. 2 are finalized and have been filed with the federal court. Remaining Declarations (Nos. 3, 4 and 5) have been submitted and are in various stages of review and re-drafting. Since Declarations are not required by the TRSR for RARs, the Final Declarations are attached only to the copy of this RAR going to the Parties.

For the purpose of this RAR, the contaminant of concern (COC) in soils at the Site is hexavalent chromium and the COC for shallow groundwater is total chromium per the NJDEP-approved RAWP. Chromium-impacted soil and groundwater was delineated during multiple phases of remedial investigations (RI) and subsequent pre-design investigations. With respect to chromium-impacted soil and groundwater, the RAWP identified one area of concern (AOC) at the Site, AOC-1. AOC-1 is further divided into two sub-areas with respect to future land use: the "Residential Development Area" and the "Open Space Area." AOC-2 was

subsequently defined in the SA-6 North Consent Decree as the entirety of the Site (including AOC-1) where historic fill exists. A separate historic fill remedy is being implemented in AOC-2 which will be documented in a separate non-chromium RAR submittal by Honeywell's Licensed Site Remediation Professional (LSRP); therefore, AOC-2 is not the subject of this RAR.

The Residential Development Area portion of AOC-1 was characterized in the RAWP as exhibiting soil with hexavalent chromium concentrations above 20 milligrams per kilogram (mg/kg), but with shallow groundwater concentrations of total chromium below 70 micrograms per liter (µg/L). The Open Space Area portion of AOC-1 was characterized in the RAWP as exhibiting soil with hexavalent chromium concentrations above 20 mg/kg and with shallow groundwater concentrations of total chromium above 70 µg/L.

The Chromium Remedy at SA-6 North was implemented for the majority of the work concurrently with the implementation of the Chromium Remedy at SA-6 South. The Chromium Remedy at SA-6 South was completed in November 2016. Implementation of remediation of non-chromium AOCs at SA-6 South was completed concurrent with the Chromium Remedy. The Chromium RAR for SA 6 South was submitted to NJDEP and all parties in December 2016 (revised February 2017) and the Non-chromium RAR for SA 6 South was submitted to NJDEP in October 2016.

Remediation of non-chromium areas of concern (AOCs) at SA-6 North was completed in March 2017 separately from the implementation of the Chromium Remedy at SA-6. This RAR does not address SA-6 North non-chromium AOCs. A separate RAR addressing the SA-6 North non-chromium AOCs will be prepared and submitted to NJDEP by Honeywell's Licensed Site Remediation Professional (LSRP) in the second quarter 2017.

1.2 SITE SETTING AND SITE HISTORY

SA-6 North and SA-6 South are located on the west side of Jersey City. The Sites are separated by Study Area 7 (SA-7) and all three Sites lie between Route 440 to the east and the Hackensack River to the west. A Site Layout Map is included as **Figure 2.** SA-6 North is bordered by a car dealership to the north and SA-7 to the south. SA-6 South is bordered by SA-7 to the north and Droyer's Cove, Kellogg Street and Droyers Point Society Hill developments to the south. Adjacent

commercial properties, including New Jersey City University (NJCU) and a Home Depot, are located east of Route 440.

Collectively, SA-6 North, SA-7, and SA-6 South comprise approximately 100 acres (see **Illustration 1**). Bayfront Redevelopment LLC, a wholly owned subsidiary of Honeywell, owns the entire property with the exception of: (a) Lot 4, a 0.4-acre lot that is owned by Mr. Paul Trenk, and (b) Block 6 on SA-6 North, representing a 6.25-acre lot occupied by the Jersey City Municipal Utilities Authority (JCMUA) and is jointly owned by the City of Jersey City (Jersey City)] and the Jersey City Redevelopment Agency (JCRA). All the other Lots and Blocks on SA-6 North are owned by Bayfront Redevelopment LLC. SA-6 North represents an overall area of just over 42 acres as indicated below.

SA-6 North consists of Hudson County Chromate Sites 087 and 088 as follows:

NJDEP Site No.	NJDEP Site Name	Program Interest Number for Chromium	Block 21901 Lot No.	Address	Acres
087	Jersey City Incinerator Authority (JCIA) Site	G000008710	9 & 10	555 & 575 Route 440	35.76
088	JCIA Well Site	G000008711	5	501 Route 440	6.48
Total Acres					42.24

Detailed site histories have been provided in previous regulatory submittals. Recent operations at the Sites are summarized as follows:

- SA-6 North is also referred to as the "Jersey City Properties." Since approximately the mid-1950s, the Site was owned by Jersey City and occupied by "Jersey City Entities" including the Jersey City Department of Public Works (JCDPW), Jersey City Incinerator Authority (JCIA), and JCMUA. JCDPW and JCIA vacated the Site in 2014 during the implementation of the Chromium Remedy and some of the associated structures formerly utilized by the JCIA were demolished. JCMUA continues operations on Block 6 including primary wastewater treatment (grit removal) and sanitary conveyance to the regional Passaic Valley Sewerage

Commission (PVSC) wastewater treatment facility located in Kearny, New Jersey. JCMUA also performs vehicle maintenance and material storage and maintains administrative operations on Block 6. Bayfront took ownership of the SA-6 North properties June 5, 2008.

- SA-6 South is also referred to as the "Kellogg Street Properties." SA-6 South was the location of historic industrial and commercial operations. Recent operations included a bowling alley, freight trucking terminals, chemical production, concrete mixing and distribution, boat repair, and light retail and office space. Honeywell purchased the SA-6 South properties between 2005 and 2010.

Historical maps and aerial photographs indicate that, prior to development, the Sites and surrounding area consisted of marshland, which extended to the edge of the former Morris Canal (approximately the eastern edge of Route 440). Filling activities occurred from approximately the 1920s to the 1950s. The aerial photographs indicate that the area comprising the SA-6 and SA-7 sites has been filled over the years to build up the grade to approximately current levels. No detailed information is available on the placement of chromite ore processing residue (COPR) for the properties comprising SA-6 North. However, it is believed that COPR deposited on SA-7 likely spilled over and was co-mingled with other types of fill, spreading the COPR material onto adjacent portions of the SA-6 North and South properties. The deposition of COPR is believed to have resulted from operations at a former sodium dichromate plant that operated on the east side of Route 440. Visual observations of soil borings and sample analytical results from soil borings conducted on SA-6 North and SA-6 South indicate the presence of other types of fill consistent with the NJDEP's definition of "historic" fill in the TRSR. The historic fill map of the Jersey City quadrangle (NJDEP, 2004) was obtained from the NJDEP's website and was reviewed. This map confirms that the Sites were identified as containing historic fill as mapped by the NJDEP. The resulting material on the SA-6 properties is thus a mixture of COPR and indigenous historic fills and soils.

1.3 PROJECT BACKGROUND AND LAND DEVELOPMENT

A redevelopment plan, known as the Bayfront Redevelopment Plan, encompasses the entire 100-acre parcel designated as SA-6 North, SA-7 and SA-6 South (see **Illustration 1**) and was approved by the City of Jersey City on March 12, 2008.

Remediation of chromium-impacted soils at SA-7 was completed in September 2009. Honeywell remediated SA-6 North from May 2013 to December 2016 so that implementation of the Bayfront Redevelopment Plan may now proceed. Remediation of chromium and non-chromium impacts at SA-6 South were completed in November 2016 and have been reported under separate chromium and non-chromium RARs.

Illustration 1: SA-6, SA-7, and Surrounding Area

The Bayfront Redevelopment Plan lays out the redevelopment of the nominal 100-acre site that is owned by Bayfront Redevelopment LLC (Bayfront, a subsidiary of Honeywell) and is being developed in partnership with the City of Jersey City into a residential, commercial and retail complex. The Bayfront Redevelopment Plan represents a major opportunity to revitalize the west side of Jersey City; it meets the objectives of Jersey City's master plan for the broader west side area designated as the Bayside Redevelopment Area (see **Illustration 2**).

The Chromium Remedy and Non-Chromium Remedies at both SA-6 North and SA-6 South integrate the requirements of the future Bayfront Redevelopment Plan.

To be consistent with future planned use and the Bayfront Redevelopment Plan, SA-6 North and SA-6 South are divided into Open Space and Development Areas. The designation of these areas is contained in the SA-6 North and SA-6 South Consent Decrees, and is designated as follows:

Illustration 2: Bayside Redevelopment Area

- SA-6 North Consent Decree: "Open Space Area" and "Residential Development Area;" and
- SA-6 South Consent Decree: "Open Space AOC" and "Development AOC." The "Development AOC" consists of two parts: the Kellogg Street Development AOC and the Site 163 Development AOC.

The Bayfront Redevelopment Plan designates the SA-6 North and SA-6 South Development Areas for future residential and commercial/retail use redevelopment, and designates the Open Space Areas for future redevelopment as linear parks and recreational use areas currently known as "Central Park" on SA-6 North and the "Promenade" on SA-6 South. The as-built grades of the cap associated with the Chromium Remedy in the SA-6 North Open Space Area are interim grades. During development, the cap grades will be made consistent with the Bayfront Redevelopment Plan grades, with smoothing as needed to facilitate drainage pending development, and associated installation of roadways and stormwater management. Development in the Open Space Area/AOC is also restricted via recorded conservation restrictions. **Illustration 3** depicts the major components of the SA-6 North Chromium Remedy.

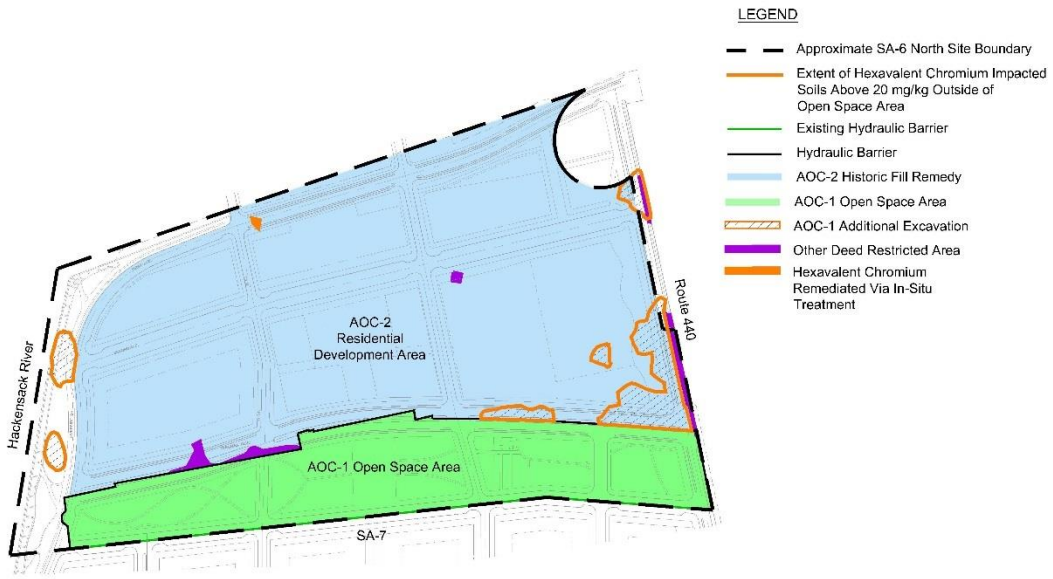


Illustration 3: SA-6 North Chromium Remedy and Redevelopment Plans

1.4 CONTAMINANTS OF CONCERN AND REMEDIAL ACTION OBJECTIVES

For the purpose of this RAR, the contaminant of concern (COC) in soils at the Site is hexavalent chromium and the COC for shallow groundwater is total chromium per the NJDEP-approved RAWP. The NJDEP-approved RAWP identified specific remedial action objectives for soil and groundwater as follows:

Specific RAOs for soils include:

- Prevent exposure to chromium-impacted soils containing hexavalent chromium above the NJDEP soil criteria of 20 milligrams per kilogram (mg/kg) to a depth of 20 feet, consistent with NJDEP policy.
- Remove and consolidate chromium-impacted soils that may be disturbed by future Site redevelopment activities; and reuse soils beneath the area to be capped, to the extent feasible.
- Coordinate remedial actions for chromium with remedial actions for non-chromium contaminants and Site redevelopment, to the extent feasible.

Specific RAOs for groundwater include:

- Mitigate the potential for surface water infiltration and leaching of contaminants (total and hexavalent chromium) from fill soils (vadose zone) to groundwater.
- Mitigate offsite migration of chromium in groundwater above the NJDEP Groundwater Quality Standard (GWQS).
- Reduce chromium concentrations in groundwater.
- Prevent exposure to groundwater chromium concentrations above the NJDEP GWQS.

To achieve the RAOs for SA-6 North soils and groundwater, the NJDEP-approved RAWP proposed the following remedial actions:

- Excavation of soil impacted with hexavalent chromium >20 mg/kg to a depth of 20 feet below ground surface (bgs) or 20 mg/kg, in the Residential Development Area;
- Consolidate lower concentration chromium-impacted soil from the Residential Development Area in the Open Space Area prior to cap construction;
- Capping and containment of chromium-impacted soil in the Open Space Area;
- In-situ permeable reactive barrier (PRB) treatment remedy using a reductant medium along the north side and vertical hydraulic barriers along the east and west sides of the Open Space Area; and
- Establishment of institutional controls.

Following submission of the RAWP, Honeywell continued to work with NJDEP to develop and refine the Chromium Remedy to achieve the RAOs stated in the NJDEP-approved RAWP. Eventually, Honeywell proposed to eliminate the PRB concept and fully contain the Open Space Area with a vertical hydraulic barrier consisting of sealed sheetpile. In addition, following submission of the RAWP, Honeywell identified several isolated locations where lower concentration

chromium-impacted soil existed in areas within the Residential Development Area where excavation was technically impracticable (TI) due to depths of the chromium-impacted soil within them and proximity to sewer lines and other critical structures. Instead of excavation in these isolated TI areas, in-situ chemical treatment of hexavalent chromium by injection of a chemical reductant was proposed to meet the RAOs for the Residential Development Area. These areas were identified as in-situ chemical treatment areas TA-7, TA-8, and TA-10. These areas are isolated from the identified areas in the Residential Development Area where excavation could be conducted. Thus, instead of excavation, in-situ chemical treatment of hexavalent chromium by injection of a chemical reductant was implemented in these isolated TI areas to meet the same RAO for soils in the Residential Development Area as that stated above.

Therefore, to achieve the soil RAOs in the Residential Development Area, Honeywell excavated soil impacted with hexavalent chromium >20 mg/kg to a maximum depth of 20 feet bgs. Excavated material that was impacted with hexavalent chromium between 20 and 240 mg/kg was consolidated in the Open Space Area. Excavated material that was impacted with hexavalent chromium >240 mg/kg was disposed of offsite. In lieu of excavation, Honeywell implemented in-situ chemical treatment of hexavalent chromium by injection of a reductant in the three isolated TI areas (TA-7, TA-8, and TA-10) identified within the Residential Development Area. Additional details pertaining to the implementation of the in-situ chemical reduction in the TI areas of the Residential Development Area are provided in Section 11. To achieve the soil RAOs in the Open Space Area, engineering controls (vertical hydraulic barrier and cap) were constructed around and over existing and consolidated chromium-impacted soil within the Open Space Area. The soil RAOs were met in AOC-1 with the exception of the three "Deferred Areas" and minor portions of the TI areas within the Residential Development Area discussed in Section 4.7.

Concentrations of total chromium in shallow groundwater within the Residential Development Area were below the NJDEP GWQS for groundwater of 70 µg/L prior to implementation of the Chromium Remedy. Therefore, remediation of shallow groundwater is not necessary in the Residential Development Area.

To achieve groundwater RAOs in the Open Space Area, Honeywell constructed a vertical barrier and a cap which now fully contains groundwater in the Open Space Area. Further, a contingent groundwater extraction system was installed within the

Open Space Area to assist in maintaining an inward hydraulic gradient relative to groundwater outside the Open Space Area. Groundwater level measurements will be monitored in accordance with the Long Term Monitoring Plan (LTMP), dated February 2017 (latest Revised Draft), prepared for both SA-6 North and SA-6 South, to monitor hydraulic conditions in both the Residential Development and Open Space Areas.

To achieve both soil and groundwater RAOs, Honeywell will establish appropriate institutional controls at SA-6 North including:

- Deed notices for each area of the Site where hexavalent chromium concentrations in soils remain >20 mg/kg;
- Remedial action permits for soils for all areas where hexavalent chromium concentrations in soils remain >20 mg/kg;
- A remedial action permit for groundwater in the Open Space Area;
- A classification exception area (CEA) has already been established with NJDEP for the chromium-impacted regional shallow groundwater which adequately covers shallow groundwater at SA-6 North; and
- A conservation restriction has already been established for the Open Space Area at SA-6 North. Honeywell will maintain the conservation restriction.

Honeywell will establish appropriate institutional controls at SA-6 North including deed notices and a remedial action permit for soils for five distinct areas including the Open Space Area, the three Deferred Areas, and the TA-10 Area. A remedial action permit for groundwater in the Open Space Area will be requested from NJDEP. A CEA has already been established with NJDEP for the regional shallow groundwater. More details concerning the institutional controls are provided in Section 17.

Section 4.7 more fully describes the deed notice areas, but a summary of the five areas at SA-6 North are:

- Deed Notice Area No. 5: Open Space Area,
- Deed Notice Area No. 6: Route 440 Right-of-Way (ROW) Deferred Area,
- Deed Notice Area No. 7: TA-10,
- Deed Notice Area No. 9: Route 440 ROW Deferred Area, and

- Deed Notice Area No. 10: TA-7 Deferred Area.

Draft deed notices, draft remedial action permit applications, and the NJDEP-approved CEA are appended to this RAR. More details concerning the institutional controls are provided in Section 17.

1.5 CONSTRUCTION OVERVIEW

The Chromium Remedy for the Residential Development Area at the Site consisted of excavation of soils exceeding 20 mg/kg for hexavalent chromium to the elevations established in the 100% Design Report based either upon pre-design investigation (PDI) sample data or encountering Stratum D. Excavated soil that was between 20 and 240 mg/kg for hexavalent chromium was consolidated in the SA-6 North Open Space Area; whereas excavated soil that was >240 mg/kg was disposed of offsite. Unlike SA-6 South, the chromium-impacted soils at SA-6 North were less wide-spread and were identified in specific areas. These distinct areas were previously delineated to 20 mg/kg during the RI and/or PDI sampling and were given the term Excavation Area (EA) and were numbered (1, 2/3, 4, 5, 7 and 8) for reference purposes. The originally defined EA-6 area was included in the Open Space Area by realignment of the hydraulic barrier once the design was completed.

Hydraulic barriers keyed into the Stratum D were installed on the east, north and west sides of the Open Space Area. The SA-7 Soil-Cement Bentonite (SCB) Wall forms the southern side of the hydraulic barrier. The northern hydraulic barrier also served as temporary excavation support for excavation of EA-5 and EA-2/3 in the Residential Development Area. A Resource Conservation and Recovery Act (RCRA)-equivalent cap was constructed over the Open Space Area to isolate contaminated soils.

More specifically, the Chromium Remedy included the following main work elements:

- Site preparation (utility mark out, temporary fencing, and erosion controls);
- Remedial Contractor mobilization and installation of site support facilities including construction trailers, decontamination stations, utility abandonment and bypassing, soil erosion controls, construction dewatering and stormwater control, and treatment infrastructure;

- Abandonment/demolition/removal/relocation of existing structures, select monitoring wells, and utilities as necessary to remediate chromium-impacted areas;
- Construction water management;
- Installation of temporary sheetpile for excavation support;
- Excavation within the designated Residential Development Area of chromium-impacted soils exceeding 20 mg/kg hexavalent chromium to a maximum depth of 20 feet;
- Consolidation of excavated material exhibiting hexavalent chromium concentrations between 20 and 240 mg/kg within the Open Space Area;
- Offsite disposal and transportation of excavated material exhibiting hexavalent chromium concentrations exceeding 240 mg/kg;
- Installation of a hydraulic barrier along the perimeter of the designated Open Space Area. The hydraulic barrier was tied into the existing hydraulic barrier associated with the SA-7 remedy along the common SA-6 North and SA-7 Site boundaries. The SA-6 North hydraulic barrier was embedded approximately 2 feet (minimum) into the underlying Stratum D.
- Installation within the Open Space Area of a contingent groundwater extraction system which will be operated as needed to maintain an inward hydraulic gradient as specified in the Consent Decree, the 100% Design Report, and the SA-6 LTMP.
- Soil surcharging in the Open Space Area to consolidate underlying compressible strata;
- Grading of soil consolidated from other areas in the Open Space Area and compaction of existing material/subgrade fill;
- Installation of the RCRA-equivalent geosynthetic cap system, including a methane venting layer to address naturally occurring methane;
- Installation of surface drainage and erosion control structures;
- Installation of a cap drainage system to collect stormwater infiltration and discharge to surface water;
- Installation of utility corridors for future site redevelopment;

- Installation of paired piezometers along the barrier wall to allow for groundwater level monitoring to demonstrate compliance with the inward hydraulic gradient requirement.
- Restoration of site and planting of grass or placement of clean crushed stone cover;
- Recording of institutional controls and initiation of future monitoring; and
- At TA-7, TA-8, and TA-10-1, in-situ treatment of soils exhibiting hexavalent chromium concentrations exceeding 20 mg/kg by injecting a chemical reductant solution into the subsurface.

Table 9 provides a cross-reference table of major construction elements referenced to particular components of the 100% Design (100% Design Report, Specifications, and Drawings), DCBs, and the Declarations which were periodically sent to all Parties documenting completion of specified portions of the Chromium Remedy.

The Chromium Remedy activities included the following major categories, and corresponding approximate quantities for SA-6 North (quantities that are combined for SA-6 North and SA-6 South are noted):

Item	Units	Quantity
Construction Water Discharged (North and South)	Gallons	41,257,040
Abandoned Existing Monitoring Wells/Piezometers	Each	41
Dewatering Wells		
Shallow	Each	44
Deep	Each	2
New Monitoring Wells		
Piezometers	Each	10
Material Handling		
Concrete	Cubic Yards (CY)	5,740
Excavated Soils		
Open Space Area 1N <20 mg/kg	CY	14,000
<20 mg/kg	CY	11,300
20-240	CY	9,500
>240 (Non-hazardous)	CY	2,500

Item	Units	Quantity
>240 (Hazardous)	CY	6,000
Consolidated Materials		
20-240 (South)	CY	35,000
20-240 (North)	CY	9,500
Asphalt	CY	100
Hydraulic Barrier	LF	2381
Cap Materials		
Subgrade Fill	CY	66,000
Geosynthetic Venting Layer (GVL)	Square Feet (SF)	361,300
Geosynthetic Composite Layer (GCL)	SF	29,500
Geotextile Layer	SF	59,000
Geosynthetic Drainage Layer (GDL)	SF	440,970
Liner	SF	440,970
GDL Soil	CY	17,700
Root Barrier	SF	440,970
Clean Cover Soils	CY	41,000
Backfill		
<20 mg/kg within excavation areas	CY	21,900
Imported Fill (Summit, NJ, "Celgene" fill)	CY	6,000
Surcharge		
Soil	CY	130,800
Monitoring Points	Each	11 Half Stations 13 Full Stations 15 Settlement Platforms
Disposal		
Recycled Asphalt (North and South)	Tons	3,700
>240 (Non-Hazardous)	Tons	4,000
>240 (Hazardous)	Tons	10,000

Item	Units	Quantity
Frac Tank	Tons	120
In-Situ Injections (CAPS Injected)		
TA-7	Gals	324
TA-8	Gals	168
TA-10	Gals	1,155

The following entities were involved in the construction of the SA-6 North remediation (see also **Figure 3,** Field Operations Organization Chart):

Party	Responsibility
Honeywell	Overall compliance with court-ordered remediation
Amec Foster Wheeler	Engineer of Record (EOR), Design, Contract Documents, Construction Inspection, Health and Safety Oversight, and Overall Site Construction Management
Entact	Excavation of chromium-impacted soil, imported backfill purchase and placement, and Dewatering and Groundwater Extraction
Gramercy	Demolition of JCIA buildings
Emilcott Associates	Air Monitoring
Arecon	Manifests, and Management of Excavated Soil Disposal
US Ecology	Transportation, Treatment and Disposal of hazardous chromium-impacted soils >240 mg/kg hexavalent chromium
Middlesex County Landfill	Transportation and disposal of non-hazardous chromium-impacted soils
Bayshore Soil Management LLC	Transportation and disposal of frac-tank sediment and soil
Mueser Rutledge Consulting Engineers (MRCE)	3rd Party Structural and Geotechnical Engineering Peer Review
Langan	3rd Party Liner QA
SGS Accutest Laboratories Inc. (Accutest)	Analytical Laboratory for samples collected by Amec Foster Wheeler
Travelers Industrial Hygiene Laboratory	Analytical Laboratory for Perimeter Air Monitoring Plan (PAMP) samples
Analytical & Environmental Services, Inc. (AESI)	3rd Party Analytical QA/QC

Party	Responsibility
Validata, LLC	3rd Party Analytical Data Validation
B&B Drilling	Piezometer drilling and installation, monitoring well abandonment
Isotec/ERFS	In-Situ Injections

Mobilization to both SA-6 North and SA-6 South commenced on March 1, 2013 and was completed on June 28, 2013. The Chromium Remedy on SA-6 North was substantially complete by December 2016. Work on SA-6 South was also substantially completed by November 2016. Representative photographs of major components of the work are included in **Appendix A.**

1.6 DATA VALIDATION AND DATA USABILITY EVALUATION

Unless otherwise indicated for specific sample types, Accutest analyzed the samples. Hexavalent chromium analysis was performed using United States Environmental Protection Agency (USEPA) Method 7199. Data validation was performed by a third-party data validation specialist with Validata, LLC (Validata) of Seattle, Washington. Additionally, Honeywell employs Dr. Rene Surgi of Analytical & Environmental Services, Inc. (AESI) of Glencoe, Illinois, to provide third-party analytical quality assurance/quality control (QA/QC).

Honeywell's general protocol is to have Dr. Surgi review 100% of the hexavalent chromium soil analytical data and work with Accutest on any QA/QC matters prior to issuance of the final analytical data packages. Samples that do not meet the laboratory's strict internal QA/QC criteria are re-logged by the laboratory and re-analyzed. Once the data packages are issued by Accutest to Validata, 100% of the hexavalent chromium (and total chromium, if performed) samples are validated. Employing such a protocol provides a high degree of confidence that the hexavalent chromium analytical data that has passed the internal laboratory QA/QC standards and was not rejected by the validator is accurate, precise, representative and, thus, usable. Rejected data, although reported, is flagged with an "R" and is not used for the intended purpose of the associated sampling.

The Data Management Plan (DMP) contained in the SA-6 North 100% Design Report outlined, among other things, the specific data validation objectives and procedures involved in producing quality, usable analytical data during implementation of the Chromium Remedy. Honeywell revised the DMP in August

2014 to clarify data validation level and frequency based upon the purpose of the sampling and end use of the data. This revised DMP was submitted to NJDEP and all Parties on August 22, 2014. A summary of the data validation level and frequency for soil samples analyzed for total and hexavalent chromium collected during the SA-6 Chromium Remedy and based upon the revised DMP was as follows:

- Level IV data validation on samples analyzed that are used for compliance purposes (i.e. post-excavation samples and those collected for re-use applicability of excavated material); and
- Level II data validation of approximately 25% on samples that are used for non-compliance purposes (i.e. samples for soils consolidated in the Open Space Area and those collected from soils being disposed of offsite).

Additionally, and in accordance with the DMP, data validation was also conducted on the following samples that included analysis of parameters other than total and hexavalent chromium:

- Level IV data validation on 100% of the monthly effluent water samples for tested parameters;
- Level IV data validation on 10% of soil samples for other (non-chromium) tested parameters; and
- Level IV data validation of approximately 10% of the PAMP air samples analyzed for hexavalent chromium for other (non-chromium) tested parameters. Those samples for which data validation was conducted only on a 10% frequency are indicated as **Tables 1A and 1B**.

The NJDEP issued guidance for the Data of Known Quality Protocols (DKQPs) in April 2014, approximately 1 year after the start of the SA-6 Chromium Remedy. The NJDEP was consulted regarding whether the questionnaire that is part of the DKQP process needed to be filled out for samples collected during the implementation of the Chromium Remedy. NJDEP concluded that the DKQP questionnaires were not required for the Chromium Remedy since the laboratory follows rigorous QA/QC protocols specifically developed for the chromium program in Jersey City which results in the generation of data of known quality and because the

third-party validation process covers the data assessment and usability evaluation promoted in the DKQP guidance. We note that the validation process essentially asks the same questions as those on the questionnaire. As indicated above, 100% of samples analyzed for hexavalent chromium were validated by Validata, whereas validation of all other analytical parameters was conducted on 10% of the samples. Any rejected data was not used.

Given the high level of internal and external QA/QC that is conducted, the 100% data validation that Honeywell employs for hexavalent chromium, and validation of 10% of samples for analytical parameters other than hexavalent chromium, the analytical data meets NJDEP's standards of precision, accuracy, and usability.

Copies of the laboratory analytical reports and the data validation reports are available upon request. Electronic Data Deliverable (EDD) documentation is included in **Appendix B**.

1.7 REPORT ORGANIZATION

This document has been prepared to meet the provisions specified in Sections 1.6 and 5.7 of the TRSR and contains the following sections:

- *Introduction.* This section contains information on the purpose and scope of the document, pertinent site setting information, project background and relationship between the Bayside Redevelopment Area and Bayfront, COCs, and RAOs, overview of the Chromium Remedy construction elements, and report organization.
- *Preparatory Construction Activities.* This section describes the activities implemented that were in support of the main elements of the Chromium Remedy.
- *Modifications and field changes to 100% Design Report.* Changes to what was proposed in the 100% Design reports are summarized in this section.
- *Items Encountered During Remedial Activities.* This section summarizes differing site conditions encountered during implementation of the Chromium Remedy.
- *Dewatering and Construction Water Treatment* (Section 5) through *Site Restoration* (Section 13). Detailed descriptions of the main elements of the

Chromium Remedy are provided in these sections. Tables and figures are used to graphically communicate the information.

- *Construction Permits.* This section presents a description of the permits obtained to implement the Chromium Remedy.
- *Sustainability Efforts During Construction.* Sustainable elements of the Chromium Remedy implementation are presented in this section.
- *Post-Remedy Operation & Maintenance.* This section describes the activities to inspect, monitor, and maintain elements of the Chromium Remedy that remain. In addition, groundwater monitoring and sampling is described.
- *Institutional Controls*. The implementation of deed notices, soil and groundwater remedial action permit(s), and a classification exception area are presented in this section.
- *Record Drawings*. Record drawings are discussed and provided.
- *Remedial Action Costs*. A summary of the costs to complete the project are provided.
- *Conclusion & Recommendations*. This section contains the conclusions and recommendations.
- *References.* References used in preparing this document are listed in this section.
- *List of Acronyms and Abbreviations.* This section contains a list of acronyms and abbreviations used in this document.

2.0 PREPARATORY CONSTRUCTION ACTIVITIES

On behalf of Honeywell, Amec Foster Wheeler managed and oversaw the bidding and contractor selection process for the SA-6 Chromium Remedy. The selected contractor was Entact LLC. (Entact) of Pittsburgh, Pennsylvania. Prior to mobilization, Entact prepared and submitted to Amec Foster Wheeler and Honeywell various work plans and submittals and acquired certain construction permits and approvals required by the 100% Design Report for implementation of the SA-6 Chromium Remedy.

In addition, several other permits were obtained by Amec Foster Wheeler for execution of the SA-6 Chromium Remedy during the design process. Other additional permits were obtained after the design process as detailed designs prepared by Entact were needed to obtain certain permits. Permits acquired for implementation of the SA-6 Chromium Remedy are listed in Section 14.

2.1 MOBILIZATION AND SITE PREPARATION

Amec Foster Wheeler and Entact mobilized equipment and labor forces to the Site between March 1, 2013 and June 28, 2013. Mobilization and site preparation included the following key activities:

- Re-establishment of Amec Foster Wheeler and Honeywell office space in the southern portion of the building located at 60 Kellogg Street;
- Mobilization and set-up of office trailers at SA-6 South for Entact operations. The trailers were outfitted with temporary electrical, internet, and telephone infrastructure;
- Establishment of a global positioning system (GPS) base station for use with construction layout and surveying;
- Mark-out of excavation, capping, staging and lay down areas;
- Geophysical surveys to locate unknown utilities, utility mark-outs, onsite utilities to be maintained, relocated or abandoned;
- Establishment of vehicular traffic pathways and staging areas;
- Installation of soil and erosion controls;

- Setup of the temporary construction water treatment plant (CWTP) at SA-6 North. The CWTP was utilized for SA-6 North and SA-6 South;
- Relocation of electrical feed for SA-7 regional groundwater extraction wells;
- Construction of decontamination facilities; and
- Installation of fencing, and establishment of initial exclusion zones, contaminant reduction zones and support zones. Such zones were maintained and modified as needed throughout the execution of remediation activities.

Other preparatory activities that occurred either just prior to or during initial stages of the construction activities are described in the sections that follow.

The Chromium Remedial Contractor could not fully engage in site preparation activities until the Jersey City Entities vacated the Site. While the Chromium Remedial Contractor did what they could to prepare the Site and begin the Remedy, the delay in the Jersey City Entities vacating the Site delayed and hampered progress and work sequencing.

2.2 HEALTH AND SAFETY

Health and Safety on the SA-6 Chromium Remedy was controlled by a Master Health and Safety Plan (HASP). The Master HASP was included as Appendix D of the SA-6 North Chromium Remedy 100% Design Report. Each site contractor was required to prepare and submit a HASP for their specific work requirements in conformance with the Master HASP. Direct responsibility for employee safety was retained by each contractor as outlined in the contractor's respective HASP.

The minimum personal protective equipment (PPE) for personnel within the fenced-in portion of the Site included hardhats, high visibility vests, gloves, safety glasses, and steel-toed boots. Minimum worker PPE within exclusion zones at the Site consisted of hardhat, safety glasses, high visibility vests, Tyvek™ suits, gloves, and steel-toed boots. Upon leaving the exclusion zone, disposable PPE was placed into containers staged within the contamination reduction zone. Non-disposable PPE was decontaminated in the same area. Disposable PPE was combined with other chromium-impacted waste and transported and disposed of offsite. Decontamination

fluids were processed through the onsite CWTP and subsequently discharged via JCMUA and PVSC discharge permits and agreements.

During the course of the project, 386,624 man-hours were worked on site. This number represents the combined total with SA-6 South as this was conducted as an integrated project. Of that total approximately 40% of the total hours worked could be allocated to SA-6 North. There were no Occupational Safety and Health Administration (OSHA) recordable incidents for the SA-6 South Chromium Remedy. Annual details are summarized in the table below:

Year	Man-Hours*
2013	60,928
2014	132,272
2015	104,384
2016	89,040
Project Total	**390,624**

*The man-hours include all hours on both SA-6 North and SA-6 South from mobilization through December 9, 2016.

A perimeter air monitoring program was carried out to document protection of human health outside of the remediation zone(s) to airborne COCs. The perimeter air monitoring program is discussed in detail in Section 10, but background and baseline monitoring activities are presented briefly below in Section 2.3 as they were part of the preparatory construction activities. In the course of the project, there were no exceedances of the perimeter air action levels.

2.3 BACKGROUND AND BASELINE PERIMETER AIR MONITORING

A perimeter air monitoring program was implemented and maintained whenever ground intrusive activities were occurring throughout the course of the SA-6 Chromium Remedy. The PAMPs were provided in the 100% Design Report. Separate PAMPs were prepared for SA-6 North and SA-6 South to account for the disparate durations of ground intrusive activities between the two Sites. The PAMP for SA-6 North was Appendix E of the SA-6 North Chromium Remedy 100% Design Report. More details of the overall perimeter air monitoring program are provided in Section 10.

During the mobilization phase and prior to ground intrusive activities, background perimeter air monitoring was performed to establish baseline air conditions that could be used for comparison to those measured during ground intrusive activities as shown on **Table 1A**. The background sampling was conducted for a minimum of 10 days during fair weather conditions (i.e., not during rain, snow, or high humidity) from July 15, 2013 to August 6, 2013.

Upon completion of the baseline sampling activities, the laboratory analytical data, real-time volatile organic compounds (VOC) [if applicable] and particulate matter dust monitoring data, and meteorological data was tabulated and presented to Honeywell. **Table 1A** summarizes the baseline perimeter air monitoring sample analytical data collected. **Figure 4** indicates the locations of the PAMP stations.

2.4 SITE SECURITY

Site security was established during the mobilization phase. Site security focused on perimeter security and access. The primary feature of Site Perimeter security was the perimeter fence line. SA-6 North was already surrounded by a perimeter fence due to the presence of the Jersey City Entities. The existing chain link fence along the exterior borders of the SA-7 and SA-6 South Sites previously installed during the remediation of SA-7 was repaired and replaced, as needed. Where new fence was required, 8-foot chain link fence was installed (equivalent to that installed on SA-7). For approximately one year, under a New Jersey Department of Transportation (NJDOT) issued Highway Occupancy Permit, the eastern end of the area fencing and sidewalk were relocated into the shoulder of Route 440 to facilitate construction of the hydraulic barrier and capping remedy and to maintain site security within that area.

Access to SA-6 North was limited by the security manned gate off of Culver Circle previously established by the Jersey City Entities at the JCDPW portion of the Site. Once JCDPW vacated the Site, site access was maintained strictly through this gate and Honeywell provided the security forces at the gate. Security forces were maintained on a 24-hour basis and patrolled the Site in vehicles.

Installation of the hydraulic barrier and capping remedy, along the eastern cap boundary, did require access to Route 440 from JCIA gate locations. Two excavation areas did encroach onto the driveway entrances to the JCMUA. The JCMUA

operations on Block 6 were fenced off as needed during the remediation activities; however, during the excavation on the JCMUA portion of the property, exclusion zones around the hot-spot excavation areas were established.

2.5 SUPPORT FACILITIES AND TEMPORARY SITE UTILITIES

Support facilities for the Honeywell and Amec Foster Wheeler construction management and Entact teams were also established during mobilization. Honeywell and Amec Foster Wheeler shared office space in the southern portion of the existing building at SA-6 South Site 125 (60 Kellogg Street) from the beginning of mobilization in March 2013 until February 2016. Once Honeywell and Amec Foster Wheeler moved out of the office space at Site 125, a set of permanent office trailers was established in the northeast corner of SA-6 North.

Site water for construction and dust suppression activities was obtained from a JCMUA fire hydrant located on SA-6 North.

Additionally, the CWTP was constructed between the former JCMUA Sludge Digesters and the JCDPW "H" building. The construction of the CWTP is described in more detail in Section 5. SA-7 was used for the staging of incoming clean materials including surcharge fill and geosynthetic materials. Equipment staging, parking, truck staging, and other storage was located in available areas.

2.6 TRAFFIC CONTROL

Onsite traffic associated with remedial activities was controlled by using designated routes established on the 100% Design Drawings. A perimeter-paved road was established on SA-7, which provided access from both SA-6 North and SA-6 South. Temporary ramps were built out of clean fill for transport between elevation changes on both SA-6 South and SA-6 North. These routes were marked using orange construction fence, traffic barricades, jersey barriers, signage and/or other types of traffic control devices.

Offsite truck traffic routes were consistent with routes previously approved for SA-7 and SA-5 remediation projects. The offsite truck routes used are indicated on **Figure 5**.

2.7 DEMOLITION

In accordance with a Site Preparation Plan prepared for SA-6 North dated October 2008, five major structures were either totally or partially demolished as necessary to facilitate implementation of the chromium remedy: the Former Sedimentation Basin, JCIA Incinerator Building, Former Waste Management, Inc. Leased Garage, JCIA Maintenance Garage and the Salt Dome. The demolition of these structures was contracted by the JCRA to Gramercy Group, Inc. Procurement and Specification Documents for the demolition scope and engineering oversight were provided to JCRA by Amec Foster Wheeler.

The former JCIA facility was located at 501 Route 440 in Jersey City, New Jersey. After JCIA relocated to a new Municipal Services Complex on Linden Avenue, Jersey City, New Jersey in September of 2014, the structures were demolished as detailed in **Appendix J**. A Structures Demolition Closeout Report was submitted to JCRA dated October 2015.

2.8 UTILITY ABANDONMENT

Utilities at SA-6 North included gas, electric, telephone/internet, water, storm and sanitary sewer which serviced both the Site and adjacent properties. Utilities that crossed into the excavation areas were abandoned in full compliance with Jersey City's Utility Abandonment Regulation, New Jersey's Underground Facility Protection Act and only after giving advanced notification via New Jersey's One Call system. Compliance requirements were completed prior to the inception of excavation activities.

During the preparation of the 100% Design Report, Honeywell determined that a 24-inch ductile iron gas main owned by Public Service Electric & Gas (PSE&G) exists north of the Open Space Area adjacent to the Route 440 ROW. A section of the gas line had been relocated to the east into Route 440 to facilitate construction of the SA-7 Remedy. At that time, the section of gas main adjacent to the SA-6 North Open Space Area was also relocated in anticipation of the SA-6 North Chromium Remedy. The relocation scope did not, however, anticipate the northern and eastern limits of the EA-1, and EA-2/3. This resulted in a conflict between the gas main and the eastern edge of these excavation areas adjacent to Route 440. Honeywell inquired of PSE&G and NJDOT about the potential relocation of a portion of this gas main and determined, based on their input, that utility relocation should be

deferred pending the comprehensive Route 440 Road Widening Project which is currently in the design phase. Consequently, a portion of excavations in EA-1 and EA-2/3 are deferred until the gas main is relocated in association with the Route 440 Road Widening Project. Honeywell will establish deed notices for these Deferred Areas until the work is completed, at which time the deed notices will be withdrawn. Honeywell will continue to monitor NJDOT and PSE&G progress on the Route 440 Road Widening Project and will address residual chromium contamination proximate to the gas line when relocated in the future for the Route 440 improvements.

2.9 GROUNDWATER TESTING FOR pH

During the mobilization phase and early stages of the Chromium Remedy implementation and prior to ground intrusive activities, Amec Foster Wheeler collected groundwater pH readings from 19 different locations along the proposed hydraulic barrier wall alignments at both SA-6 North and SA-6 South. The groundwater pH measurements were necessary to determine the type of sealant material that was suitable for the hydraulic barrier (sheetpile) joints.

The 100% Design required a cement-bentonite grouted seal on the sheetpile interlocks where the groundwater pH values were 11.5 standard units. **Figure 6** shows the measured pH values at each SA-6 North and SA-6 South location and stationing along the hydraulic barrier wall alignments. Section 9 details the installation of the hydraulic barrier and sealing of its joints.

The pH monitoring was performed in accordance with the methodology submitted by Honeywell and reviewed by All Parties as part of the Special Master document review process. All pH monitoring was performed in the fill above the meadow mat (Stratum D). Groundwater measurements were collected by Amec Foster Wheeler personnel certified with the NJDEP Office of Quality Assurance to perform field analysis of non-potable water for specific conductance, turbidity, dissolved oxygen, pH and temperature.

2.10 WASTE CLASSIFICATION

The *Proposed In Situ Waste Classification and Disposal Facility Approval Sampling Plan* (Amec, 2013) established a protocol for the sampling and analysis of the estimated 25,120 CYs of potentially chromium-impacted material that was planned

to be disposed offsite from both SA-6 North and SA-6 South. Materials containing hexavalent chromium >240 mg/kg at SA-6 North or >1,000 mg/kg at SA-6 South were designated for offsite disposal as shown on **Figures 7A through 7G**.

In order to properly classify the material for offsite disposal, the NJDEP *Waste Classification Request Form and Instructions* dated June 22, 2009 were used as a reference for the specific sampling frequency and analysis for the waste classification protocol in addition to any receiving disposal facilities' acceptance criteria. Results of the waste classification sampling are contained in **Appendix K**.

3.0 MODIFICATIONS AND FIELD CHANGES TO 100% DESIGN REPORT

Throughout the course of the implementation of the SA-6 Chromium Remedy, it was occasionally necessary to make modifications to the 100% Design Report based upon differing or unforeseen field conditions and/or provide further detail to conceptual design items. Design changes were documented in DCBs. Design changes are classified as either major or minor, where major DCBs were defined as those that could significantly impact cost and schedule and minor DCBs as those having minimal to no impact.

DCBs were issued using sequential numbering starting with DCB 000. A single combined DCB log was maintained for SA-6 North and SA-6 South (see **Appendix D**). Some DCBs applied to both sites. For purposes of the Special Master process a separate numbering system was maintained. The DCB Log provides a cross reference to the Special Master numbering.

During the course of the project a number of requests for information (RFIs) were received from the contractor. These RFIs sought clarification on specific areas of the 100% Design Report. Responses to all requests were provided. In the cases where an RFI resulted in a design change, an associated DCB was prepared and issued.

4.0 ITEMS ENCOUNTERED DURING REMEDIAL ACTIVITIES

During excavation activities at SA-6 North several unknown subsurface features and conditions were encountered. These included the following:

- "Anomalous" material was identified in excavation area EA-1 near Culver Circle;
- The 72-inch force main was found to be approximately 4 feet east of its recorded (as-built) location on the section of line east of the JCDPW "H Building;"
- Change in hydraulic barrier alignment due to the location of piles supporting the Sedimentation Basin;
- Two unregistered underground storage tanks (USTs) were identified; and
- Piles were encountered along the hydraulic barrier alignment within the EA-5 excavation limits.

As a result of above conditions, additional soil sampling was conducted that included:

- Post-excavation soil boring and sampling following excavation of a limited quantity of anomalous material at excavation EA-2; and
- Post-excavation soil sampling following visual discolored sidewall at excavation EA-5.

Descriptions of these conditions are provided in the sections below. Areas of the Site where remediation is not yet complete are considered Deferred Areas as detailed in Section 4.7 below.

As indicated in the 100% Design Report, due to the severity of the river bank slope along the western side of the Site, post excavation sampling at EA-8 was necessary following completion of excavation of this area to the design limits. The results of the post excavation sampling at EA-8 indicated a slight expansion of the original

EA-8 area vertically and horizontally. The additional sampling and excavation activities are detailed in Section 7.6.

4.1 "ANOMALOUS" MATERIAL AT EA-1

During visual inspection of the excavation EA-1 sidewall, a small lens of potentially chromium-impacted soil was identified on the north face of the excavation adjacent to the Culver Circle ROW. Field kits positively identified the material as hexavalent chromium. The excavation was extended to the NJDOT property line as shown on **Figure 8A**. No samples were collected. Honeywell notified the NJDOT of the visibly suspect material via e-mail on May 18, 2016.

4.2 HYDRAULIC BARRIER PARALLEL TO THE 72-INCH FORCE MAIN

The 100% Design required "soft dig" to confirm the 72-inch force main location prior to initiating the Chromium Remedy near the force main. As the result of those investigations it was determined that the north-south run of the force main east of the "H Building" was approximately 4 feet east of the documented "as-built" location. To comply with separation distances between the hydraulic barrier and the force main memorialized in a Memorandum of Understanding (MOU) entered in to by Honeywell and PVSC, it was necessary to move a short run of the north-south aligned hydraulic barrier approximately 4 feet east (see **Illustration 4**). This change was documented in DCB 014, dated September 2, 2014.

Additionally, after a series of discussions and meetings between NJDEP, PVSC and Honeywell following issuance of the 100% Design, the western-most section of the east-west aligned hydraulic barrier was moved approximately 15 feet to the south to increase the separation between the force main and hydraulic barrier (see **Illustration 4**). These hydraulic barrier relocations were documented in DCB 002 dated August 14, 2013 and in documentation to the NJDEP dated August 7, 2013. Record drawings contained in **Appendix C** show the re-aligned positions of the hydraulic barrier.

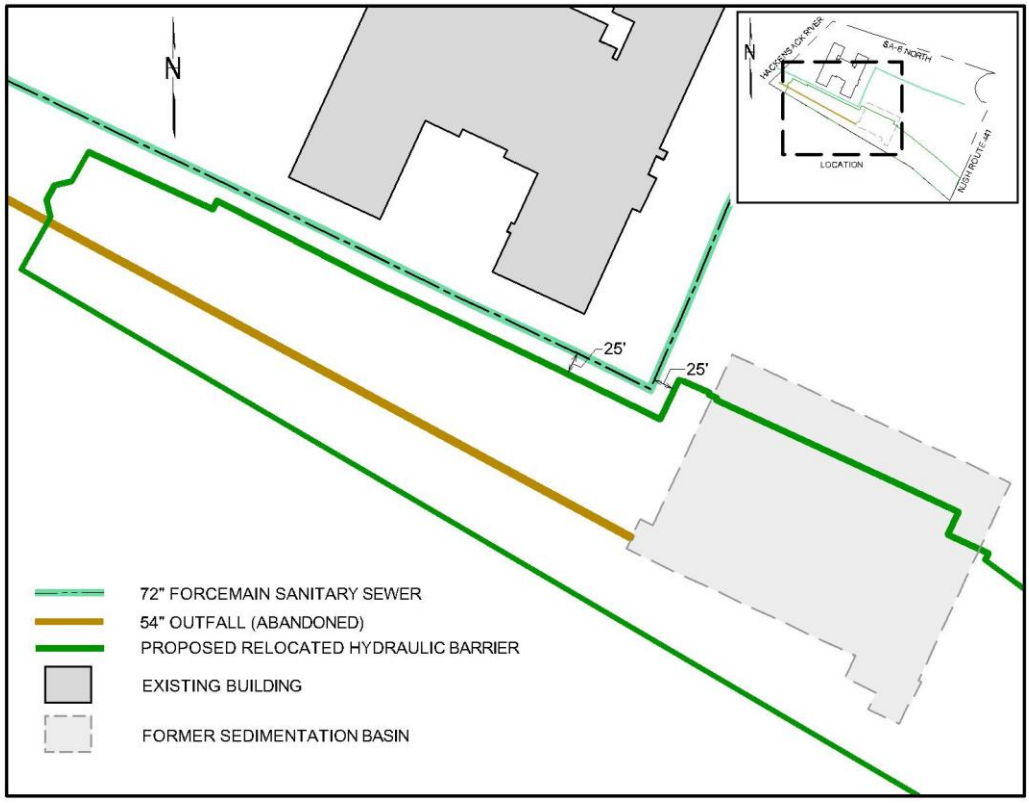


Illustration 4: Revised Hydraulic Barrier Location

Along most of the realigned hydraulic barrier sections, moving the barrier did not result in leaving chromium-impacted soils outside of the new alignment of the Open Space Area boundary. However, some chromium-impacted soils at a depth from approximately 12 to 14 feet bgs were left outside of the new alignment along the east-west section. During development, Stegman Boulevard will be constructed over this area and will effectively cap the underlying chromium-impacted soil, preventing any contact with the soil. In addition, Honeywell will establish a deed notice (Deed Notice #10 TA-7) to protect the footprint of chromium-impacted soils from disturbance. A limited area of chromium-impacted soils located north of the future Stegman Boulevard northern curbline is the TA-10-1 in-situ treatment area discussed more fully in Section 11.

Honeywell and PVSC entered into an MOU regarding implementation of the surcharge, hydraulic barrier installation, and construction of the RCRA-equivalent cap along the 72-inch force main in this area. The MOU required monitoring to be performed during those activities. Monitoring included installation of geophones on the 72-inch force main to allow for acoustical monitoring in addition to installation

of inclinometers between the barrier wall and force main, and installation of survey monuments on the force main. The acoustical monitoring program was conducted by Pure Technologies under contract to PVSC. The geotechnical, survey, and vibration monitoring plans were prepared by Amec Foster Wheeler and included in the First Amendment to the MOU dated October 10, 2013. The plans were submitted to PVSC for approval prior to commencing construction activities adjacent to the force main. The plans were reviewed and approved by Hatch Mott MacDonald on behalf of PVSC. Periodic reports were submitted to PVSC by Amec Foster Wheeler throughout the construction progress.

4.3 HYDRAULIC BARRIER WALL AT SEDIMENTATION BASIN

The 100% Design Report indicated that the hydraulic barrier would be subject to further minor changes pending the pre-trenching and verification of the pile locations along the alignment of the hydraulic barrier through the former JCMUA Sedimentation Basin. One objective of the 100% Design was to avoid removal of piles that penetrate the Stratum D. DCB 013 dated August 13, 2014 was submitted to document minor modifications to the hydraulic barrier alignment due to the located piles that support the Sedimentation Basin. This modification also reduced the number of corners of the hydraulic barrier wall. These changes also provided a wider utility corridor for the future Stegman Boulevard and allow for additional clearance between the cap geosynthetic materials and future Bayfront utilities.

4.4 USTS ENCOUNTERED

During the course of chromium-impacted soil excavation activities in September 2015 at EA-5 on Site 088 (former JCIA area) an unknown UST was discovered. A second unknown UST was encountered on Site 088 while doing subgrade preparation in May 2016 in the Open Space Area. In both instances upon discovery, Honeywell immediately notified their LSRP, Mr. Peter Jaran, P.E. of Equity Environmental Engineering, LLC (Equity), who is overseeing remediation of the non-chromium AOCs. Additional discussion of the USTs is contained in **Appendix J**.

4.5 EASTERN SECTION OF HYDRAULIC BARRIER REALIGNMENT

Pre-trenching along an eastern section of the hydraulic barrier alignment near the EA-5 excavation area revealed the presence of a cluster of piles. To avoid the piles, the hydraulic barrier alignment was moved approximately 3 feet to the north of the

design alignment. This resulted in a slight increase in the Open Space Area cap area and an equivalent decrease in the area of EA-5. This change was documented in DCB 020 on March 30, 2015.

4.6 ADDITIONAL SAMPLING CONDUCTED AT SA-6 NORTH

The 100% Design Report indicated that additional post-excavation sampling may be required if certain field conditions indicated the need to extend excavations beyond the identified limits, as determined by the onsite Construction Manager or designee or Honeywell's Remediation Manager. Conditions specified in the 100% Design Report that would trigger the need for additional post-excavation sampling included:

- Field observations indicating that an area previously characterized as clean shows evidence of contamination. In that event, sampling may be conducted to help identify the source and assess the impact;
- Observations that were not consistent with soil conditions characterized by the samples that were collected during the RI and PDI;
- Observations of chromium blooms on the surface of soils previously thought to be clean; and
- Other field conditions which suggest chromium impacts may extend outside of the previously defined limits.

Material referred to as "anomalous" pertains to material that, based on visual observation, was identified as being potentially chromium-impacted. Where such observations were noted at several locations in the excavations, Amec Foster Wheeler collected a sample of the visually-impacted material.

4.6.1 Additional Soil Boring at EA-2

One supplemental post-excavation confirmation sample, 088-SB-190, was required at EA-2/3 to verify that the excavation was terminated in <20 mg/kg material. A soil sample could not be collected at this location at the required depth during the PDI since this corner of EA-2/3 was slightly under the JCIA building. Soil boring 088-SB-190 was performed on February 10, 2016 and the soil sample collected at elevation 1.9 feet and analyzed for hexavalent chromium as shown on **Table 2A**. Honeywell submitted the standard certification email, including an as-built survey and tabulated coordinates of the finished excavation at the bottom and sidewall

sample locations, on April 3, 2016. The final excavation limits and sample locations are shown on **Figure 8B.** A Record Drawing of the final excavation limits is included in **Appendix C**.

4.6.2 Additional Soil Sampling at EA-5

The excavation of EA-5 was conducted from August 27, 2015 through September 24, 2015. A post-excavation sample of potentially anomalous material approximately 6-8 feet above the bottom of the excavation (Stratum D) was taken from the sidewall at EA-5 on September 29, 2015 as shown on **Figure 8B**. The 087-EA-5-SW-092915 sample results indicated that the hexavalent chromium level was <20 mg/kg as shown on **Table 2A**.

Once the preliminary analytical results of the post-excavation soil samples were obtained by Amec Foster Wheeler and reviewed with Honeywell, Honeywell submitted the results and a summary of the excavation effort to All Parties. Subsequently, Honeywell submitted the standard certification email, including an as-built survey and tabulated coordinates of the finished excavation at the bottom and sidewall sample locations, on October 12, 2016, after the analytical results were validated. Once the analytical results confirmed that the hexavalent chromium concentrations were <20 mg/kg in post-excavation samples, the excavation was backfilled with clean imported fill material.

In addition, at EA-5 less than 100 CY of asphalt was removed and sampled. The asphalt sample results indicated that low levels of arsenic were present above the Impact to Groundwater (IGW) and the residential direct contact soil remediation standards as shown on **Table 2B**. The arsenic-impacted asphalt was sampled, analyzed, evaluated, and handled in accordance with the NJDEP-approved Soil Management Plan (SMP), which was part of the 100% Design Report, and the *Proposed Concrete and Asphalt Sampling Plan* (CASP), dated September 2013, which was submitted to the NJDEP on October 28, 2013. The arsenic-impacted asphalt was placed in the Open Space Area.

4.7 DEFERRED AREAS

As indicated in Sections 1.4 and 2.8, there are three areas within the SA-6 North Development AOC where excavation was technically impracticable during the implementation of the SA-6 Chromium Remedy. These areas will be deferred until a

later time[1] and will be subject to temporary deed notices which Honeywell will establish until remediation can be completed. As remediation at each Deferred Area is completed, the remedial action permit and deed notice will be terminated by submitting documentation to NJDEP and All Parties.

The deed notice areas are shown on **Figure 16** and are generally referred to as the Route 440 ROW Deferred Areas, corresponding to Deed Notice Area #6 and Deed Notice Area #9 and the TA-7 and TA-10 areas corresponding to Deed Notice Area #10 and Deed Notice Area #7, respectively.

Deed Notice Area #6 is an approximately 4,000 square foot strip of land on SA-6 North adjacent to the Route 440 ROW where the PSE&G gas main is located north of the SA-6 North Open Space Area. PSE&G owns and operates a 24-inch high pressure gas main within the ROW in this area. As indicated in Section 5.3 of the SA-6 South 100% Design Report, Honeywell indicated its intention of deferring excavation of chromium-impacted soil within the Deed Notice Area #6 footprint until such time that the gas main is relocated during the Route 440 Road Widening Project. Excavation of residual chromium-impacted soil between the eastern edge of EA-2/3 and the SA-6 North property line in this area will be coordinated with the relocation of the gas main during the Route 440 Road Widening Project. Honeywell will establish a deed notice in this area and will maintain the deed notice until such time that the remediation .is complete and soil RAOs are achieved. Following that, Honeywell will terminate the deed notice. A draft of the deed notice is contained in **Appendix S**.

Deed Notice Area #9 is comprised of two tracts of land; Tract 1 is near Culver Circle at the Route 440 ROW and Tract 2 is further south along the Route 440 ROW. (The ownership of the Deferred Areas within Deed Notice Area #9 differs from that of the Deferred Area of Deed Notice Area #6.) Tract 1 is an approximately 1,400 square foot area. Tract 2 is an approximately 970 square foot area. Excavation of EA-1 and EA-2/3 were limited in these areas by the gas main, similar to Deed Notice #6 and will be completed after completion of the Route 440 ROW widening project. In the meantime, Honeywell will institute a deed notice on this area (both Tracts 1 and 2

[1] In the event that the Route 440 road widening project is not completed by the end of 2021 (five years after completion of the SA-6 Chromium Remedy), the Parties will confer regarding appropriate action for the Route 440 ROW Deferred Areas.

together in Deed Notice Area #9). Once the remediation of the area is complete and achieves soil RAOs, Honeywell will terminate the deed notice. A draft of the deed notice is contained in **Appendix S**.

It is not anticipated that implementation of the Bayfront Redevelopment Plan will impact Deed Notice Area #6 or Deed Notice Area #9. Because this area is so narrow, is proximate to the Route 440 ROW, and the gas main is located within the area, any planned development of this area will also need to be deferred until the gas main is relocated.

Deed Notice #10 is the in-situ treatment area TA-7 on the JCMUA property. This area is within the area of the JCMUA fueling system. This area consists of aboveground storage tanks connected by underground piping to a pump island with fuel-dispensing cabinets/pumps. To prevent disruption to the JCMUA fueling system and due to the depth of chromium-impacted soil and the proximity of the nearby 72-inch forcemain, in-situ treatment was implemented in this area in lieu of excavation. As described in Section 11, in-situ treatment reduced the chromium-impacted soils to below 20 mg/kg for hexavalent chromium throughout the area except for one recalcitrant area of approximately 560 square feet. As part of facility upgrades, JCMUA plans on relocating their fueling system. Once this system is relocated, the limited area where hexavalent chromium soil remains >20 mg/kg will be excavated and the deed notice terminated. This area will not be impacted by Open Space Development.

5.0 DEWATERING AND CONSTRUCTION WATER TREATMENT

5.1 GENERAL

Dewatering was conducted to remove groundwater and stormwater from within the excavation areas and to minimize the moisture content of excavated soils. Capture, collection, and treatment of stormwater/surface water that came in contact with impacted soils was also completed. Collected groundwater, stormwater, and surface water from both SA-6 North and SA-6 South was pumped to the CWTP installed on SA-6 North.

For management of stormwater, diversion berms were installed upgradient of excavation areas and within large excavation areas as needed to divert the flow of surface water away from open excavation areas. Additional controls used to minimize the volume of water requiring treatment included extending sheetpile used for temporary excavation support, sealed jersey barriers, and minimizing the open excavation between the excavation face and the backfill.

Wastewater collected at designated decontamination pads was also collected and pumped to the CWTP for treatment.

5.2 EXCAVATION DEWATERING/PUMPING

Excavation dewatering was accomplished with a combination of shallow well points, and localized sumps and pumps installed above Stratum D and deep wells installed below Stratum D.

5.2.1 Well Installation

Shallow well points and deep wells for dewatering above and below Stratum D were drilled and installed by B&B Drilling, Inc. (B&B Drilling), a licensed New Jersey well driller, in accordance with N.J.A.C. 7:9D. The well points and deep dewatering wells are shown on the figure provided by Entact contained in **Appendix I**. Deep dewatering wells within the main SA-6 North excavation area were given the designations DW-6 and DW-7. Because only EA-2/3 and EA-5 were deep enough to encounter groundwater, these were the only excavations that required dewatering

wells. Any other localized water intrusion in the other EAs was handled with intermittent sump pumping as needed.

The deep dewatering wells were drilled and installed by B&B Drilling using a hollow stem auger rig. Each was drilled through the Stratum O/D layer to a total depth of up to 48 feet bgs, 30 to 32.5 feet below the top of the Stratum O/D layer. A 6-inch diameter screen and riser pipe were used in the construction of each deep dewatering well. Screen lengths were 25 feet long in each. A 10-inch diameter steel conductor casing was set 1 to 2 feet into the top of the Stratum O/D layer to isolate water above the Stratum O/D layer from that below.

Well component specifications were submitted by Entact prior to installation. Shallow well points within the excavation areas were removed with the excavated soils. Deep dewatering wells were abandoned by B &B Drilling's licensed driller once an adequate amount of backfill placement and compaction within an area was complete. After consultation with representatives of the NJDEP, Bureau of Water Allocation and Well Permitting, B&B Drilling determined that individual permitting of the shallow well points was not necessary, but that the shallow well points were covered under the Temporary Dewatering Permit that was obtained from NJDEP. However, because the deep dewatering wells were constructed through Stratum D (confining layer), B&B Drilling obtained permits for the deep wells. Well records for the deep wells are included in **Appendix E**. Abandonment reports are included in **Appendix E**.

Three well point header systems (H-19 to H-21) were installed within the excavation footprints prior to excavation as shown in the figure contained in **Appendix I**. H-19 was installed in EA-5, whereas H-20 and H-21 were installed in EA-2/3.

Well points consisted of a 2.5" slotted polyvinyl chloride (PVC) well casing with filter pack placed around the slotted screen and a 1.5" PVC interior drop tube. The well casing was advanced to 2 feet below the anticipated bottom of the excavation or to the top of the Stratum D layer using hollow stem auger drilling methods. Each well point was equipped with a control valve and was connected to a header pipe (H-19 to H-21) via flexible hoses which connected to the electrically driven vacuum stations.

To determine the depth of the Stratum D prior to well installations, B&B Drilling drilled three investigatory boreholes per excavation for EA-2/3 and EA-5 along the

dewatering header pipe as shown on the Excavation Dewatering Layout record drawing in **Appendix I** and collected core samples from each to determine the actual bgs depth of the Stratum D layer prior to installing interior and perimeter well points. Boreholes were offset approximately 10 feet from the well point location to protect the integrity of the well point. The boreholes were advanced with the drill rig to the within 4 feet of the assumed Stratum D layer. The remaining 4 feet were advanced using a 2-foot-long spilt spoon sampler to retrieve core samples. The core samples were evaluated by Amec Foster Wheeler to determine if the Stratum D layer was encountered. Soil boring logs are included in **Appendix H**. At the completion of sample collection, the depth of the observed Stratum D layer or termination point of the borehole was recorded and the borehole was grouted. The data collected during the spilt spoon sampling event was evaluated to determine the depth at which the dewatering well points would be driven to effectively dewater excavation areas within breaching the Stratum D layer.

5.2.2 SA-6 North Dewatering/Pumping System

The general process for managing water was to prevent water from contacting chromium-impacted fill materials. However, this was not possible for activities performed below the groundwater table and where surface water/stormwater and incidental precipitation fell on active excavation areas, backfill areas, exclusion zones and contaminant reduction zones. Construction water was removed from remediation and support areas, and stormwater that contacted chromium-impacted soils was removed. Dewatering with shallow well points and deep wells began in an excavation area and/or phase to achieve drawdown in advance of excavation activities. Thus, shallow well points and deep wells were installed prior to the start of excavation activities to allow adequate time for groundwater removal. Site dewatering data is included in **Appendix I**.

Localized sumps and pumps were used to remove stormwater and surface water that migrated into open excavations. Sumps were installed at the low point within an excavation area and consisted of submersible pumps placed inside perforated pipe wrapped in geotextile liner and embedded in stone. Sumps were not installed below and did not penetrate the Stratum D layer and were constructed and relocated as needed as excavations proceeded. Stormwater and surface water collected in sumps were pumped to 21,000-gallon storage tanks for equalization prior to pumping through the treatment (filtering) portion of the CWTP as described in Section 5.3.

5.3 CONSTRUCTION WATER TREATMENT PLANT

The CWTP for SA-6 North and SA-6 South was constructed west of the JCMUA Digestion Tanks on SA-6 North. The CWTP was constructed within a secondary containment system for spill prevention. The secondary containment consisted of a 40-mil high-density polyethylene (HDPE) geomembrane overlain with a 6-inch layer of 1½-inch crushed stone. Class A geotextile liner was placed above and below the geomembrane. The 40 mil geomembrane panels were welded in the field. The secondary containment area had a perimeter berm constructed out of geotextile-covered jersey barriers. Eight 21,000-gallon "frac" tanks were positioned on top of the stone and were utilized for storing water. The frac tanks were manifolded together by flexible hoses. Up to six additional frac tanks were positioned on SA-6 South during the peak of excavation activities. Therefore, the CWTP consisted of approximately 300,000 gallons of untreated (influent) storage. The CWTP had a dual treatment train composed of 50-micron and 5-micron bag filters with a maximum throughput capacity of 500 gallons per minute (gpm). Treated effluent water was pumped into the unused JCMUA South Sludge Digestion tank. The digestion tank was fitted with a gate valve to regulate discharge. The tank normally operated in a flow through condition. During precipitation events the valve was closed and the digester used to provide an excess of 1 million gallons of temporary effluent storage. The effluent was discharged by gravity to the JCMUA wet well. The CWTP discharge was permitted under PVSC permit number 31630019. As required by the permit a non-resettable totalizing flow meter was used to record the instantaneous flow rate as well as the total flow. The CWTP base components are shown in **Figure 9**.

The PVSC-required MR-1 and MR-2 self-reporting documents were completed and sent to PVSC each month, reporting for the prior month. The effluent sample analytical results for the monthly samples are summarized on **Tables 3A, 3B, and 3C**. **Table 3B** also shows the chromium analytical results in each effluent sample. The total chromium load discharge limit permitted by PVSC is 11 pounds per day. The discharge limit was not exceeded during implementation of the Chromium Remedy. Thus, as anticipated and stated in the Construction Water Treatment System Design Report (CWTS Report) from the 100% Design Report, chemical treatment to remove chromium from the construction water was not required.

Commissioning and startup test procedures specified in the 100% Design Report were performed prior to initial discharge from the effluent tank. Entact oversaw operations and maintenance of the system during normal work hours.

Now that the SA-6 Chromium Remedy is complete, the CWTP system is no longer needed. Consequently, the majority of the system was decontaminated, disassembled, and demobilized and residual solids and spent media generated as a result of the operation of the CWTP were sent offsite for disposal. Waste classification sample results of this material are included in **Appendix K**. The final wastewater discharge occurred on November 1, 2016 and involved the final rinse-out after cleaning of the interiors of the CWTP storage tanks and treatment components. Several of the frac tanks remained onsite for use in the SA-6 North Non-Chromium Remedy.

5.4 GROUNDWATER LEVEL AND BASELINE GRADIENT MONITORING

The 100% Design Report requires that the groundwater levels within the SA-6 North Open Space Area be maintained at lower levels than both SA-7 to the south and the Residential Development Area to the north in the post-Remedy condition. If monitoring indicates that this inward gradient is not being maintained, contingent dewatering is to be conducted within the Open Space Area to maintain compliance with the gradient requirements. The LTMP details the specific post-Remedy monitoring requirements, frequencies, and action steps depending on water level measurements.

Shallow groundwater levels were monitored within the SA-6 North Open Space Area along the border with SA-7 SCB using piezometers installed during the SA-7 remedy as shown on **Figure 10**:

- 115-W6-SO;
- 115-W1-SO;
- 115-E5-SO; and
- 115-E4-SO.

Along the south side of the northern SA-7 SCB wall (adjacent to SA-6 North Open Space Area), the standpipes that monitor perimeter pools N1 through N4 were utilized to determine the head against the north side of the SA-7 SCB wall. An

elevation of 4.0 feet above mean sea level, based upon the National Geodetic Vertical Datum 1929 (NGVD29), is the lowest elevation within the SA-7 site-wide underdrain system. Thus, an elevation greater than 4 feet in the SA-6 North Open Space Area would obviate the need to dewater in the Open Space Area to maintain the hydraulic gradient requirement.

The 100% Design Report detailed the installation of 5 pairs of new piezometers along the SA-6 North hydraulic barrier. These piezometers allow long-term monitoring of the hydraulic gradient within the shallow groundwater zone between the Open Space Area and the SA-6 North Residential Development Area. The IDs of these 10 piezometers are:

Piezometers Installed Outside the Hydraulic Barrier:	Paired Piezometer Installed Inside the Hydraulic Barrier:
087-PZ-1	087-PZ-2
087-PZ-3	087-PZ-4
087-PZ-5	087-PZ-6
087-PZ-7	087-PZ-8
087-PZ-9	087-PZ-10

The locations of the 10 piezometers are shown on Figure 10. At each piezometer pair location, one piezometer is located inside of the SA-6 North hydraulic barrier and the other on the outside of the hydraulic barrier. The piezometers are constructed of 4-inch diameter stainless steel casing with a 5-foot-long screen set just above Stratum D. As-built construction diagrams for the piezometers are contained in **Appendix E**.

Following installation of the geomembrane portion of the cap and initial drawdown of the contingent groundwater system, Amec Foster Wheeler has conducted initial interim groundwater level monitoring on a bi-monthly basis. In accordance with the LTMP and GWLMP, Honeywell will initiate long-term groundwater monitoring activities at SA-6 North in Spring 2017 per correspondence dated November 7, 2016 (see **Appendix G**). To supplement the manual groundwater measurements, groundwater level data loggers have been installed in each of the 10 piezometers and monitoring well 088-MW-112 located outside of the Open Space Area. The results of the manual readings taken during the first event per month of the initial

interim groundwater level monitoring are provided in **Table 4**. The results indicate that an inward gradient has been maintained without active pumping of the contingent groundwater system. However, measurements at the 087-PZ-03 (exterior) and 087-PZ-04 (interior) piezometer pair have recently indicated an outward gradient. The groundwater levels at 087-PZ-03 and nearby monitoring wells 088-MW-111 and 088-MW112 installed in a former UST AOC also showed lower groundwater elevations than other wells in the SA-6 North Residential Development Area. This depression in groundwater levels may be attributed to the nearby breach in Stratum D at the former JCIA Incinerator Building/Trash Pit.

In response to Plaintiffs' request to establish baseline groundwater quality conditions inside the Open Space Areas, filtered and unfiltered groundwater samples were collected from each cap interior piezometer of both Sites. The samples were analyzed for total and hexavalent chromium. A summary of this data was included in the November 7, 2016 correspondence (see **Appendix G**) mentioned above and submitted to the Parties by Honeywell. The analytical results indicate that the filtered and unfiltered groundwater samples from the five inside piezometers (087-PZ-2, 087-PZ-4, 087-PZ-6, 087-PZ-8, and 087-PZ-10) were non-detect for hexavalent chromium and were below the NJDEP GWQS for total chromium.

6.0 MONITORING WELL ABANDONMENT AND INSTALLATION

Selected monitoring wells at SA-6 North and SA-6 South were abandoned during implementation of the SA-6 Chromium Remedy in accordance with the Monitoring Well Abandonment Plan which was Appendix A-2 of the SA-6 North Chromium Remedy 100% Design Report. A minor DCB011 dated June 6, 2014, clarified some of the wells that required abandonment.

As indicated in Section 5, five pairs of new shallow piezometers were installed on either side of the SA-6 North hydraulic barrier to monitor hydraulic gradients across the barrier as shown on **Figure 10** and detailed on **Table 5**. As detailed in Section 11, three monitoring wells were installed within the TA-10-1 area. The logs are included in **Appendix H**.

All well abandonment activities were performed in accordance with N.J.A.C. 7:9D by a New Jersey licensed driller from B&B. Well abandonment records are included in **Appendix E**. Permits for new wells were obtained from the NJDEP by B&B. New piezometer/well permits, Form A & B wells records, and new well construction diagrams are included in **Appendix E**.

7.0 EXCAVATION

Excavation of chromium-impacted soil was performed consistent with the NJDEP-approved RAWP, 100% Design Report, and subsequent DCBs applicable to excavation. The excavation at SA-6 North was implemented only in the Residential Development portion of AOC-1. Excavation was performed at SA-6 North from June 16, 2015 to March 9, 2016. More details concerning the excavation sequence and schedule are provided in Section 7.3. A progression chart was maintained throughout the project that tracked excavation and backfilling operations showing zones for work sequence and quality control and was reviewed with all Parties at routine progress meetings/conference calls. As excavation progressed, Honeywell periodically submitted to all Parties documentation of completion of portions of the excavation operations in accordance with the SA-6 South Standard Operating Procedure - Confirmation of Excavation Limits, dated March 3, 2014 (and including Honeywell's April 24, 2014 letter and attachments). Since these excavation confirmations are not required by the TRSR for RARs, they are attached only to the copy of this RAR going to the Parties. Record Drawings for excavation and backfill work are included in **Appendix C**.

7.1 TEMPORARY EXCAVATION SUPPORT ALONG ROUTE 440 EA-1, EA-2/3

Temporary excavation support consisting of sheetpile and soldier pile was installed at the locations shown on SA-6 North Temporary Support of Excavation Plans (SN-501 to SN-505) as prepared by Honeywell's geotechnical consultant, MRCE. The original 100% Design Report details were modified based on the Remedial Contractor's specialty subcontractor input (Linde Griffin) provided through the RFI process and as approved by MRCE. Hatch Mott MacDonald also reviewed the design of temporary excavation support proposed along critical infrastructure adjacent to Route 440 on behalf of JCMUA and Bayonne Municipal Utility Authority (BMUA). The temporary excavation support systems consisted of a combination of 2807 Hoesch Larssen Z sheetpile and a system of drilled soldier piles (H Piles), whalers and steel road plate lagging. The final field installation details were adjusted to reflect the field verified locations of the 36-inch BMUA forcemain and 48-inch reinforced concrete pipe (RCP) JCMUA sewer line. The depth of excavation and set back distance at EA-1 allowed for excavation by sloping without the need for shoring or other temporary excavation support.

The Entact Quality Control Engineer monitored the temporary excavation supports for horizontal deflection during excavation. The 100% Design Report also mandated the need for vibration monitoring when sheeting was being driven in close proximity to underground utilities. Vibration monitoring is discussed further in Section 9.2.

7.2 EXCAVATED SOIL MANAGEMENT

Excavated soil was managed onsite in accordance with the NJDEP-approved SMP and the approved soil erosion and sediment control plan. Prior to the start of the Chromium Remedy, as part of the PDI, post-excavation equivalent samples were collected and boring locations were surveyed (see the PDI Results and Mapping Report in Appendix B of SA-6 North 100% Design Report). The post-excavation equivalent samples established the horizontal and vertical limits of the chromium-impacted soils and, thus, defined the extent of the excavations.

The PDI sample hexavalent chromium results also established the designation and final disposition of the excavated material. Entact adopted three designations for SA-6 North for tracking and management purposes based upon their hexavalent chromium concentrations as follows:

- **A Material**: <20 mg/kg hexavalent chromium;
- **B Material**: 20 to 240 mg/kg hexavalent chromium;
- **C Material**: >240 mg/kg hexavalent chromium.

As provided in the SMP and 100% Design Report:

- **A Material** was stockpiled and tested to confirm its designation and, if confirmed, reused as backfill. If sample results of the A Material stockpiles, or portions of stockpiles, indicated that the material corresponded to one of the other designations, then the material represented by such samples was managed accordingly. **Table 6A** is the Stockpile Tracking Table. **Table 6B** presents the analytical data related to the stockpiles.
- **B Material** from SA-6 North was consolidated in the SA-6 North Open Space Area.

- **C Material** was shipped offsite for disposal. The material for offsite disposal was characterized as non-hazardous or hazardous waste depending on waste classification results (see Section 7.7)

The PDI sample results established the elevations to which excavation was to be performed for an excavation area, with the understanding that if Stratum D (i.e., "meadow mat") was encountered the excavation could be halted at a shallower depth.

Excavation was performed using hydraulic excavators directly loading into off-road articulated dump trucks (end dumps) to transport to designated stockpiling areas. The end dumps did not leave the Site, and were decontaminated if they were travelling out of an exclusion zone. The excavators were equipped with GPS equipment manufactured by Trimble®. Entact loaded X, Y, Z coordinates of the designed excavation limits into the GPS system and a transponder was attached to the bucket of the machine enabling the operator to precisely excavate in real-time to the design limits. Additionally, using the GPS and known coordinates differentiated the extents of the designation of various soils based upon the concentration of hexavalent chromium. A summary of the volumes of the soil designations is provided in the quantity summary table in Section 1.6.

Stockpiles of hazardous C Material (when not direct loaded) were covered with plastic sheeting to minimize air-borne dust and stormwater runoff. As provided in the 100% Design Report, excavations and soil stockpiles were protected from flooding to the 100-year flood elevation (10.2 feet) based on the NGVD29 datum by one or more of the options provided in the NJDEP Coastal Area Facilities Act (CAFRA)/Flood Hazard Area (FHA) permit (see Section 14 for more details). Daily inspections of the liners and plastic sheeting were performed to minimize migration of chromium-impacted soils beyond the designated stockpile area.

7.3 EXCAVATION SEQUENCING AND SCHEDULE

The EAs were each geographically distinct areas and were completed in sequence. Excavation began at EA-7 on the western portion of the Site and proceeded to EA-8 north of EA-7. Excavation of EA-4, then EA-5 were completed. The excavations along the Route 440 area were completed last with EA-2/3 conducted prior to EA-1.

A summary of the excavation schedule is provided in the table below.

Area Excavated	Start Date	End Date
EA-1	February 8, 2016	March 9, 2016
EA-2/3	November 5, 2015	January 6, 2016
EA-4	August 20, 2015	August 26, 2015
EA-5	August 24, 2015	September 8, 2015
EA-7	June 16, 2015	June 26, 2015
EA-8	June 18, 2015	December 9, 2015

7.4 EXCAVATED MATERIAL (STOCKPILE) TESTING

During the Chromium Remedy implementation, overburden soils (A Material or <20 mg/kg for hexavalent chromium) were excavated and set aside to allow for the excavation of chromium-impacted B (>20 mg/kg for hexavalent chromium) or C (>240 mg/kg for hexavalent chromium) below. In accordance with the SMP, stockpiles of A Material were managed onsite and sampled to confirm that the soil was <20 mg/kg for hexavalent chromium. The size of such A Material stockpiles ranged from 50 to 5,200 CY. Once a stockpile was deemed completed, sampling commenced. Grab samples were collected from such stockpiles for hexavalent chromium analysis at a maximum sampling frequency of 1 sample per 250 CYs. If the hexavalent chromium concentration in any sample from a portion of a stockpile was equal to or greater than 20 mg/kg, but below 240 mg/kg that portion of that stockpile was isolated from the remainder of the stockpile. Such portions of stockpiles were consolidated in the SA-6 North Open Space Area. Stockpiled soil that was verified to contain <20 mg/kg hexavalent chromium was then approved for re-use as backfill in excavations. This approved-for-reuse A Material is still considered historic fill. Additional imported clean backfill was generally placed over the reused material as needed to achieve the design grades. An institutional control (Restricted Area/Deed Notice) for the remaining site-wide historic fill soil will be filed in accordance with the NJDEP-approved RAWP as part of an RAR for non-chromium impacts to be submitted by Honeywell's LSRP.

Following surcharge, approximately 2 feet of <20 mg/kg of overburden soils (14,000 CY of historic fill) were stripped from Area 1N in accordance with SA-6 North Consent Decree paragraph 56(d) and DCB 045 dated September 2, 2015, to create additional capacity for the consolidation of 20-240 mg/kg chromium-impacted soils

within the SA-6 North Open Space Area. This material had been pre-characterized as non-chromium-impacted soil with RI/PDI sample results. In accordance with the SMP and as documented in Declaration #4, following excavation, the stockpiles of this historic fill soil were sampled before reusing as backfill in the SA-6 North excavations. Results confirmed that hexavalent chromium concentrations were below 20 mg/kg. Following removal of the Area 1N overburden soils, the cap was graded and compacted in accordance with the lines, grades and compaction requirements indicated in the Final 100% Design and DCB 054.6 dated September 2016.

7.5 EXCAVATION EXTENT SURVEYING AND CONFIRMATION

As indicated in Section 7.2, post-excavation equivalent samples collected during the RI and PDI established the horizontal and vertical limits of the chromium-impacted soils and, thus, defined the extent of the excavations at SA-6 North. On January 30, 2012, Honeywell submitted a request and justification for a variance in post-excavation sidewall and bottom sample frequencies for SA-6 North to the default frequency mandated in the TRSR. NJDEP approved the alternative post-excavation sidewall and bottom sample frequencies in a letter, dated February 16, 2012. Section 7.6 documents one location where the excavation was expanded beyond the limits defined by the PDI samples due to visual identification of "anomalous" material. New horizontal and vertical delineation samples defined the extent of these expanded areas.

As indicated at the beginning of Section 7, following the excavation, the horizontal and vertical extents of the completed excavations were surveyed and Honeywell periodically submitted documentation confirming the completion of excavation. In their submittals, Honeywell summarized the activities undertaken to complete the excavation and included the following statement from Honeywell's engineer, Amec Foster Wheeler: "Amec inspectors certify to the best of our technical ability that impacted soils as defined in the 100% Design Report have been removed and that the requirements to allow backfilling had been met." Honeywell also noted, where applicable/appropriate, that the excavation terminated [by depth] in the Stratum D and provided an Excavation Bottom Map that included the surveyed post-excavation bottom elevations for each excavation area. Honeywell further stated that the contractor was ready to backfill the respective excavations. During the course of the excavation, the Special Master acknowledged receipt of Honeywell's submittals and the notification that the contractor was ready to backfill.

Surveying of the final "as-built" horizontal and vertical extent of the excavations was conducted by Maser Consulting P.A. (Maser) of Marmora, New Jersey. R. Thomas Hugg, a New Jersey Professional Land Surveyor, certified record drawings surveyed by Maser. Record drawings are discussed and presented in Section 18.

Maser also surveyed the position and elevation of each PDI post-excavation equivalent soil sample to verify that the excavation was carried to or beyond the confirmatory points and tabulated the survey information. The table is provided in **Appendix C**.

For each excavation area, the table provides:

- The coordinates of the PDI bottom samples and a comparison of the actual excavation elevation to the targeted (design) elevation at the established PDI bottom sample locations; and
- The coordinates of the PDI sidewall samples and a comparison of the actual excavation elevation to the targeted (design) elevation at the established PDI sidewall sample locations.

7.6 ADDITIONAL SAMPLING AT EXCAVATION EA-8

The PDI investigation at EA-8 that was submitted in the 100% Design Report indicated the area boundaries, but not the final depths of the excavation. The geoprobe access to this area during the PDI had been limited due to a steep slope to the Hackensack River and active operations and storage by JCDPW. Therefore, the 100% Design Report detailed that additional vertical sampling be performed once the excavation footprint was advanced to elevation 7 feet. Once that elevation was reached, nine post-excavation soil samples were collected on June 25-26, 2015 throughout the footprint of the excavation to establish the limits of excavation below elevation 7. As shown on **Table 7A**, hexavalent chromium was detected >20 mg/kg in some of the soil samples. Therefore, additional excavation was conducted to elevations 3.7 feet and 2.0 feet in sub-areas designated EA-8 Area 1 and EA-8 Area 2 as shown on **Figure 11A**. Confirmation samples were collected on July 23, 2015.

During the inspection of the EA-8 Area 1 limits, an area of anomalous material was identified in the southern sidewall. Therefore, additional soil sampling and

excavation was conducted in sub-areas designated EA-8 Areas 3 and 4 to elevation 1.6 feet. Additional confirmation samples were collected on August 12, 2015, October 21, 2015, and November 12, 2015. The final vertical and horizontal excavation limits of EA-8 were documented in DCB 053, dated November 30, 2015.

Additional anomalous material was identified in the southwestern sidewall near 087-SB-102, which required sub-area EA-8 Area 5 to be expanded approximately 8-10 feet to the southwest.

All sampling and analysis of samples was performed in accordance with the Data Management Plan combined for both the SA-6 South and SA-6 North Chromium Remedies which was included as Appendix H of the SA-6 North Chromium Remedy 100% Design Report. EDDs for final (<20 mg/kg for hexavalent chromium) post-excavation samples were submitted to the NJDEP as documented in **Appendix B**.

7.7 OFFSITE TRANSPORTATION AND DISPOSAL

Depending on the hexavalent chromium concentration, the excavated soil from the Residential Development Area was either disposed offsite (>240 mg/kg) or consolidated under the cap in the SA-6 North Open Space Area cap (20-240 mg/kg). The characterization of soils within the excavation area was based upon PDI sample hexavalent chromium results and identified in Drawings CN-114 through CN-122 in the 100% Design. Furthermore, as more fully described in Section 2.10, waste classification sampling of the pre-characterized C Material (material that was pre-characterized as >240 mg/kg for hexavalent chromium based upon PDI soil sample results) in the SA-6 North EAs was conducted as part of the site preparation activities. Based upon the waste classification sample results, C Material was either characterized as non-hazardous or hazardous waste. As more fully described in Section 7.2, GPS coordinates delineating the horizontal and vertical extents of the material pre-characterized as >240 mg/kg for hexavalent chromium was used by the excavation operators to excavate and segregate only the material that was designated as >1,000 mg/kg. C Material classified as hazardous waste from SA-6 North and a limited amount of excess material from SA-6 South Open Space AOC that was confirmed >1,000 mg/kg for hexavalent chromium (see Section 9.4) was loaded into tri-axle dump trucks and shipped offsite to a rail transfer station, owned by Horwith Leasing Company LLC., in Northampton, PA. The material was then subsequently trans-loaded into gondola railroad cars and transported to the contracted disposal facilities as indicated below. Gondola cars were lined with

synthetic liners to contain the chromium-impacted waste during rail transport. C Material classified as non-hazardous waste from SA-6 was shipped in tri-axle dump trucks directly to Middlesex County Landfill. Approximately 10,000 tons of hazardous soils were disposed of offsite. Waste manifests are included as **Appendix K**.

Trucks were lined with synthetic liners which closed over the loads near the truck scales before leaving the work zone. Dump truck bodies were equipped with road covers which were closed over the liners before leaving the project site. Initially, trucks were decontaminated at the contamination reduction zone, and washed in a designated truck wash zone before leaving the site and entering the public roadways.

The offsite disposal facilities for chromium-impacted material were:

Disposal Facility	Material Type	Waste Classification	Weight (Tons)
Heritage/US Ecology	Chromium-Impacted C Material Excavated from the Residential Development portion of AOC-1 at SA-6 North and excess D Material (>1,000 mg/kg) from SA-6 South Open Space Area	Hazardous	10,000
Middlesex County Landfill	Chromium-Impacted C Material Excavated from the Residential Development portion of AOC-1 at SA-6 North	Non-hazardous	4,000
Bayshore Soil Management	Frac Tank Sediment & Soil	Non-hazardous	120
Clean Earth	Personal Protective Equipment	Non-hazardous	40 CYs

8.0 BACKFILLING, COMPACTION, AND COMPACTION TESTING

Backfilling within the excavations in the Residential Development Area included the spreading/placing, compacting, and grading of backfill materials that met the Specifications and were approved by the EOR.

8.1 BACKFILL SOURCES

The majority of the SA-6 North Residential Development Area was backfilled with historic fill soils that were sampled and confirmed <20 mg/kg for hexavalent chromium. Approximately, 21,900 CY of historic fill were placed in the Residential Development Area and compacted in accordance with Specification 02315-3.12.B.5. Imported clean backfill (referred to as "Celgene material") from a construction site in Summit, New Jersey was placed as bridge lift underneath the historic fill in portions of the SA-6 North Excavation Areas. Sources of imported backfill from offsite locations were tested and analyzed to confirm the material met the NJDEP's definition of clean fill in accordance with the TRSR and did not contain hexavalent chromium above 1 mg/kg. Approximately 6,000 CY of the Celgene material were placed as bridge lift and compacted in accordance with the Specifications.

These quantities have been updated to reflect the combined imported fill from SA-6 North and SA-6 from those reported in the Draft SA-6 South Chromium RAR that was submitted to NJDEP and all Parties in December 2016 and in the Revised Draft SA-6 South Chromium RAR that was submitted to NJDEP and all Parties in February 2017.

Source	Quarry	Material Type	Approximate Volume Imported (CYs)
Weldon	Watchung	Screenings	83,500
Weldon	Watchung	Quarry Process	9,300
Weldon	Watchung	DGA	300
Weldon	Lake Hopatcong	Screenings	5,300
Tilcon	Mount Hope	DGA	18,800
Tilcon	Mount Hope	1.5" Stone	4,200
Tilcon	Mount Hope	3/8" Stone	800
Tilcon	Mount Hope	6"-18" Riprap	100

Source	Quarry	Material Type	Approximate Volume Imported (CYs)
Tilcon	Mount Hope	2.5 Stone	500
Liberty Aggregates	Liberty	I-5 Structural Fill	5,000
Tilcon	Mount Hope	I-8 Structural Fill	27,000
Tilcon	Mount Hope	#57 Stone	12,300

8.2 BACKFILL TESTING

Backfill quality control testing was performed as indicated in the 100% Design Report. One sample for chemical analytical testing was required for each 5,000 cubic yards brought onsite to confirm the imported backfill material met the definition of clean fill in the TRSR. Analytical results for imported backfill used in the Residential Development Area were compared to the Residential Direct Contact Soil Remediation Standards. In addition, the 100% Design Report required imported fill to have a hexavalent chromium concentration of ≤1 mg/kg.

Entact collected samples of imported fill material for analysis by their subcontracted analytical laboratory, ChemTech Laboratories of Mountainside, New Jersey. Samples were submitted to Eurofins (a.k.a. Lancaster Laboratories) of Lancaster, Pennsylvania for analysis of hexavalent chromium by USEPA Method 7199.

In accordance with the 100% Design Report imported fill samples were analyzed for (see **Appendix L**):

- Target Compound List (TCL) VOCs by SW8260
- TCL Semivolatiles by SW8270
- Extractable Petroleum Hydrocarbons (EPH) by New Jersey extractable petroleum hydrocarbons (NJEPH) 10/08
- Target Analyte List (TAL) Metals by SW6010B/7471
- Pesticides by SW8081
- Herbicides by SW846 8151
- Polychlorinated Biphenols by SW8082
- Cyanide SW846 9012

- Hexavalent Chromium by USEPA 7199
- Synthetic Precipitation Leaching Procedure (SPLP) Metals by SW6010B/7471 only for those contaminants that exceed IGW standards.

Clean fill certifications were obtained from suppliers of the imported source location and certifying that the soil material was virgin and free of hazardous material or contaminants and included in **Appendix L**. The Specifications also required one sample of each source of imported fill to be tested for maximum dry density and optimum moisture content as determined by American Society of Testing Materials (ASTM) D 698 (Standard Proctor). The Proctor results were used by the technician conducting the compaction testing in the field to determine the degree of compaction based upon a % of the Proctor as specified in the 100% Design Report.

8.3 CONCRETE TESTING

Onsite sources of recycled concrete from SA-6 North included approximately 5,000 CYs of crushed concrete generated from demolition of the Sedimentation Basin as reported in the SA-6 South Chromium RAR as well as approximately 5,740 CY of crushed concrete generated from various excavations as discussed below.

All concrete materials were evaluated for suitability for onsite reuse through sampling and analysis. The SMP allowed concrete meeting NJDEP reuse parameters to be reused onsite as backfill in excavations or placed in the Open Space Area with consolidated chromium-impacted soil.

Concrete sampling and analysis was conducted in accordance with the September 2013 CASP. The procedures outlined in the CASP were in accordance with the NJDEP guidance document titled *Guidance for Characterization of Concrete and Clean Material Certification for Recycling*, dated January 12, 2010 and the NJDEP guidance document titled *Alternative and Clean Fill Guidance for SRP Sites*, dated December 29, 2011 – Version 2.

Concrete samples were collected at a maximum sampling frequency of one sample for every 250 CYs of concrete. Representative samples were obtained from the concrete cross-section (including the exposed surfaces) and crushed to fit into laboratory-supplied sample containers. A total of 18 concrete samples were collected from the crushed concrete generated from demolition of the sedimentation basin and

the data was reported in the SA-6 South Chromium RAR. A total of 19 concrete samples were collected from the remaining sources of recycled concrete from SA-6 North. An additional 18 concrete samples were collected for synthetic precipitation leaching procedure analysis for those instances when the IGW standards were exceeded. Concrete that met the reuse criteria was sized to 3-inch minus for reuse by Entact in accordance with the 100% Design Report.

Concrete samples were field screened with a photo-ionization detector (PID) and collected with a bias towards any instrument reading or visual contamination. Sample collection, preservation and handling was performed in accordance the NJDEP Field Sampling Procedures Manual (FSPM), August 2005, updated 2011 (NJDEP, 2005) and the Quality Assurance Project Plan provided in Appendix H-1 of the SA-6 North Chromium Remedy 100% Design Report.

In accordance with the CASP, concrete samples were analyzed for the same parameters as those tested on imported fill materials. The concrete sample results are included in **Tables 8A through 8H**.

8.4 BACKFILLING AND COMPACTION

The 100% Design Report allowed for the use of crushed recycled concrete as bridge lift where necessary to stabilize soft or wet subgrade materials at the bottom of excavations. A Material re-use soil or the offsite sources of clean backfill indicated above in Section 8.1 were placed over the bridge lift to bring the backfill to the appropriate design grades.

Bridge lifts were initially placed in nominal 12-inch lifts and compacted with three passes of a static steel drum roller as specified. Generally, vibratory compaction equipment was not used in the bridging lift. Based on the observation of the stability of the lift the EOR permitted increasing the lift to 18 inches using dozer placement. If the lift was stable, static rolling was initiated. In some locations, it was necessary to defer rolling until up to a 3-foot-thick bridging lift was placed due to excessive pumping. In other locations geotextile fabric was added between bridge lift layers or on top of the bridge lift to add additional reinforcing and material separation. Subsequent lifts of non-bridge-lift backfill materials were placed at a maximum of 12 inches thick loose lift and compacted using vibratory smooth-drum rollers to at least 95% of the maximum dry density in accordance with the Specifications.

Approved-for-reuse A Material (historic fill) was generally placed and compacted at the bottom of the excavations and buried to the maximum extent possible with additional imported clean backfill as needed to achieve the design grades. The variable nature of approved historic fill reuse material precluded testing for compaction using the Proctor density methods. The condition of the material was observed, unsuitable materials removed, and compaction conducted in accordance with the specified methodology using 2 to 3 passes of a vibratory roller.

8.5 IN-PLACE BACKFILL DENSITY TESTING

The in-place density of the compacted imported backfill materials were verified in the field using a nuclear surface moisture-density gauge in accordance with American Society of Testing Materials (ASTM) D 2922. Vertical V-Northeast, Inc. of Rahway, New Jersey, was subcontracted to Entact and performed compaction testing in the SA-6 North Open Space Area. Bridge lift and historic fill in the SA-6 North Residential Development Area were not tested for compaction. Figures showing the in-place density testing locations in the Open Space Area and tables ("Field Density Test Summary Log") summarizing the in-field density test results for each lift at these testing locations are provided in **Appendix M.** The coordinates of the testing locations and elevations of each associated lift are also provided on the Field Density Test Summary Logs. Test locations where test results showed the in-place density of the backfill material of that lift was less than 95% of the maximum dry density are also shown highlighted on the Field Density Test Summary Logs. Such lifts were re-compacted and retested until the in-field density results met the criterion.

9.0 CONTAINMENT SYSTEM CONSTRUCTION

In accordance with the SA-6 North Consent Decree and the 100% Design Report, the Chromium Remedy for the Open Space Area includes a containment system consisting of a hydraulic barrier, a RCRA-equivalent cap, and a contingent groundwater extraction system to provide hydraulic control of shallow groundwater. The objectives of the containment system are to physically separate chromium-impacted soils within the Open Space Area from the adjacent Residential Development Area and SA-7; to prevent the horizontal migration of contaminated groundwater out of the Open Space Area; and to limit infiltration of precipitation into the chromium-impacted soil within the Open Space Area.

Major containment system construction activities included:

- Installation of Hydraulic Barrier;
- Consolidation of Chromium-Impacted Soil Excavated from the Residential Development Area;
- Contingent Groundwater Extraction System Construction;
- Surcharging in the Open Space Cap Area; and
- Construction of the cap in the Open Space Area.

9.1 HYDRAULIC BARRIER INSTALLATION

The hydraulic barrier at SA-6 North consists of steel sheetpile with sealed joints around the eastern, northern, and western perimeters of the Open Space Area. The hydraulic barrier is connected to the existing SA-7 SCB on the southern boundary of SA-6 North. The western hydraulic barrier was installed approximately 100 feet inboard of the bulkhead at the chromium delineation boundary.

The sheetpile for the hydraulic barrier was installed using an ABI Mobileram with a high frequency vibratory driver. Prior to driving the sheets, pre-trenching was conducted to approximately 4 to 5 feet bgs along the hydraulic barrier alignment to remove debris that could inhibit sheetpile driving. Material removed during the pre-trenching was consolidated in the Open Space Area.

An abandoned 54-inch RCP ran from the southwest corner of the former JCMUA sedimentation basin to an outfall structure at the Hackensack River. During the pre-trench excavation, the sections of pipe that crossed the western section of hydraulic barrier alignment were removed. A flowable fill concrete plug was installed in the down gradient side between the hydraulic barrier alignment and outfall structure. The 54-inch pipe within the Open Space Area was crushed in place then backfilled with granular fill. This fill was used as a "French drain" for groundwater control west of the sedimentation basin pending installation of the contingent groundwater system collection trench west of the sedimentation basin.

The sheet piling was 1907 Hoesch Larssen Z Series sheetpile. The length of sheets varied along the alignment subject to the final design top elevation, the depth to Stratum D, and temporary support stability requirements. Sheets were fabricated and supplied to the site at specific lengths based upon the design profiles. The majority of sheetpile was delivered to the site in welded pairs. Single sheets and fabricated special sheets were used at specific locations. Sheet welding and epoxy coating was conducted by Durabond at their Steelton, Pennsylvania facility. The specification required application of an epoxy coating from the top of the sheet to a length equivalent of 2 feet into the Stratum D. Where longer sheets were used for structural purposes (i.e. to facilitate temporary excavation) the section of sheet below the 2 feet key did not require coating. The intent of the epoxy coating is to extend the life of the hydraulic barrier. Independent QA was performed at the Durabond facility to verify conformance with the specified requirements.

To meet the permeability objectives of the hydraulic barrier, the joints between the welded pairs were sealed with either a hydrophilic sealant or a cement bentonite grout. The type of sealant was based on the pH in the groundwater along the alignment. Record drawings of the sheetpile plan and profile are included in **Appendix N**.

As indicated in Section 2.9, supplemental pH testing of groundwater was conducted as part of the site preparation activities along limited sections of the hydraulic barrier alignment that were accessible outside of existing buildings and associated structures. In accordance with the 100% Design Report either a bentonite grout mix or hydrophilic seal were utilized on the sheetpile depending on the pH of the groundwater.

To achieve a continuous barrier around the Open Space Area, the hydraulic barrier was connected to the northeast and northwest corners of the SA-7 SCB wall using a grouted connection. These connections were made by drilling a series of 6-inch diameter boreholes at the connection point using a track mounted drill rig fitted with a continuous flight hollow stem auger. The auger was advanced into the Stratum D and a Cement Bentonite grout was pumped from the bottom of the auger to fill the void. The closure section of the sheetpile barrier was then installed prior to the grout setting.

The toe of the wall was designed to key a minimum of 2 feet into the Stratum D. The geotechnical investigation was used to develop a profile of the top of Stratum D along the barrier wall. As noted above the sheets were fabricated and installed based on that design profile. In EA-2/3 and EA-5 in the SA-6 North Residential Development Area, the excavation was carried down to Stratum D. These areas provided corroboration of the accuracy of the design Stratum D profile, and therefore confirmation that the sheet length/key and coating length were correct.

For the majority of the site, the cap to barrier wall profile is above the water table. In some utility corridors, the connection is submerged. Langan Engineering, Inc. (Langan) of Lawrenceville, New Jersey was retained by Amec Foster Wheeler to provide third party QA on the construction of the cap components. In submerged areas GCL was placed under the geomembrane in lieu of the gas vent layer and a sand bentonite plug was installed against the top of the sheetpile to provide for a low permeability connection. The installation of the connection detail for these areas is discussed in the Geosynthetics Quality Assurance Report prepared by Langan in **Appendix Q**.

9.2 HYDRAULIC BARRIER CONSTRUCTION ALONG TRASH PIT

Prior to installation of the hydraulic barrier wall in the Trash Pit area, the Trash Pit was dewatered by pumping of all free liquids. The remaining debris was removed from the Trash Pit with the excavator and stockpiled within the footprint of the former JCIA basement where additional liquids could gravity drain back into the Trash Pit and continue to be pumped out. The remaining solid wastes were trucked offsite for disposal. The concrete walls of the trash pit were scraped clean to allow for the sealing of the hydraulic barrier to the walls. The top of the trash pit walls was demolished to 2 feet below the geomembrane elevation.

The bottom of the Trash Pit was pressure washed and a cofferdam consisting of "super sacks" filled with fine granular clean imported soil were installed along the north and south sides of the proposed hydraulic barrier location. A low permeability plug of AquaBlok® was installed within the cofferdam walls. The toe of the steel sheetpiles was placed into the low permeability plug and the tops were tack welded to two steel guide beams for interim support as shown in figures in **Appendix C.** The interlocks between the sheets were sealed with Swellseal WA hydrophilic sealant. The hydraulic barrier was sealed to the concrete wall on the interior of the Trash Pit with cement bentonite grout columns.

The connections at the exterior walls of the Trash Pit were sealed with a specially fabricated sheetpile inserted into overlapping cement bentonite grouted columns prior to the grout setting. Prior to backfilling the Trash Pit, the concrete walls south of the barrier wall (under the cap and inside the containment) were penetrated below the groundwater table to reduce the potential for perched groundwater in the pit under the cap. The Trash Pit was backfilled in 1-foot lifts and tamped with the bucket until the elevation of the backfill reached a point where heavy compaction equipment could be utilized. Imported clean fill was placed 2 feet directly above the AquaBlok®.

Stratum D repair near the Trash Pit was conducted as described in Section 9.7.

9.3 VIBRATION MONITORING

The 100% Design Report mandated vibration monitoring when sheeting was being driven proximate to critical subsurface infrastructure or other features that could be damaged due to vibration. Such areas at SA-6 North are shown on **Figure 12** and included:

- Adjacent to the 72-inch Force Main;
- Temporary excavation support installation near the utilities along Route 440 and EA-1, and EA-2/EA-3; and
- Barrier Wall installation for the containment along Route 440

Honeywell's geotechnical engineering consultant, MRCE, developed the vibration limits for these sensitive areas. Seismographs were placed in proximity to the ABI Mobilram and the utility of concern. The seismographs were progressively relocated

in unison with the movement of the progress of the driving. The accelerations were measured "real time." The accelerations were well below the trigger levels in the vicinity of the 72-inch Force Main.

The ABI Mobileram operator had the ability to adjust the vibration frequency and total applied energy during driving. If the trigger levels were approached, the operator adjusted the driving parameters to keep the seismograph reading below the vibration limits.

There were a number of locations along the Route 440 Barrier Wall where vibrations exceeded the trigger levels for short periods of time. In these cases, driving was immediately stopped and options evaluated. These sheets were only 15 feet in length and hence driving times typically short. The 24-inch ductile iron gas main had also been replaced and relocated to the east as part of the SA-7 remediation. Therefore, while the same trigger level was followed when driving, the risk associated with higher vibration levels was less in this area due to the gas main relocation. The exceedances were along the southern section of the Route 440 Barrier Wall closer to SA-7. With two exceptions, the sheets were successfully driven by either frequency modification or adding water to the pretrench. In one location one pair of sheets reached practical refusal slightly above the design depth. Review of the geologic profile indicated that an adequate 2 feet key had been achieved and the sheets were left high. This change was documented in DCB 038 dated July 31, 2015. At a second location, practical refusal was encountered at a shallower depth. At this location, further investigation identified a piece of concrete slab below the pre-trench level. The concrete was removed and the barrier wall installation completed without any further exceedances. Vibration monitoring results are provided in **Appendix O**.

9.4 SOILS CONSOLIDATED IN OPEN SPACE AREA

The Chromium Remedy allowed for the consolidation of soil excavated from the SA-6 North Residential Development Area and SA-6 South Development AOC with hexavalent chromium concentrations of 20 to 240 mg/kg (B Material) to be placed in the SA-6 North Open Space Area below the cap. The total volume of soils excavated from the SA-6 South Development AOC placed in the SA-6 North Open Space Area was approximately 35,000 CYs.

Soils placed within the SA-6 North Open Space Area were compacted as specified to create a stable subgrade for the capping system. In accordance with Paragraph

56(d) of the SA-6 North Consent Decree, debris, or deleterious materials that could interfere with compaction was not placed under the cap. Compaction was typically performed using a vibratory steel drum roller. The subgrade was proof rolled with the roller operating in static mode loaded to provide a 1 ton per square foot (2,000 pounds per square foot), or equivalent, loading to the subgrade. The roller traversed over the subgrade materials until no further significant rutting or deformation of the subgrade was evident. Subgrade compaction was subject to engineer's approval. Soils that were too wet to compact were either dried or treated with Calciment® to reduce moisture content and increase strength to meet the specified criteria. The grading of the consolidated soils met the grading requirements in the 100% Design Report.

9.5 SURCHARGE PROGRAM

The existing surface grade of the Open Space Area generally varied between elevation 12 and elevation 16. The maximum "redevelopment grade" at the Open Space Area is elevation 23. Engineering calculations indicated that up to approximately 10 inches of settlement could result due to the increased load resulting from the increase in grade. That settlement was estimated to be primarily through consolidation of the underlying compressible Stratum O and Stratum D Soils. A decision was made based on this potential settlement, to surcharge the site to remove 100% of the primary consolidation attributable to the Development Area grade loading, prior to placement of the cap.

The surcharge program was designed to be completed in a sequenced manner starting from 1N and moving east to 4N (see **Illustration 5**).

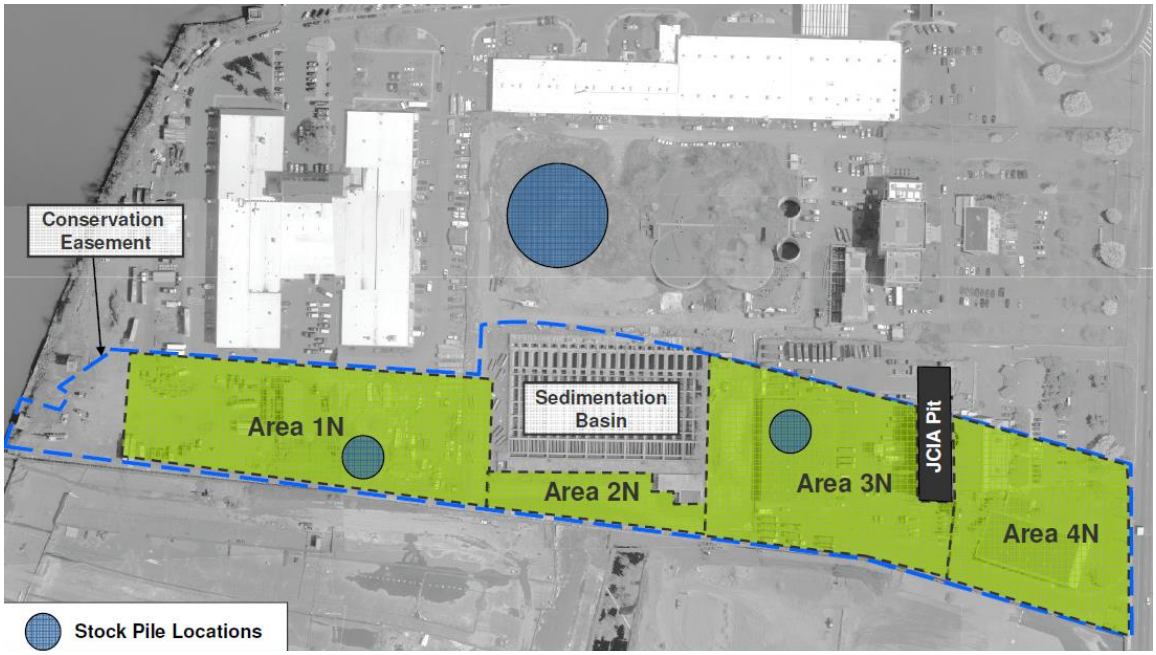


Illustration 5: Surcharge Loading Plan

The surcharge loads pile geometry was designed to achieve settlement as a result of primary consolidation in a period of approximately 6 months. Surcharge pile geometry was included in the 100% Design Report. The actual time required for the individual areas was determined by the results of the Surcharge Monitoring Plan. The Surcharge Monitoring Plan was provided in Appendix N of the 100% Design Report.

A Surcharge Monitoring report summarizing the results of the surcharge program for SA-6 North and SA-6 South was generated on a monthly basis during active surcharging. The Surcharge Monitoring Report included in **Appendix P** indicates that 100% of primary consolidation was achieved at the monitoring locations.

Upon completion of the analysis and verification by Amec Foster Wheeler that surcharge objectives were met, data packages were sent to MRCE for third party review. The dates of surcharging and third party agreement of completion are:

Surcharge Area	Initiation Date	Completion Date	MRCE Agreement
1N	April 2014	July 2014	August 8, 2014
2N	September 2014	November 2014	November 21, 2014
3N	November 2015	January 2016	March 29, 2016
4N	January 2016	January 2016	March 29, 2016

Following completion of the Surcharge Program, excess surcharge material was removed and the subgrade prepared for deployment of the cap geosynthetics.

9.6 STRATUM D REPAIR

During the course of chromium-impacted soil excavation activities at SA-6 North, repairs to Stratum D were necessary in the following situations:

- On several occasions pilings that penetrated the Stratum D were removed inadvertently in the excavation process, and
- In several locations, vertical cracks were observed in the Stratum D.

In each Stratum D repair location, GCL was placed over, and extended at least 3 feet beyond the repair area to provide continuity to the Stratum D layer. The locations of the repairs were noted on the Record Drawings.

Prior to installation of the GCL outside of the Trash Pit area, overburden soils were excavated and vinyl sheeting was driven into the existing Stratum D. The vinyl sheeting interlock abuts the hydraulic barrier wall and is connected to the hydraulic barrier wall by Swell Seal and 1-inch grouted column driven to a depth of 11 feet.

9.7 STRATUM D REPAIR JCIA TRASH PIT AREA

As indicated in Section 10.1.8 of the 100% Design Report it had been determined that the Stratum D layer was absent in a 25-30 feet halo around the JCIA Trash Pit. It is believed that portions of the Stratum D were removed during the construction of the Trash Pit. The 100% Design Report required development of means and methods for restoring the layer following Contractor selection, and inclusion of those

details in the Issued for Construction design (IFC). As a result of development of contractor means and methods, a modified repair scope was developed and shown on Drawing SN-302 of the IFC drawings. The modified IFC design was based on not conducting any repairs on the south side of the barrier wall (i.e. within the Open Space Area). The IFC design called for repair of the Stratum D North of the barrier wall. The repair consisted of three major steps:

- Excavation of the area to elevation 4.
- Installation of sealed vinyl sheetpile from elevation 4 and keyed into the Stratum D. The alignment was selected based on boring data and the interpreted limits of Stratum D.
- Placement of a GCL cap at elevation 4. The GCL extended from the concrete Trash Pit structure to the vinyl sheetpile. The GCL was connected to the sheetpile by means of a sand bentonite plug.

During installation of the vinyl sheetpile, a significant number of timber piles were encountered on the proposed alignment. To avoid removal of these piles the sheetpile was realigned to avoid the piles. DCB 051, dated October 22, 2015, was issued to document the location of the piles and the final alignment. These conditions are also documented in the "As Built" Drawings (**Appendix C**).

9.8 CAP CONSTRUCTION

The Chromium Remedy included a RCRA-equivalent geosynthetic cap system including; a methane GVL to address the potential release of naturally occurring methane, 60 mil Linear Low Density Polyethylene (LLDPE) geomembrane, GDL and cover soils to protect the geosynthetic components and support plant growth. Cap construction proceeded from west to east at SA-6 North, starting on June 22, 2016. The construction of the geosynthetic cap system was completed on August 19, 2016.

The licensed surveyor (Maser) provided survey of the construction control grid and verification that the subgrade was graded in accordance with the 100% Design. Amec Foster Wheeler conducted QA review of the geosynthetics manufacturer submittals, prepared the receiving records for geosynthetics delivered to the site, and provided QA approval of spark testing for all cap penetrations.

Langan provided third party QA on the construction of the geosynthetic cap components. Langan provided a final report of their QA inspection and evaluation of the cap construction which is contained in **Appendix Q**.

The following process was utilized for construction of the cap within the Open Space Area:

- Verification survey by Maser of the cap subgrade.
- Certification by the installation contractor (ESI) and Langan that the subgrade surface was suitable for geosynthetic deployment;
- Install cap geosynthetics (gas venting layer, geomembrane liner, geocomposite drainage layer) in the Open Space Area;
- QA/QC of placed geosynthetics;
- Spark testing of cap penetrations. Spark testing was conducted in accordance with DCB 052 dated December 14, 2015;
- Install Warning Layer. The top component of the GDL was comprised of a high visibility orange non-woven geotextile liner that met the visibility requirements of the SA-6 North Consent Decree. Yellow polyethylene, direct burial tape, with black lettered waring language, was installed every 5 feet on center on top of the GDL and also on top of the root barrier perpendicular to the lower elevation installed tape.
- Placement of protective cover soil;
- Placement of root barrier and additional warning tape installed above the root barrier in accordance with DCB 050 dated October 2, 2015;
- Placement of imported clean soil of the type required to the design thicknesses and grades; and
- Seeding and or gravel placement to serve as final cover pending redevelopment.

Figures 13 and 14 graphically portray the cap components.

The final design of the Bayfront Redevelopment includes roadways that traverse the Open Space Area in a North-South alignment. The geosynthetic cap system was

designed to accommodate future utilities in the roadways traversing the SA-6 North Open Space Area. The locations and design of the utility corridors were coordinated with the future Bayfront Redevelopment design and were in accordance with the SA-6 North Consent Decree. The locations of utility corridors are shown on **Figure 15**. The liner grades provide a minimum of 3 feet between the Bayfront Redevelopment road surface and the liner. The 3-feet criteria was established by Amec Foster Wheeler based on a conservative approach utilizing Bayfront Redevelopment planned traffic flows and a typical Municipal pavement design that was consistent with the road designation/traffic loadings. In areas designated as future roadways either imported NJ I-5 or NJ I-8 was placed as "Structural Fill under Roadways" above the cap components.

In accordance with the SA-6 North Consent Decree, a minimum thickness of 1 foot of clean soil (in areas to be paved) and 2 feet of clean soils (in other unpaved areas) were placed above the geomembrane liner. More clean soils may have actually been placed depending on the final surface grade features. The SA-6 North Consent Decree required an average thickness of clean cover soil above the geomembrane of 3 feet. The actual average thickness is 4.4 feet.

A woven geotextile root barrier was installed within the landscape areas. At least 6 inches of Horizon C soil was placed immediately above the root barrier and compacted to 90% of the maximum dry density as measured by ASTM D-698 (Standard Proctor). Additional Horizon C, and 6 inches of topsoil (Horizon A) were placed to complete the cover soil build up. Analytical sample results of Horizon A are also included in the table in **Appendix L**. The approximate volumes of cap cover soils imported and placed above the cap components was as follows:

Material Layer	Vendor/Source	Approximate Volume Imported (CYs)
GDL Cover Soil	Celgene	17,700
Structural Fill under Roadways	Tilcon Mount Hope	16,200
Horizon A - Topsoil	Nature's Choice	800
Horizon A - Topsoil	Excavating Materials & Equipment, Inc. (EME)	9,000
Horizon C	Nature's Choice	15,000

The average and minimum thickness of the cap cover soils meet the requirements of Section 56 (c) of the SA-6 North Consent Decree. The root barrier was installed over the entire cap area. Structural fill under roadways was placed in roadways above the protective cover soil. The placement of the root barrier, warning tape and Structural fill under Roadways meets the provisions of the OSDS, Appendix L of the SA-6 North 100% Design Report. As-built surveys of the top of the root barrier and structural fill as-built drawings are included in **Appendix C**.

Throughout the work, the amount of cover soil varied. As work advanced in some places the LLDPE required repairs. All repairs were completed by the end of August 2016 as detailed in **Appendix Q**.

The cap was designed with consideration of grading, drainage, and groundwater management provisions of the adjacent SA-7 site. The post-remediation monitoring and inspection of the cap required in Paragraph 64 of the SA-6 North Consent Decree and monitoring for methane was developed and presented in the LTMP as required in Paragraph 64 of the SA-6 North Consent Decree. A Revised Draft LTMP was submitted to all Parties in February 2017.

The methane vents extend from the geocomposite drainage, gas collection layer below the geomembrane liner through the cover soils to the atmosphere. See **Figure 16** for details of construction.

Existing monitoring wells which are to be maintained in the Open Space Area will be raised to meet proposed grade and re-surveyed with revised Form B

certifications. These monitoring wells are shown on **Figure 10** and are the following:

- 115-W6-SO
- 115-E5-SO
- 115-W1-SO and
- 115-E4-SO.

In addition, as indicated in Section 6, five pairs of new shallow piezometers were installed on either side of the SA-6 North hydraulic barrier to allow monitoring of the hydraulic gradient of the shallow groundwater zone between the Open Space Area and the SA-6 North Residential Development Area. See **Appendix E** for details of construction.

9.9 CONTINGENT GROUNDWATER EXTRACTION SYSTEM CONSTRUCTION

The 100% Design Report included a conceptual groundwater extraction design based on vertically-installed wells. The 100% Design Report also indicated that the conceptual design would be subject to further evaluation and possible change. Based on that further evaluation it was determined that a trench system would be more effective in the variable fill above the Stratum D. DCB 007 dated March 25, 2014 documents the change to the trench design. The collection trench was installed prior to surcharging. The contingent groundwater extraction trench is shown on **Figure 10**. A Record Drawing is also contained in **Appendix C**. The system will only operate as necessary to comply with the groundwater capture and gradient requirements noted in Paragraph 58 of the SA-6 North Consent Decree.

The specifications required that the water table be controlled during construction of the cap to maintain an inward gradient from SA-7 to the south and the Residential Development Area to the north. Pumping from the collection trench and other temporary trenches within the Open Space Area was initiated prior to cap placement to control groundwater levels and terminated in October 2016 after all Open Space Area cap work was completed. Evaluation of preliminary groundwater level monitoring results was discussed in Section 5.4.

The North contingent groundwater system consists of two trenches with 8-inch perforated HDPE conveyance pipe. One trench is east of the Sedimentation Basin.

It consists of two "legs." One leg runs approximately 150 feet west from Pump Station #2. The second leg runs approximately 500 feet to the east of Pump Station #2.

The second trench in the western portion of the site also has two "legs." One leg runs from the Pump Station #1 west 650 feet towards the Hackensack River end of the Open Space Area. The second leg extends south from the Pump Station then runs east between the south edge of the sedimentation basin and the SA-7 SCB wall. The second leg is approximately 350 feet long.

The HDPE pipe was placed on top of 6 inches of clean crushed stone and was covered with additional stone to depths in accordance with the above-referenced DCB. Geotextile fabric was placed across the top of the trench to prevent vertical migration of fines into the trench. As shown on the Record Drawing in **Appendix C**, the perforated piping is connected to a pump station located in each trench. Access structures are installed at the end of each trench to provide access for maintenance, if required. A double walled conveyance force main runs from each pump station to the GWTP. The force main discharge point was changed from the JCMUA grit chamber to the GWTP, as indicated in DCB 7.4.2 dated December 20, 2016. Electrical and instrumentation conduits were also installed between each pump station and the GWTP.

The groundwater model predicts that the inward gradient can be maintained by passive means (i.e. without active pumping). In the event it is necessary to implement active pumping, a pump along with the requisite electrical and instrumentation wiring and controls is being installed during the 1st Quarter 2017.

10.0 PERIMETER AIR MONITORING

As part of the Health and Safety monitoring conducted during remediation, air monitoring around the perimeter of the Site was implemented by Emilcott Associates, Inc., on behalf of Honeywell, to assess in an ongoing manner that COCs did not result in potential exposures to the surrounding public. Honeywell maintains a website at the following URL: www.jerseycitychromiumcleanup.com, which provided daily updates with perimeter air data and other information.

The primary COC, potentially found in dust from activities occurring at the site, was hexavalent chromium. Action levels determined for the SA-6 North project included 221.0 micrograms per cubic meter (µg/m^3) for air-borne dust. The air monitoring level was based on the potential for encountering lead dust at that Site. Preventative measures taken to control the generation of dust were conducted per the PAMP and HASPs. In order to assess the potential presence of hexavalent chromium in dust, the perimeter air monitoring stations were located throughout the multi-phase excavation activities using a grid system as shown on **Figure 4**. The points were determined by the PAMP and the Honeywell onsite representative based on the location of soil disturbance activities, prevailing wind direction, and field conditions.

PAMP data is included on **Tables 1A and 1B**. Baseline PAMP data was discussed and presented in Section 2.3. In the course of the project, there were no recorded employee exposures above the OSHA Permissible Exposure Limit. The highest total particulate detection at SA-6 North was on July 22, 2016 at 180 µg/m^3 (below operative action level of 221 µg/m^3) where the corresponding hexavalent chromium sample was not detected. The highest hexavalent chromium detection was on August 8, 2016 at 36 nanograms per cubic meter where the corresponding particulate detection was 79 µg/m^3.

11.0 IN-SITU TREATMENT

Although not specifically proposed in the NJDEP-approved RAWP, the RAWP indicated that in-situ treatment of chromium-impacted soils would be further evaluated as an option to address chromium-impacted soil in the Residential Development Area, particularly where excavation was technically impracticable. This included areas adjacent to active pipelines and utilities. Three such areas, called treatment areas (TA), were subsequently identified upon further evaluation of the data and discussions with the Jersey City Entities about the need to maintain critical infrastructure for their ongoing operations at SA-6 North. These areas were identified as Treatment Areas (TA) TA-7, TA-8, and TA-10 and are shown on **Figure 11B**. TA-7 is located immediately adjacent to two in-service above ground storage tanks on the JCMUA property and near the active 72-inch force main. TA-8 is located in the area of JCDPW and within 7 feet of a 96-inch combined sewer overflow line. TA-10 is located north of the Open Space Area hydraulic barrier and immediately adjacent to the 72-inch force main. The depth of the chromium-impacted soil and the nearby infrastructure made potential damage to the critical infrastructure during excavation a concern. Additionally, each of these areas is suitable for in-situ chemical treatment because they are geographically isolated locations, relatively small size, and exhibit lower hexavalent chromium concentrations (generally <100 mg/kg).

11.1 TA-7 AND TA-8

Honeywell implemented an initial injection program in the TA-7 and TA-8 areas in June 2013. Amec Foster Wheeler retained In-Situ Oxidative Technologies, Inc. (Isotec) of Lawrenceville, New Jersey to implement the in-situ injection of CAPS on behalf of Honeywell. The TA-7 and TA-8 in-situ injection program was implemented in accordance with the following documents:

- NJDEP Permit-by-Rule, Discharge to Groundwater Authorization, dated April 30, 2012;
- Amec's Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil, dated February 2013 (Amec Revised WP); and
- Isotec's Chromium Treatment Program Operations Plan, dated April 8, 2013 (Isotec WP).

A total of 324 gallons of 29% stock CAPS was injected in TA-7 and a total of 168 gallons of 29% stock CAPS was injected in TA-8.

In June 2014, Honeywell authorized Amec to collect interim performance assessment soil samples in TA-7 and TA-8. These samples were collected in accordance with the Amec Revised WP. The TA-7 and TA-8 in-situ injection program and interim soil sampling program was summarized in a technical memorandum, dated September 12, 2014, submitted by Honeywell to all Parties (see **Appendix R**). The interim soil sample analytical results indicated that all soil samples collected were <20 mg/kg for hexavalent chromium.

In accordance with the Consent Order requirements Honeywell implemented the 3-year post-treatment performance assessment soil sampling in TA-7 and TA-8 on June 27, 2016. The results are included on **Table 7B**. As indicated in the Amec Revised WP, all soil samples from both TA-7 and TA-8 were analyzed for hexavalent chromium, total chromium, and sulfide. The TA-7 and TA-8 3-year post-treatment performance assessment soil sample results were summarized in a technical memorandum, dated August 10, 2016, submitted by Honeywell to all Parties (see **Appendix R**). The interim soil sample analytical results indicated that all soil samples collected in TA-8 were <20 mg/kg for hexavalent chromium. All soil samples collected in TA-7 were <20 mg/kg for hexavalent chromium, except for one isolated location in TA-7 at a depth of 2 to 3 feet bgs which exhibited a hexavalent chromium concentration of 26.3 mg/kg.

Thus, the RAO for soils was achieved in the TA-8 area and most of the TA-7 area. Honeywell will establish a temporary deed notice for the TA-7 area until such time that the area of the residual exceedance of 20 mg/kg can be excavated to meet the RAOs defined for soils in the Residential Development Area of AOC-1.

11.2 TA-10-1

In the *Work Plan for In-Situ Treatment of Chromium-Impacted Soils* (Appendix F of the SA-6 North 100% Design Report), the TA-10 area was originally identified as an area delineated to 20 mg/kg for hexavalent chromium covering an approximately 2,000 square foot area north of the hydraulic barrier. This proposed TA-10 injection area included both sides of the adjacent 72-inch force main which has a concrete outer shell. Due to concerns about impacts to the force main from sulfate, Honeywell reviewed the proposed injection program with NJDEP and PVSC.

NJDEP and PVSC requested Honeywell to investigate alternatives to CAPS injection in TA-10. Therefore, Honeywell authorized Amec Foster Wheeler and Mutch Associates to implement a bench scale test to test the efficacy of an organic substrate in treating chromium-impacted soils in TA-10.

The bench scale test concluded that the organic substrate did not offer any significant benefit in reducing hexavalent chromium concentrations in soils. Ultimately, Honeywell and all Parties agreed that CAPS injections would be implemented only in a sub-area (called TA-10-1) located north of the northern curbline for the future Stegman Boulevard to be constructed during implementation of the Bayfront Redevelopment Plan which is approximately 25 feet north of the 72-inch force main. This subarea is approximately 800 square feet. Honeywell and all Parties agreed that the remaining area between the Stegman Boulevard northern curbline and the 72-inch force main where chromium-impacted soils exist >20 mg/kg will be permanently deed noticed since the soils in this remaining portion of TA-10 would not be treated, cannot be excavated, and the future Stegman Boulevard footprint will effectively cap this area.

To allay concerns for impact on the 72-inch force main due to CAPS injections in subarea TA-10-1, Honeywell agreed to monitor sulfate conditions in shallow groundwater. Honeywell installed two permanent monitoring wells (087-MW-133 and 087-MW-134) between subarea TA-10-1 and the force main. As a contingency, Honeywell further proposed that if the sulfate concentrations in either one or both of 087-MW-133 and 087-MW-134 reached a threshold level of 150 mg/L, that clean potable water will be injected into both wells to dilute the sulfate concentrations in the shallow groundwater adjacent to the force main. Both NJDEP and PVSC agreed that these proposed measures address their concerns about the sulfate in shallow groundwater in the vicinity of the force main. As shown in **Table 7D**, these levels were never reached.

Honeywell implemented an initial injection program in subarea TA-10-1 between August and September 2015. Amec Foster Wheeler retained ERFS of Lakewood, New Jersey to implement the in-situ injection of CAPS on behalf of Honeywell. The initial in-situ injection program was implemented in accordance with the following documents:

- NJDEP Permit-by-Rule Discharge to Groundwater Authorization, dated July 14, 2015;
- Amec Foster Wheeler's Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan); and
- ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013.

This initial injection program was summarized in an October 12, 2015 technical memorandum submitted by Honeywell to all Parties (see **Appendix R**). A total of 165 gallons of 29% stock CAPS was injected in TA-10-1 during the initial injection program.

Following this initial injection program, post-treatment soil samples were collected in March 2016 (approximately six months after the initial injection) to provide an early indication of the efficacy of this treatment. All soil samples collected from TA-10-1 were analyzed for hexavalent chromium, total chromium, and sulfide as shown on **Table 7C**. As detailed in a May 6, 2016 technical memorandum submitted to all Parties, post in-situ analytical results showed that the majority of areas treated were now below the 20 milligrams per kilogram (mg/kg) standard for hexavalent chromium in soil (see **Appendix R**). However, 5 out of 20 sample points exceeded the 20 mg/kg hexavalent chromium standard. Based on these results, Honeywell proposed a supplemental CAPS injection program to further remediate soils in these areas in the *Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils*, dated July 11, 2016 (Proposed Implementation Plan) submitted by Honeywell to all Parties (see **Appendix R**). As requested in a May 23, 2016 letter from Plaintiffs, Honeywell agreed to re-inject CAPS within all five original treatment points, not just the remaining areas of soil exceedances. Modifications were made to the initial approach which included a slower and prolonged injection delivery approach over the course of several weeks through injection wells installed in the area. In contrast, the initial injection program utilized a direct-injection approach where the entire volume of CAPS solution was injected over the course of two days.

On July 28, 2016, Honeywell submitted a new NJDEP Permit-by-Rule Discharge to Groundwater (PBR-DGW) Authorization request to NJDEP to implement the proposed re-injection program based on the July 11, 2016 Proposed Implementation Plan. NJDEP issued the requested PBR-DGW on August 4, 2016.

Amec Foster Wheeler again retained ERFS to implement the additional injections. The Amec Foster Wheeler/ERFS team implemented the prolonged injection delivery program at the Site in five events separated by at least one week between September 7, 2016 and October 26, 2016. The Amec Foster Wheeler/ERFS team implemented the in-situ program in accordance with the following documents:

- Honeywell's July 11, 2016 Proposed Implementation Plan; and
- NJDEP August 4, 2016 PBR-DGW;

In addition, although not revised specifically for the 2016 re-injection program, the 2016 re-injection program generally followed provisions of documents previously prepared for the initial injection program since the means and methods were essentially similar.

The Proposed Implementation Plan detailed a delivery approach for the re-injection program where CAPS would be injected in specified dosages through injection points (IPs) in five separate events over a period of time. Thus, the IPs were installed first to facilitate the proposed dosage injections. Following installation of the IPs, the 2016 re-injection program was implemented in five injection events separated by at least a week between September 7, 2016 and October 26, 2016. A total of 825 gallons of 29% stock CAPS was injected in specified dosages during the five-event injection program.

Approximately six weeks after the final injection, Honeywell directed Amec Foster Wheeler to conduct an interim soil sampling program in the TA-10-1 area. The soil sampling program was implemented on December 5, 2016 using the same protocol as the post-treatment soil samples collected in March 2016 following the initial injection program. All soil samples were again analyzed for hexavalent chromium, total chromium, and sulfide. The interim soils data indicates successful reduction of hexavalent chromium concentrations in soils < 20 mg/kg in all but one recalcitrant location which exhibited a hexavalent chromium concentration of 33.3 mg/kg. The 2016 re-injection program, soil sample results, and the specific procedures for a supplemental re-injection program was summarized in a January 12, 2017 technical memorandum submitted by Honeywell to all Parties (see **Appendix R**).

The additional limited re-injection program proposed to address the area of hexavalent chromium exceedance was implemented in accordance with the January 12, 2017 correspondence in two events on January 26, 2017 and February 2, 2017. The resampling of the limited area of hexavalent chromium exceedance was conducted on March 13, 2017 in accordance with the January 12, 2017 correspondence. Final validated analytical results will be available shortly and will be submitted to all Parties upon receipt.

Honeywell will establish a deed notice for the TA-10 areas. TA-10 is located immediately north of the SA-6 North Open Space Area hydraulic barrier and overlies a section of the 72-inch force main (FM). The TA-10 deed notice is identified as Deed Notice #7. For the purpose of Deed Notice #7, the metes and bounds for the TA-10 deed noticed area consists of Tract 1 and Tract 2. Tract 1 includes the portion of TA-10 that lies south of the northern curbline of the future Stegman Boulevard which will be capped by Stegman Boulevard and is approximately 7,600 square feet. The Tract 1 portion of TA-10 overlies the FM and due to concerns of sulfate affecting the concrete outer shell of the FM pipe in-situ treatment of the Tract I area was not implemented. Instead, the Tract 1 area will be permanently deed noticed. Tract 2 includes the remainder of the TA-10 area that lies north of the northern curbline of the future Stegman Boulevard. This is the subarea TA-10-1 portion of TA-10. Once the soil sampling confirms that soil RAOs have been achieved for the TA-10-1 area as described above, the Tract 2 portion of the Deed Notice #7 can be withdrawn.

Because of its proximity to the SA-6 North Open Space Area, the Tract 1 portion of Deed Notice #7 area could be incidentally impacted by Open Space Development. Therefore, the LTMP addresses appropriate limits for this area, and describes on-site oversight of this area during Open Space Development.

12.0 GWTP RELOCATION AND CONSTRUCTION

While not necessarily a direct part of the implementation of the Chromium Remedy at SA-6 North, Honeywell constructed a new GWTP on SA-6 North. The GWTP is designed to handle and treat groundwater recovered as part of the SA-7 deep overburden and bedrock groundwater remedy. The former GWTP previously located at Site 140 on SA-6 South in the former ABR Trucking warehouse and office building was demolished to implement the SA-6 South Chromium Remedy. The former GWTP was initially built to handle and treat construction water during the SA-7 chromium remedy, but following the completion of the remediation of SA-7, had been treating recovered regional deep and overburden groundwater since December 2008. Once the new GWTP was built and started accepting flows on February 14, 2014, the former GWTP at SA-6 South was decommissioned, dismantled and removed from the Site 140 building.

AMEC Foster Wheeler designed, permitted and managed the construction of the 65 gpm GWTP beginning in March 2013. The GWTP pre-treats hexavalent chromium contaminated groundwater for discharge to the PVSC. The $4.5M GWTP design/build project also involved re-configuration of the existing three well groundwater extraction system, controls, and double wall conveyance system to allow for transition of flow from the old plant to the new plant and as required for GWTP commissioning activities.

The new GWTP incorporates chemical reduction, precipitation, flocculation, clarification and filter press processes which generates significantly less filter cake than the microfiltration system used in the original plant. The GWTP is housed in a 4,800-square foot pre-engineered metal building which also accommodates an office, equipment repair shop and state of the art chemical storage rooms and tanker offloading facilities.

Such facilities incorporate secondary containment, automatic leak and vapor detection systems, and an interface control system with remote monitoring capability, a closed-captioned television monitoring system as well as a card swipe access control and burglar alarm system. An innovative hydraulic pusher system was also custom designed and installed to allow for more efficient filling of the 30 CY waste filter cake roll-off. Local permitting included development of site plan

approval applications and testimony as required for both existing conditions and post redevelopment conditions. Interaction with the Jersey City building department and JCMUA at the preliminary design phase also led to a more streamlined building permitting process and local cooperation during the construction phase.

13.0 SITE RESTORATION

Site restoration activities were performed during the demobilization phase of the project. Site restoration activities included the following:

- Decontamination and demobilization of construction equipment and surplus materials;
- Decontamination, decommissioning and dismantlement of the construction wastewater treatment system and piping;
- Relocation or removal of the jersey barriers and chain-link fence to the property line boundary;
- Removal of temporary office trailers and power/phone service;
- Removal of traffic control features;
- Removal of construction debris;
- Disposal of other non-regulated waste; and
- Seeding of the Open Space Area cover soils.

14.0 CONSTRUCTION PERMITS

The following construction permits were obtained to complete the onsite work. Applications for renewals were submitted as needed. Permits that were no longer required were allowed to expire.

Permit	Site	Status	Expiration Date
NJDEP Waterfront Development	SA-6 North Only	Obtained 6/23/2010	6/23/2015*
NJDEP CAFRA/WFD/FHA GWTP Force Mains	GWTP	Obtained 4/22/2008	4/22/2013 (no extension necessary)
HEPSCD Soil Erosion and Sedimentation Control Plan (SESCP)	GWTP	Obtained 8/27/2012	2/27/2016 (no extension necessary)
NJDEP CAFRA/WFD/FHA	GWTP	Obtained 11/16/2012	6/23/2015 (no extension necessary)
NJDEP Treatment Works Approval	GWTP	Obtained 4/11/2013	4/23/2013 (no extension necessary)
NJDEP Air Pollution Control Preconstruction Permit	Existing GWTP	Obtained 9/24/2013 Automatically Renewed for 5 years	6/23/2019
PVSC SUP No. 20630025	Existing GWTP	Obtained 10/1/2013 Final Revision 12/02/15	6/30/2018

Permit	Site	Status	Expiration Date
PVSC SUP No. 31630019	SA-6 Chromium Remedy	Obtained 3/26/2014 Final Revision 5/23/14	8/31/2018
SESCP	SA-6 Chromium Remedy	Obtained 5/16/2013	11/16/2016
Request for Authorization (RFA)	SA-6 Chromium Remedy	Obtained 5/29/2013	Not Specified
NJDEP - Water Allocation	SA-6 Chromium Remedy	Obtained 6/19/2013	5/31/2018
NJDEP – Treatment Works Approval (TWA)	SA-6 Chromium Remedy	Obtained 7/8/2013	6/30/2016 (no extension necessary)
NJDOT - Highway Occupancy Permit	SA-6 Chromium Remedy	Obtained 9/11/2013 Extension Obtained 10/14/2015	6/30/2016
NJDEP Discharge to Groundwater (DGW) for In-Situ Treatment of Chromium Impacted Soils	SA-6 North	Obtained 4/30/2012 Revised 7/14/2015	Not Specified
NJDEP DGW for In-Situ Treatment of Chromium Impacted Soils	SA-6 North	Obtained 8/4/2016	Not Specified

Permit	Site	Status	Expiration Date
NJDOT – Application for Drainage Connection, Post Remediation Grading and Drainage	SA-6 Chromium Remedy	Application Submitted 8/19/14 Permit Application Rescinded 12/1/14 & Approved by DOT on 12/18/14	N/A
NJDOT – Highway Occupancy Permit – Installation of Sheet Piling and Excavation Adjacent to Rte. 440 ROW	SA-6 Chromium Remedy	Final Executed Permit Issued 12/2/14 Extension Obtained 12/24/2015	12/3/2016

*Note: Because the work was initiated before the expiration date of the NJDEP Waterfront Development permit, NJDEP did not require extension of this permit.

15.0 SUSTAINABILITY EFFORTS DURING CONSTRUCTION

Under Honeywell's stewardship the construction process was integrated into the overall vision for the Jersey City west side redevelopment by incorporating a sustainable design approach which focused on conservation of natural resources through beneficial reuse, recycling, minimization of ongoing energy consumption and reduction in carbon footprint. Specifically, Honeywell's sustainable construction efforts integrated:

- Use of renewable B-20 Biodiesel in lieu of conventional fossil fuel based petro-diesel in construction equipment;
- Consolidation of soils in the Open Space Area eliminating the fuel and traffic associated with off-site disposal; and,
- Crushing and recycling of demolition generated clean concrete to be reused as clean fill material on site.

16.0 POST-REMEDY OPERATION & MAINTENANCE

Following completion of the remedial actions, including installation of the groundwater extraction system which is to be operated on a contingent basis, a post-remediation long-term monitoring program will be implemented in accordance with the LTMP. The LTMP was developed and submitted to NJDEP and all Parties in October 2015 to address the monitoring requirements specified in the SA-6 North Consent Decree Paragraph 64. The LTMP satisfies the Consent Decree requirements for long-term monitoring, maintenance, and protection of engineering and institutional controls by establishing procedures and schedules for the following activities required by the Consent Decree:

- Quarterly visual inspections to ensure only permitted land usage is occurring and verify no usage compromises the integrity of the Chromium Remedy;
- Quarterly visual inspection monitoring of the grade and slope to identify whether erosion has occurred or is occurring;
- Quarterly visual inspection monitoring to determine if noticeable differential settlement or subsidence has occurred that could impair the integrity of the Chromium Remedy;
- Baseline topographic survey at completion of the Chromium Remedy and additional surveys annually for the first 5 years, then every 5 years for an additional 10 years;
- Quarterly visual inspection monitoring to determine if disturbance of the Chromium Remedy in the Open Space Area has occurred;
- Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy;
- Quarterly visual inspection monitoring of the vegetative cover to ensure that vegetative cover in the Open Space Area is in conformance with the landscaping provisions of the 100% Design, including the OSDS, and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy;
- Maintenance of the vegetative cover to include mowing to ensure tree species cannot become established except in designated areas and removal of any

vegetation not permitted by the OSDS that would impair the integrity of the Chromium Remedy;

- Quarterly groundwater elevation monitoring to ensure specified hydraulic gradients across the hydraulic barriers;
- Monthly monitoring of vented gases and the gas venting system for 1 year. Frequency will be reduced to quarterly after 1 year if data are stable;
- Any additional monitoring required by the specific design details;

The draft LTMP was submitted to all Parties, including NJDEP, in October 2015. A revised draft LTMP was submitted to all Parties, including NJDEP, in September 2016 and in February of 2017. The LTMP, once finalized after review by the NJDEP, Plaintiffs and the Special Master, will be the governing document for the operation, maintenance, and inspection of the Chromium Remedy components, including the contingent operation of the groundwater extraction system.

The relationship between long-term monitoring and institutional controls that are required by the SA-6 North Chromium Remedy is discussed in Section 17.

17.0 INSTITUTIONAL CONTROLS

Institutional controls are integral to the Chromium Remedy at SA-6 North and were made a part of the RAOs. The institutional controls are applied in accordance with Subchapter 7 of NJDEP's ARRCS (N.J.A.C. 7:26C).

Institutional controls include deed notices and remedial action permits at specific areas where chromium-impacted soils or groundwater remain and a CEA for residual chromium-impacted groundwater. Additional institutional controls for the Open Space Area pursuant to the SA-6 North consent decree includes transferring ownership to Jersey City after construction of roads and utility corridors and granting of a conservation restriction.

17.1 DEED NOTICES

To meet Honeywell's and Bayfront's objectives for the Site and coordinate with the objectives of the Development, five deed notices are required for the chromium impacts at SA-6 North. The areas to which each of the five deed notices apply are shown on **Figure 16**. Draft deed notices are contained in **Appendix S**. After the deed notices has been reviewed and approved by the NJDEP and finalized, they will be recorded at the office of the Hudson County Register.

The deed notices have been prepared in general accordance with NJDEP's ARRCS; however, model deed language from the SA-6 North Consent Decree was used as the model text. Each deed notice specifies conditions for alteration, improvement, and/or disturbance of the engineering controls, and provide monitoring, maintenance, notification and reporting requirements. These requirements include documentation that applicable worker health and safety laws and regulations are followed during the disturbance and restoration of those controls. The deed notices contain figures and cross-sections showing the engineering controls and details regarding notification and reporting requirements.

17.2 SOIL REMEDIAL ACTION PERMITS

Honeywell has prepared a draft Remedial Action Permit (RAP) Applications for Soil for the SA-6 North Open Space Area, three Deferred Areas, and one Treatment Area for NJDEP review. The draft RAP applications are attached to this document and once the RAR is approved by NJDEP, the RAP applications will be finalized and

submitted to the NJDEP at a later date. The permit applications contain requirements for monitoring, maintenance and reporting to document the protectiveness of the remedial actions and engineering controls for each of the areas on which the deed notices have been established until such time the deed notice is no longer required. The permit also includes a schedule for submittal of Biennial Certification Reports to the NJDEP, and requirements pertaining to financial assurance (see Section 19) and permit transfer, modification and termination.

As remediation at each Deferred Area is completed, the remedial action permit and deed notice will be terminated by submitting documentation to NJDEP and All Parties.

17.3 GROUNDWATER REMEDIAL ACTION PERMITS

Honeywell has prepared a draft RAP Application for Groundwater for the SA-6 North Open Space Area. The draft RAP application is attached to this document and once the RAR is approved by NJDEP, the RAP application will be finalized and submitted to the NJDEP at a later date.

The permit applications contain requirements for monitoring, maintenance and reporting to document the protectiveness of the remedial actions and engineering controls for each of the areas on which the deed notices have been established until such time the deed notice is no longer required. The permits also include a schedule for submittal of Biennial Certification Reports to the NJDEP, and requirements pertaining to financial assurance (see Section 19) and permit transfer, modification and termination.

17.4 CLASSIFICATION EXCEPTION AREA (EXISTING SHALLOW GW RA PERMIT)

A regional CEA for groundwater has been established by NJDEP on February 16, 2012 for the SA-5/6/7 sites as an institutional control to identify chromium-impacted groundwater above the NJDEP GWQS and prevent the use of groundwater within the designated CEA areas (see **Appendix F**). The CEAs address the shallow fill, deep overburden, and bedrock zones. The shallow zone refers to groundwater within fill material (above the Stratum D and underlying native soils), generally to a depth of 20 feet bgs. The deep overburden zone refers to groundwater below the fill and Stratum D down to bedrock, generally from approximately 20 feet to 90 feet bgs.

The bedrock zone refers to groundwater within the upper 20 to 40 feet of fractured bedrock. The shallow groundwater CEA may be modified in the future following 1 year of groundwater monitoring after completion of remedial actions.

A draft RAP application for shallow groundwater that matches the existing shallow groundwater CEA boundary is included herein. Separate RAPs for the Regional Groundwater are being prepared for the deep overburden and bedrock zones and will be submitted to NJDEP separately.

17.5 CONSERVATION RESTRICTION

Conservation Restrictions were prepared for both Open Space Areas at SA-6 North and SA-6 South at the time of property transfer from JCRA to Bayfront Redevelopment LLC per Paragraph 60(b) of the SA-6 North Consent Decree and at the time of the granting of the option to buy per Paragraph 74(b) of the SA-6 South Consent Decree. These conservation restrictions were recorded on March 25, 2010. In accordance with the Master Schedule contained in **Figure 17**, the existing conservation restriction placed on the SA-6 North Open Space Area will be amended to include the as-built hydraulic barrier boundaries. Hackensack River Watershed Land Trust shall be the primary holder of the conservation restrictions once amended.

18.0 RECORD DRAWINGS

In accordance with Section 60(j)(viii) of the SA-6 North Consent Decree and the TRSR, as-built drawings were prepared and are included in **Appendix C**. Maser completed surveys by a NJ licensed surveyor and Mr. Thomas Hugg sealed drawings prepared by Maser. Amec Foster Wheeler engineer of record for SA-6 North, Mr. Samuel G. Shallard, PE, sealed Record Drawings prepared by Amec Foster Wheeler.

19.0 REMEDIAL ACTION COSTS

Remediation costs are summarized in the table below:

Activity	Cost ($1MM)
Construction Costs	$26
Soil Disposal	$2
Oversight/Construction Management	$2.4
Total	**$30.4**

19.1 FINANCIAL ASSURANCE

Long term monitoring for SA 6 North and South is part of the overall financial assurance letter of credit for chromium Sites at SA 5, 6 and 7 that are subject to the oversight of the Special Master. This letter of credit is issued by the MUFG Union Bank, N.A. in the amount of $46.946,915million to cover all remediation and long term monitoring activities at these sites. The letter of credit is attached to the Remediation Funding Source form in the front of this document.

20.0 REMEDIATION CLOSE OUT SUMMARY

The Chromium Remedy at SA-6 North commenced on May 2013 and was substantially complete by November 2016. The Chromium Remedy was implemented in accordance with the TRSR, the ACO, the SA-6 North Consent Decree, the 100% Design Report and subsequent DCBs, and other clarifying correspondence between Honeywell and NJDEP and/or Plaintiffs. Therefore, other than remediation of the Deferred Areas, no further remedial actions are required for either the Residential Development or Open Space Areas at SA-6 North. Remediation of Deferred Areas will be coordinated with the implementation of the Bayfront Redevelopment Plan, the widening of Route 440, JCMUA relocation of the fuel island, and the completion of the in-situ treatment activities.

The RAOs for SA-6 North soils and groundwater were met by implementation of the Chromium Remedy in the Residential Development Area and Open Space Area portions of AOC-1. The hydraulic barrier will restrict potential offsite migration of chromium-impacted groundwater. Further, the LTMP establishes procedures and schedules for long-term monitoring of groundwater levels in the Open Space Area to determine the potential operation of the contingent groundwater extraction system based on trigger criteria. The LTMP also establishes the inspection, maintenance, and operation of critical features of the Chromium Remedy.

Honeywell will establish appropriate institutional controls at SA-6 North that supplement the physical remedial actions including deed notices for five distinct areas, conservation restrictions for the Open Space Area and the other chromium deed notice areas of the Site, and remedial action permits for soils and a remedial action permit for groundwater in the Open Space Area. A classification exception area has already been established with NJDEP for the regional shallow groundwater and adequately covers SA-6 North. A draft remedial action permit for groundwater in the Open Space Area that is consistent with the existing CEA boundary for SA-6 North is included herein. Once the deed notices are finalized, final soil and groundwater RAP applications will be submitted to NJDEP.

Based on completion of the remedial actions for chromium-impacted soil and groundwater as documented in this RAR, Honeywell is requesting NJDEP review and approval of this RAR in accordance with Paragraph 23 G of the Consent

Judgment. It is Honeywell's intention that this document will close out remediation of chromium-impacted soil, except for the limited isolate areas at which remediation is deferred, and chromium-impacted groundwater. In accordance with Paragraph 5 of the Consent Order Entering Consolidated 100% Design for Study Area 6 North and Study Area 6 South, *Jersey City Municipal Utilities Auth. v. Honeywell,* No. 2:05-cv-05955-DMC-JAD (D. N.J. July 9, 2013), ECF No. 448, Honeywell will submit a Consent Order which has appended to it (i) the 100% Design except the drawings and (ii) this Final RAR for entry into Federal Court.

As remediation at each Deferred Area is completed, the remedial action permit and deed notice will be terminated by submitting documentation to NJDEP and All Parties.

21.0 REFERENCES

AMEC Environment and Infrastructure, Inc., 2013. Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil Study Area 6 North, Jersey City, New Jersey. February 2013.

AMEC Environment and Infrastructure, Inc., 2013. Chromium Remedy 100% Design Report – Issued for Construction, Study Area 6 North, Sites 087 and 088, Jersey City, New Jersey. June 2013.

AMEC Environment and Infrastructure, Inc., 2013. Chromium Remedy 100% Design Report – Issued for Construction, Study Area 6 South (Sites 073, 124, 125, 134, 140, and 163), Jersey City, New Jersey. June 2013.

AMEC Environment and Infrastructure, Inc., 2015. Long Term Monitoring Plan, Study Area 6 North (Sites 087 and 088) and Study Area 6 South (Sites 073, 124, 125, 134, 140, and 163), Jersey City, New Jersey. June 2013. Last Revision February 2017.

AMEC Environment and Infrastructure, Inc., 2015. *Updated Work Plan for In-Situ Treatment of Chromium-Impacted Soils at the Northern Area Section of Treatment Area 10*. August 2015.

Administrative Consent Order (ACO) between Honeywell, formerly Allied Signal, Inc., and the New Jersey Department of Environmental Protection, 1993.

Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North, entered August 2, 2012.

Consent Judgment between Honeywell and the NJDEP dated September 7, 2011.

HydroQual, Inc., 2005. HydroQual, Inc., 2005. Preliminary Deep Overburden Groundwater Report, Honeywell Study Area 7. March 31, 2005, HWEL.002.001.11.

HydroQual, Inc., 2006. Deep Overburden Groundwater Remedial Alternatives (DORAA) Report Honeywell Study Area 7. June 2006. HWEL.002.001.11.

HydroQual, Inc., 2007. Final Groundwater Investigation Report, Honeywell Study Area 7. February 2, 2007. HWEL 002.001.11

MACTEC Engineering and Consulting, Inc., 2008. Remedial Action Selection Report/Remedial Action Work Plan for Chromium, Study Area 6 North, Jersey City, New Jersey. January 2008. Amended February 2008.

NJDEP, 2004; Historic Fill of the Jersey City Quadrangle (HFM-53)

NJDEP, 2005; Field Sampling Procedures Manual dated August 2005; last updated April 11, 2011. Available at http://www.nj.gov/dep/srp/guidance/fspm/

NJDEP, 2007; Chromium Policy Memorandum dated February 8, 2007

NJDEP, 2012. New Jersey Administrative Code, Chapter 26C Administrative Requirements for the Remediation of Contaminated Sites; last revised May 7, 2012, Trenton, New Jersey.

NJDEP, 2013. New Jersey Administrative Code, Chapter 26E Technical Requirements for Site Remediation May 7, 2012; last revised July 1, 2013, Trenton, New Jersey.

Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc., entered April 21, 2008.

TetraTech, Inc., July 2000. Draft Remedial Investigation Report Addendum, Study Area 6 NJDEP Site No. 073, 087, 088, 124, 125, 134, 140, and 163, Jersey City, New Jersey. July 2000.

22.0 LIST OF ACRONYMS AND ABBREVIATIONS

ACO	Administrative Consent Order
AOC	Area of Concern
ARRCS	Administrative Requirements for Remediation of Contaminated Sites
ASTM	American Society of Testing Materials
bgs	Below ground surface
BMUA	Bayonne Municipal Utility Authority
CAFRA	Coastal Area Facilities Act
CAPS	Calcium Polysulfide
CASP	Concrete and Asphalt Sampling Plan
CEA	Classification Exception Area
COC	Contaminants of Concern
COPR	Chromite Ore Processing Residue
CWTP	Construction Water Treatment Plant
CY	Cubic Yards
DCB	Design Change Bulletins
DGW-PBR	Discharge to Groundwater Permit By Rule
DMP	Data Management Plan
EA	Excavation Area
EDD	Electronic Data Deliverables
EOR	Engineer of Record
EPH	Extractable Petroleum Hydrocarbons
FHA	Flood Hazard Area
FSPM	Field Sampling Procedures Manual
GCL	Geosynthetic Composite Layer
GDL	Geosynthetic Drainage Layer
gpm	gallons per minute
GPS	Global Positioning System
GWLMP	Groundwater Level Monitoring Plan
GWTP	Groundwater Treatment Plant
GWQS	Groundwater Quality Standards
GVL	Geosynthetic Venting Layer
HASP	Health and Safety Plan
HDPE	High-density polyethylene
IFC	Issue for Construction
IGW	Impact to Groundwater

JCDPW	Jersey City Department of Public Works
JCIA	Jersey City Incinerator Authority
JCMUA	Jersey City Municipal Utilities Authority
JCRA	Jersey City Redevelopment Authority
LF	Linear Feet
LLDPE	Liner Low Density Polyethylene
LSRP	Licensed Site Remediation Professional
LTMP	Long Term Monitoring Plan
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
mg/kg	milligrams per kilogram
MOU	Memorandum of Understanding
MRCE	Mueser Rutledge Consulting Engineers
NGVD29	National Geodetic Vertical Datum 1929
N.J.A.C.	New Jersey Administrative Code
NJCU	New Jersey City University
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
OSHA	Occupational Safety and Health Administration
PAMP	Perimeter Air Monitoring Plan
PDI	Pre-Design Investigation
PID	Photo-ionization Detector
PPE	Personal Protective Equipment
PSE&G	Public Service Electric & Gas
PVC	Polyvinyl Chloride
PVSC	Passaic Valley Sewerage Commission
QA/QC	Quality Assurance/Quality Control
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAP	Remedial Action Permit
RAWP	Remedial Action Work Plan
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
RFI	Request For Information
RI	Remedial Investigation
RIR	Remedial Investigation Report
ROW	Right of Way
SA	Study Area
SCB	Soil-Cement Bentonite

SESCP	Soil Erosion Sediment Control Plan
SF	Square Feet
SMP	Soil Management Plan
SPLP	Synthetic Precipitation Leaching Procedure
SRIR	Supplemental Remedial Investigation Report
TAL	Target Analyte List
TCL	Target Compound List
TRSR	Technical Regulations for Site Remediation
TWP	Temporary Well Point
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VMP	Vibration Monitoring Plan
VOC	Volatile Organic Compound

NJDEP FORMS

Case Name: Study Area 6 North

PI #: G00008710, G000008711

IMPORTANT: *1) Do not delete or copy and paste across multiple columns because it can disrupt hidden equations.*
2) If pasting from a Word document, use the Paste option: ***Match Destination Formatting***
3) If the text turns ***red*** *you have exceeded the character limit for that column*

Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
Open Space Area	Other areas of concern - Any area suspected of containing contaminants	Cap Area for Chromium Remedy; overlaying Historic Fill	Yes	RAR	1/19/2017			Mixed Media	Metals + PAHs	VO	Not Applicable	Remediation Standards	Ingestion/Dermal	Ground Water	Capping			No	2012- Regional CEA for Groundwater; 2013-2016 Site activities included installing hydraulic barrier and cap for chromium and groundwater extraction system to be run on contingent basis; 2016- Updated RE Forms; 2017- Deed Notice and Conservation Restriction to be filed and updated CEA
Residential Development Area	Other areas of concern - Any area suspected of containing contaminants	Excavation for Cr > 20 mg/kg to 20 feet bgs; In-Situ Treatment for Cr>20 mg/kg; Cap for Historic Fill	Yes	RAR	1/19/2017			Mixed Media	Metals + PAHs	VO	Not Applicable	Remediation Standards	Ingestion/Dermal	Ground Water	Excavation	Capping	Chemical Injection	No	2012-Regional CEA for groundwater; 2013-2016 Site activities included excavating soil chromium > 20 mg/kg and < 20 feet bgs; in-situ treatment for chromium > 20 mg/kg; installing cap for historic fill; 2016- Updated RE Forms; 2017- Deed Notice and Conservation Restriction to be filed

New Jersey Department of Environmental Protection
Site Remediation Program

COVER/CERTIFICATION FORM

(Submit with Remedial Phase Report, Receptor Evaluation, and CEA Forms)

Date Stamp
(For Department use only)

SECTION A. SITE INFORMATION

Site Name: Study Area SA-6 North

AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; JCMUA; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (*Township, Borough or City*)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s) for this submission:

Date Remediation Initiated Pursuant to N.J.A.C. 7:26C-2: 05/01/2013

State Plane Coordinates for a central location at the site: Easting: 602959 Northing: 685778

List current Municipal Block and Lot Numbers of the Site:

Block # 21901	Lot #(s) 5	Block # 21901	Lot #(s) 9
Block # 21901	Lot #(s) 6	Block # 21901	Lot #(s) 10
Block # 21901	Lot #(s) 7	Block #	Lot #(s)
Block # 21901	Lot #(s) 8	Block #	Lot #(s)

SECTION B. SUBMISSION STATUS

1. Indicate how the Electronic Data Deliverable (EDD) for this submission is being provided to the NJDEP:
   - ☒ Via Email at srpedd@dep.state.nj.us (attach NJDEP confirmation email); or
   - ☐ CD (attach to this submission)
   - ☐ Not Applicable – No EDD
2. Complete the following Submission and Permit Status Table:

Remedial Phase Documents	N/A	Included in this Submission	Previously Submitted	Date of Submission	Date of Revised Submission	Date of Previous NJDEP Approval	Date of Document Withdrawal
Preliminary Assessment Report	☐	☐	☒				
Site Investigation Report	☐	☐	☒				
Remedial Investigation Report	☐	☐	☒				
Remedial Action Work Plan	☐	☐	☒				
Remedial Action Report	☐	☒	☐				
Response Action Outcome	☒	☐	☐				
Other Submissions							
Alternative Soil Remediation Standard and/or Screening level Application Form	☒	☐	☐				
Case Inventory Document		☒					
Classification Exception Area / Well Restriction Area (CEA/WRA)	☐	☐	☒				
Discharge to Ground Water Permit by Rule Authorization Request	☐	☐	☒				

IEC Engineered System Response Action Report	☒	☐	☐				
Immediate Environmental Concern Report	☒	☐	☐				
LNAPL Interim Remedial Measure Report	☒	☐	☐				
Public Notification	☐	☐	☒				
Receptor Evaluation	☐	☒	☐				
Technical Impracticability Determination	☒	☐	☐				
Vapor Concern Mitigation Report	☒	☐	☐				
Permit Application – list:	☐						
See RAR Report for List		☒	☐				
		☐	☐				
		☐	☐				
		☐	☐				
Radionuclide Remedial Action Report	☒	☐	☐				
Radionuclide Remedial Action Workplan	☒	☐	☐				
Radionuclide Remedial Investigation Report	☒	☐	☐				
Radionuclide Remedial Investigation Workplan	☒	☐	☐				

SECTION C. SITE USE

Current Site Use: (*check all that apply*)

- ☒ Industrial
- ☐ Residential
- ☐ Commercial
- ☐ School or child care
- ☐ Agricultural
- ☐ Park or recreational use
- ☒ Vacant
- ☐ Government
- ☐ Other: _____

Intended Future Site Use, if known: (*check all that apply*)

- ☒ Industrial
- ☒ Residential
- ☐ Commercial
- ☐ School or child care
- ☒ Park or recreational use
- ☐ Vacant
- ☐ Government
- ☐ Future site use unknown
- ☐ Other: _____

SECTION D. CASE TYPE: (*check all that apply*)

- ☐ Administrative Consent Order (ACO)
- ☐ Brownfield Development Area (BDA)
- ☐ Child Care Facility
- ☒ Chrome Site (Chromate chemical production waste)
- ☐ Coal Gas
- ☐ Due Diligence with RAO
- ☐ Hazardous Discharge Remediation Fund (HDSRF) Grant/Loan
- ☐ ISRA
- ☐ Landfill (SRP subject only)
- ☐ Regulated Underground Storage Tank (UST)
- ☐ Remediation Agreement (RA)/Remediation Certification
- ☐ School Development Authority (SDA)
- ☐ School facility
- ☐ Spill Act Defense – Government Entity
- ☐ Spill Act Discharge
- ☐ UST Grant/Loan
- ☐ Other: _____

Federal Case (*check all that apply*)

☐ RCRA GPRA 2020 ☐ CERCLA/NPL ☐ USDOD ☐ USDOE

1. Is the party conducting remediation a government entity? ☐ Yes ☒ No

If "Yes," check one: ☐ Federal ☐ State ☐ Municipal ☐ County

SECTION E. PUBLIC FUNDS

Did the remediation utilize public funds? ☐ Yes ☒ No

If "Yes," check applicable:

- ☐ UST Grant
- ☐ HDSRF Grant
- ☐ Spill Fund
- ☐ UST Loan
- ☐ HDSRF Loan
- ☐ Schools Development Authority
- ☐ Brownfield Reimbursement Program
- ☐ Landfill Reimbursement Program
- ☐ Environmental Infrastructure Trust

SECTION F. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: DocuSigned by: William J. Hague Date: 2/27/2017

Name/Title: William Hague/Global Director, Remediation

For CEA Submissions:

☒ Check this box if the person above is also the property owner of the site or their representative. If this person is not the site property owner, please ensure the site property owner's name and address is in the first line of the table in Section E.2 of the Classification Exception Area / Well Restriction Area (CEA/WRA) Fact Sheet Form.

SECTION G. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

DocuSign Envelope ID: BD4B9071-6740-4030-AB66-87A7039E4799

Cover Form Attachment
SA-6 North Chrome Previously Submitted Documents

Previously Submitted Documents	Date of Submission	Date of Revised Submission	Date of Previous NJDEP Approval
Preliminary Assessment Report	11/30/2008		11/10/2009
Site Investigation Report	Nov 1999		
Remedial Investigation Report	July-2000/Oct-2004	Aug-2006	6/18/2007
Remedial Action Work Plan	1/4/2008	Feb-08	2/19/2009
Other:			
CEA/WRA	6/8/09 (regional)		2/16/2012
Discharge to Ground Water Permit by Rule Authorization Request	Jan-2012	July-2015	4/20/2012; 7/14/15; 8/4/16
Public Notification	8/26/2009	9/1/2015	
Receptor Evaluation	02/29/11 (Sites 087 and Sites 088)		NA

New Jersey Department of Environmental Protection
Site Remediation Program

REMEDIAL ACTION REPORT FORM

Date Stamp
(For Department use only)

SECTION A. SITE

Site Name: Study Area SA-6 North

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s) for this submission: _____

This form must be attached to the Cover/Certification Form

SECTION B. SCOPE OF REMEDIAL ACTION REPORT

1. Does the RAR address:
   - ☒ Area(s) of Concern (AOCs) Only Chromium
   - ☐ Entire Site (Based on a completed and submitted Preliminary Assessment/Site Investigation)
2. Total number of contaminated AOCs associated with the case: 1
3. Total number of contaminated AOCs addressed in this submission: 1
4. Are there any outstanding contaminated AOCs associated with the case where the remedial action has NOT been performed? ☐ Yes ☒ No
5. Does this RAR address a discharge/release from a federally regulated UST? ☐ Yes ☒ No

When answering the remaining questions on this form consider only the AOCs addressed in this submission.

SECTION C. GENERAL

1. Does this submission include Remedial Action Permit Application(s) that require Site Remediation Program approval? ☒ Yes ☐ No
2. Was a remediation initiated after May 6, 2010, for new construction / change in the use of the site proposed for the purpose of residential use, use as a licensed child care center or use as a school? ☒ Yes ☐ No
   If "Yes," was an unrestricted use or a presumptive remedy implemented? ☒ Yes ☐ No
3. Was an alternative remedy approved by the NJDEP? ☐ Yes ☒ No
   If "Yes," provide the date of the approval: _____
4. Has the remediation varied from the Technical Rules? ☐ Yes ☒ No
   If "Yes." provide the citation(s) from which the remediation has varied and the page(s) in the attached document where the rationale for the variance is provided.
   N.J.A.C. 7:26E- _____ Page _____
   N.J.A.C. 7:26E- _____ Page _____
   N.J.A.C. 7:26E- _____ Page _____
5. Were the laboratory Reporting Limits below applicable remediation standards/screening levels criteria required for the contaminants of concern for the AOCs addressed in this submission? ☒ Yes ☐ No
6. Have past NJDEP-documented deficiencies been addressed in this submission? ☐ Yes ☐ No ☒ N/A
7. Did the remediation deviate from that proposed in the Remedial Action Workplan? ☐ Yes ☒ No
   If "Yes," specify the section/page(s) in the report where the deviation(s) are discussed:
   _____
8. Did the remedial action render the property unusable for future redevelopment or for recreational use (N.J.A.C. 7:26C-6.4(b)? ☐ Yes ☒ No

SECTION D. SITE CONDITIONS

1. At any time, was there any radiological contamination detected at the AOCs addressed in this submission? ☐ Yes ☒ No
2. At any time, did any of the AOCs addressed in this submission contain Ordnance and Explosives/ Unexploded Ordnance (OE/UXO)? ☐ Yes ☒ No
3. Did the remedial action involve containment of free product? ☐ Yes ☒ No
4. Has dioxin been detected at levels above NJDEP's interim direct contact soil screening level of 50 ppt dioxin TEQ (TCDD Toxicity Equivalence Quotient) in any AOCs addressed in this submission? ☐ Yes ☒ No
5. Have any of the following contaminants *ever* been detected in sediment above the ecological screening levels at the AOCs addressed in this submission? ☐ Yes ☒ No

   If "Yes," check all that apply:

   ☐ Arsenic ☐ Dioxin ☐ Mercury ☐ PCBs ☐ Pesticides
6. Is remediation complete in all affected media at the AOCs addressed in this submission? ☒ Yes ☐ No
7. Did contaminants from the AOCs addressed in this submission discharge to surface water? ☐ Yes ☐ No
8. Did contaminants from the AOCs addressed in this submission discharge to an Environmentally Sensitive Natural Resource (ESNR)? ☐ Yes ☒ No
9. Are any of the following conditions currently present for the AOCs addressed in this submission? *(check all that apply):*

Groundwater:

- ☒ Contaminated ground water in the overburden aquifer
- ☐ Contaminated ground water in a confined aquifer
- ☐ Contaminated ground water in the bedrock aquifer
- ☐ Contaminated ground water in multiple aquifer units
- ☐ Multiple distinct ground water plumes
- ☐ Contaminated ground water migrating off-site
- ☐ Natural background ground water contamination
- ☐ Contaminated ground water discharging to surface water or Environmentally Sensitive Natural Resource (ESNR)
- ☐ Residual or free product
- ☐ Radionuclides

Soil:

- ☐ On-site discharge(s) impacting soil off-site
- ☒ Chromate Chemical Production Waste/COPR
- ☐ Munitions and explosives of concern
- ☒ Contaminated soil in the saturated zone
- ☐ Historic pesticide impacts to soil
- ☐ Residual or free product
- ☐ Radionuclides
- ☒ Historic Fill
- ☐ Natural background only above Impact to Ground Water Cleanup Criteria
- ☐ Natural background above Direct Contact Remediation Standards
- ☐ Soil contamination in an ESNR

SECTION E. APPLICABLE REMEDIATION STANDARDS

1. Were Default Remediation Standards used for all contaminants? ☒ Yes ☐ No

   If "Yes," check all that apply: Chromium Policy

   ☐ Direct Contact
   ☐ Impact to Ground Water Soil Screening Levels
   ☐ Ecological Screening Levels
2. Has compliance averaging been utilized to determine compliance with the Soil Remediation Standards? ☐ Yes ☒ No

   If "Yes," check all that apply:

	Compliance Averaging Method Utilized			
Pathway	Arithmetic Mean	95 Percent UCL	Spatially Weighted Average	75 Percent/ 10X Procedure
☐ Ingestion-Dermal Pathway	☐	☐	☐	☐
☐ Inhalation Pathway	☐	☐	☐	☐
☐ Impact to Ground Water Pathway	☐	☐	☐	☐

3. Has a compliance option been utilized to determine compliance with the Impact to Ground Water Pathway? (If "Yes," check all that apply) ☐ Yes ☒ No

   ☐ Immobile Compounds
   ☐ Data evaluation for metals and semi-volatiles
   ☐ Data evaluation for volatile organics derived from discharges of petroleum mixtures

4. Was an interim standard used for a contaminant where a standard does not exist? ☐ Yes ☒ No
5. Were Alternate Remediation Standards used for the Ingestion/Dermal Pathway? ☐ Yes ☒ No
6. Were Alternate Remediation Standards used for the Inhalation Pathway? ☐ Yes ☒ No
7. Were Site Specific Standards used for the Impact to Ground Water Pathway? ☐ Yes ☒ No
   If "Yes," check all that apply:
   ☐ Soil-Water Partitioning Equation ☐ SPLP ☐ Sesoil ☐ Sesoil/AT123D
   ☐ DAF Modification
8. Were Site Specific Ecological Remediation Goals used? ☐ Yes ☒ No
9. What is the ground water classification for this site as per N.J.A.C. 7:9C? (check all that apply)
   ☐ Class I-A ☒ Class II-A
   ☐ Class I-PL Pinelands Protection Area ☐ Class III-A
   ☐ Class I-PL Pinelands Preservation Area ☐ Class III-B

SECTION F. ALTERNATIVE AND CLEAN FILL USE

1. Was alternative fill used? ☐ Yes ☒ No
2. Was clean fill used? ☒ Yes ☐ No
3. Was material sent off-site for use as alternative and/or clean fill? ☐ Yes ☒ No
   If "Yes," specify the section/page in the RAR where it states the SRP site receiving this alternative and/or clean fill: _____
4. Was material sent off-site for use as alternative and/or clean fill at a non-SRP site? ☐ Yes ☒ No
   If "Yes," specify the section/page in the RAR where it states the non-SRP site receiving this alternative and/or clean fill: _____
5. Was alternative fill used in excess of the amount required for the remedial action? ☐ Yes ☒ No
   If "Yes," was the NJDEP's preapproval obtained pursuant to N.J.A.C. 7:26E-5.2(b)3? ☐ Yes ☐ No

SECTION G. REMEDIAL ACTION REPORT INFORMATION

Soils

1. Did the remedy include a remedial action for soils? ☒ Yes ☐ No
   If "No," skip to **Ground Water**
2. Is a restricted use required? ☒ Yes ☐ No
   If "Yes," indicate the type of restriction being implemented. Deed Notice & Engineering Controls
3. If applicable, has consent from all involved property owners been obtained (i.e., for institutional or engineering controls)? ☒ Yes ☐ No
4. Was an engineering control required? ☒ Yes ☐ No
   If "Yes," indicate the receptor(s) each engineering control is intended to protect. *(check all that apply)*
   ☒ Human ☐ Ecological ☐ Offsite Impacts

Ground Water

5. Did the remedy include a remedial action for ground water? ☒ Yes ☐ No
   If "No," skip to **Ecological**
6. Is a restricted use required for ground water? ☒ Yes ☐ No

7. Is a revised CEA required? ☐ Yes ☒ No

8. Do any contaminant levels in ground water currently exceed the vapor intrusion ground water trigger? ☐ Yes ☒ No

Ecological

9. Did the remedy include a remedial action for Environmentally Sensitive Natural Resources (ESNRs)? ☐ Yes ☒ No
   If "No," skip to **Indoor Air**

10. Was post-remedial sampling performed to determine whether contaminant levels currently meet ecological screening levels or ecological remediation goals? ☐ Yes ☐ No

11. Did the remedial action require filling of State open waters or wetlands? ☐ Yes ☐ No

12. Have ecological risk-based remediation goals been developed? ☐ Yes ☐ No
    If "Yes," have the ecological risk-based remediation goals been approved by NJDEP? ☐ Yes ☐ No

13. Have Risk Management Decision (RMD) goals been developed? ☐ Yes ☐ No
    If "Yes," have the RMD goals been approved by NJDEP? ☐ Yes ☐ No

Indoor Air

14. Have any vapor intrusion engineering controls/mitigation systems been installed in order to mitigate a vapor condition in a structure? ☐ Yes ☒ No
    If "Yes," check each type of engineering control that was implemented:
    - ☐ Subsurface Depressurization System
    - ☐ Subsurface Ventilation System
    - ☐ Soil Vapor Extraction System
    - ☐ HVAC Positive Pressure
    - ☐ Other (specify): _____

SECTION H. LABORATORY DATA

1. Were all data submitted in the appropriate full and/or reduced formats according to the deliverables defined in N.J.A.C. 7:26E-2? ☒ Yes ☐ No

2. Do all data submitted meet the quality assurance/quality control (QA/QC) requirements incorporated by reference in N.J.A.C. 7:26E-2 for:
   sampling ☒ Yes ☐ No
   analysis ☒ Yes ☐ No

3. How was it determined that the data complied with the QA/QC requirements?
   - ☒ Laboratory non-conformance summary/narrative
   - ☒ Laboratory correspondence
   - ☐ LSRP review
   - ☒ Independent contractor review
   - ☐ Other: _____

4. Has any data been qualified and used? ☒ Yes ☐ No

5. Has any data been rejected and used? ☐ Yes ☒ No

6. Provide the page number for the "Reliability of Data" section of the report: Sec. 1.6

New Jersey Department of Environmental Protection
Site Remediation Program

RECEPTOR EVALUATION (RE) FORM

Date Stamp
(For Department use only)

SECTION A. SITE

Site Name: Study Area 6 North Site 087 (Jersey City Incinerator Authority Site)

Program Interest (PI) Number(s): G000008710

Case Tracking Number(s) for this submission: 99-01-08-1151-26; 97-04-07-1208-28; 08-06-17-1648-22

This form must be attached to the Cover/Certification Form if not submitted through the RIR Online Service

Indicate the type of submission:

☐ Initial RE Submission

☒ Updated RE Submission

Indicate the reason for submission of an updated RE form

☐ Submission of an Immediate Environmental Concern (IEC) source control report;
☐ Submission of a Remedial Investigation Report;
☒ Submission of a Remedial Action Report;

Check if included in updated RE

☐ The known concentration or extent of contamination in any medium has increased;
☐ A new AOC has been identified;
☐ A new receptor is identified;
☐ A new exposure pathway has been identified.

SECTION B. ON SITE AND SURROUNDING PROPERTY USE

1. Identify any sensitive populations/uses that are currently on-site or surrounding property usage within 200 feet of the site boundary (check all that apply):

	On-site	Off-site
None of the following	☒	☒
Residences or residential property	☐	☐
Public or Private Schools grades K-12	☐	☐
Child care centers	☐	☐
Public parks, playgrounds or other recreation areas	☐	☐
Other sensitive population use(s) Explain _____	☐	☐

If any of the above applies, attach a list of addresses, facility names, type of use, and a map depicting each location relative to the site. See Attached Figure B-1

2. Current site uses (check all that apply):

☐ Industrial ☐ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☒ Vacant ☐ Other: _____

3. Planned future site uses and off-site use within 200 ft of site boundary (check all that apply):

☐ Industrial ☒ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☒ Park or recreational use
☐ Vacant ☐ Other: _____

Provide a map depicting the location of the proposed changes in land use. See Attached Figure B-3

SECTION C. DESCRIPTION OF CONTAMINATION

1. Identify if any of the following exist at the site (check all that apply):
   - ☐ Free product [N.J.A.C. 7:26E-1.8] identified is ☐ LNAPL* or ☐ DNAPL**. Date identified: _____
   - ☐ Residual product [N.J.A.C. 7:26E-1.8]
   - ☒ Other high concentration source materials not identified above (e.g., buried drums, containers, unsecured friable asbestos)

     Explain: Fill material containing chromite ore processing residue (COPR)

   * LNAPL – measured thickness of .01 feet or more

   **DNAPL – See US EPA DNAPL Overview

2. Soil Migration Pathway

   Has soil contamination been delineated to the applicable Direct Contact Soil Remediation Standard? ☒ Yes ☐ No

   Are all soils either below the applicable Direct Contact Criteria or under an institutional control (i.e. deed notice)? ☒ Yes ☐ No

3. If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section D. Otherwise attach a brief summary of all currently available data and information to be included in the site investigation or remedial investigation report. See Attached RAR

SECTION D. GROUND WATER USE

1. Has the requirement for ground water sampling been triggered? ☒ Yes ☐ No ☐ Unknown
   If "No," proceed to Section F. If "Unknown," explain:

   Yes See Attached RAR

2. Is Ground water contaminated above the Ground Water Remediation Standards [N.J.A.C.7:9C]? ☒ Yes ☐ No ☐ Unknown

   Or ☐ Awaiting laboratory data with the expected due date: _____

   If "Yes," provide the date that the laboratory data was available and confirmed contamination above the Ground Water Remediation Standards. Date: 03/13/2009

   If "Unknown," explain: _____

   If "No," or awaiting laboratory data proceed to Section F.

3. Has ground water contamination been delineated to the applicable Remediation Standard? ☒ Yes ☐ No
4. Has a well search been completed? ☒ Yes ☐ No

   Date of most recent or updated well search: 12/11/2015

   Identify if any of the following conditions exist based on the well search [N.J.A.C.7:26E-1.14(a)] (check all that apply):
   - ☐ Potable wells located within 500 feet from the downgradient edge of the currently known extent of contamination.
   - ☐ Potable well located 250 feet upgradient or 500 feet side gradient of the currently known extent of contamination.
   - ☐ Ground water contamination is located within a Tier 1 wellhead protection area (WHPA).

5. Is a completed Well Search Spreadsheet or historical well search table attached and has an electronic copy of the spreadsheet been submitted to srpgis_wrs@dep.state.nj.us. See Attached Table ☒ Yes ☐ No

   If "No," explain: _____

6. Are any private potable or irrigation wells located within ½ mile of the currently known extent of contamination? ☐ Yes ☒ No

   If "Yes," was a door to door survey completed? ☐ Yes ☐ No

   If survey was not completed explain: _____

7. Has sampling been conducted of ☐ potable well(s) and /or ☐ non-potable use well(s)? ☐ Yes ☒ No

   If "No," provide justification then proceed to Section E.

   No, wells do not exist within search radius

8 Has contamination been identified in potable well(s) above Ground Water Remediation Standards that is not suspected to be from the site? (If "Yes," provide justification) ☐ Yes ☐ No

_____

9 Has contamination been identified in potable well(s) that is above the Ground Water Remediation Standards or Federal Drinking Water Standards? ☐ Yes ☐ No

Provide date laboratory data was received: _____

Or ☐ awaiting laboratory data with the expected due date: _____

If "Yes" for potable well contamination **not attributable to background**, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions and answer the following:

Has an engineered system response action been completed on all receptors? ☐ Yes ☐ No

Provide a brief narrative description:

Date completed: _____ NJDEP Case Manager: _____

10. Were Non-potable use well(s) sampled and results were above Class II Ground Water Remediation Standards? ☐ Yes ☐ No

Provide date laboratory data was received: _____

Or ☐ awaiting laboratory data with the expected due date: _____

11. Has the ground water use evaluation been completed? ☐ Yes ☐ No

SECTION E. VAPOR INTRUSION (VI)

1. Contaminants present in ground water exceed the Vapor Intrusion Ground Water Screening Levels that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance). ☒ Yes ☐ No ☐ Unknown

Or ☐ Awaiting laboratory data and the expected due date: _____

Provide the date that the laboratory data was available and confirmed contamination above the Vapor Intrusion Trigger Levels. Date: 03/13/2009

2. Other existing conditions that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance)

☐ Wet basement or sump containing free product or ground water containing volatile organics
☐ Methane generating conditions causing oxygen deficient or explosion concern
☐ Other human or safety concern from the VI pathway (i.e. elemental mercury, unsaturated contamination, elevated soil gas or indoor vapor (explain):

If you answered "No," or awaiting laboratory data to Question 1., *and* did not check any boxes in Question 2, proceed to Section F, "Ecological Receptors", otherwise complete the rest of this section.

3. Has ground water contamination been delineated to the applicable Ground Water Vapor Screening Level? ☒ Yes ☐ No

4. Was a site specific screening level, modeling or other alternative approach employed for the VI pathway? ☐ Yes ☒ No

5. Identify and locate on a scaled map any buildings/sensitive populations that exist within the following distances from ground water contamination with concentrations above the Vapor Intrusion Ground Water Screening Levels or specific threats (check all that apply):

☐ 30 feet of petroleum free product or dissolved petroleum hydrocarbon contamination in ground water
☐ 100 feet of any non-petroleum free product or any non-petroleum dissolved volatile organic ground water contamination
☒ No buildings exist within the specified distances

See Attached RAR

6. The vapor intrusion pathway is a concern at or adjacent to the site (if "No," attach justification) ☒ Yes ☐ No

7. Has soil gas sampling of the building(s) been conducted? ☒ Yes ☐ No ☐ N/A
If "No," or "N/A," proceed to #12

8. Has indoor air sampling been conducted at the identified building(s)? ☒ Yes ☐ No
If "No," proceed to #12

9 Has indoor air contamination been identified but not suspected to be from the site?
(if "Yes," attach justification) ☐ Yes ☒ No

10. Indoor air results were above the NJDEP's Rapid Action Levels. ☐ Yes ☐ No

Provide the date that the laboratory data was available. Date: 01/11/2016

Or ☐ Awaiting laboratory data with the expected due date: _____

If "Yes" to #10 above, follow the IEC Guidance Document at
http://www.nj.gov/dep/srp/guidance/index.html#iec **for required actions.**

The IEC engineering system response for control was implemented for all
identified structures ☐ Yes ☒ No

Date: _____ NJDEP Case Manager: _____

11. Indoor air sampling was conducted and results were above the NJDEP's Indoor Air Screening
Levels but at or below the Rapid Action Levels ☐ Yes ☒ No

Provide the date that the laboratory data was available. Date: _____

Or ☐ Awaiting laboratory data with the expected due date: _____

If "Yes" to #11 above, answer the following:

Has the Vapor Concern (VC) Response Action Form notifying the NJDEP of the exceedances
been submitted? ☐ Yes ☐ No

Date: _____

Has a plan to mitigate and monitor the exposure been submitted? ☐ Yes ☐ No

Date: _____

Has the Mitigation Response Action Report been submitted? ☐ Yes ☐ No

Date: _____

12. Has the vapor intrusion investigation been completed? ☒ Yes ☐ No
If "No", is the vapor intrusion investigation stepping out as part of the site
investigation or remedial investigation. (If "No," attach justification) ☐ Yes ☐ No

SECTION F. ECOLOGICAL RECEPTORS

1. Has an Ecological Evaluation (EE) has been conducted? [N.J.A.C. 7:26E-1.16] ☒ Yes ☐ No

Date conducted: _____ 4 EE's completed: 05/2000, 07/2000, 08/2006, 03/2009

2. Do the results of an EE trigger a remedial investigation of ecological receptors? [N.J.A.C. 7:26E-4.8] ☐ Yes ☒ No

3. Has a remedial investigation of ecological receptors been conducted? ☐ Yes ☒ No

Date conducted: _____

4. Provide the following information for any surface water body on or within 200 feet of the site:

Surface Water Body Name	Stream Classification	Antidegradation Designation	Trout Production	Trout Maintenance
Hackensack River	SE3	Cat 2	☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

5. Does the site contain any features regulated by the Land Use Regulation Program (LURP)? (e.g. wetlands, flood hazard area, tidelands, etc.). ☐ Yes ☒ No

   If "Yes," identify the type(s) of features: _____

6. Have any formal LURP jurisdiction letters or approvals been issued for the site? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? _____

7. Have any applications for formal LURP jurisdiction letters or approvals been submitted the NJDEP? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? _____

8. Is free product or residual product located within 100 feet from an ecological receptor? ☐ Yes ☒ No

9. Does available data indicate an impact on Ecological receptor(s), Surface water, or Sediment? ☐ Yes ☒ No

   If "Yes,"

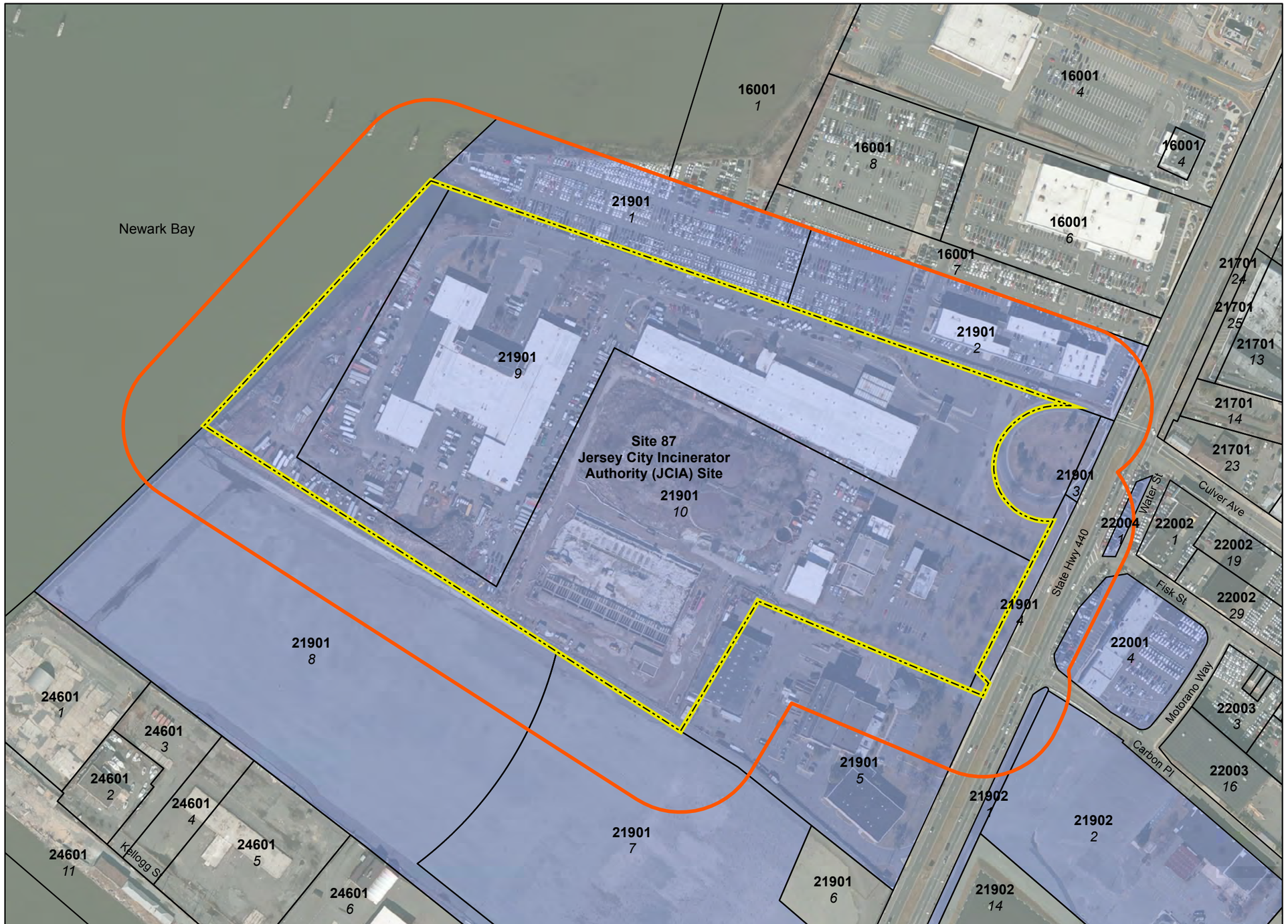
   a) Check all that apply:

      ☐ Ecological receptor(s) ☐ Surface water ☐ Sediment

   b) Submit with this evaluation either a technical document that includes contaminant summary information, or a description of the type of contamination, a schedule, and a description of all actions to be taken to mitigate exposure.

Completed forms should be sent to the municipal clerk, designate health department, and:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420



NAD 1983 StatePlane New Jersey FIPS 2900 Feet Projection: Transverse Mercator Datum: North American 1983 Units: Foot US

Legend

- Area Of Concern Boundary
- 200 Foot Site Radius
- Parcel Boundary

Parcel Label

2048 (Block) / 10.A (Lot)

Parcel Land Use

- Non-Sensitive Land Use Property

Notes:

1. Non-sensitive land use properties include –
   a. Commercial
   b. Farm
   c. Industrial
   d. Transportation
   e. Vacant Land
2. See Remedial Investigation Report for detailed discussion.

Source:

State of New Jersey Composite of Parcels Data, New Jersey State Plane NAD83 and MOD-IV Tax List Search Database; NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS); Trenton, NJ; 2014/12/10.

State of New Jersey Division of Taxation 2016 MOD-IV database.

New Jersey Public, Non-public, and Charter School point locations; NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS), Trenton, New Jersey; 2014/11.

Licensed Child Care Centers in New Jersey; State of New Jersey Department of Children and Families; 2015.

250 0 250

Scale In Feet

Rev No.	Date	Status	Checked By	Approved By

Project Number: 3480150488

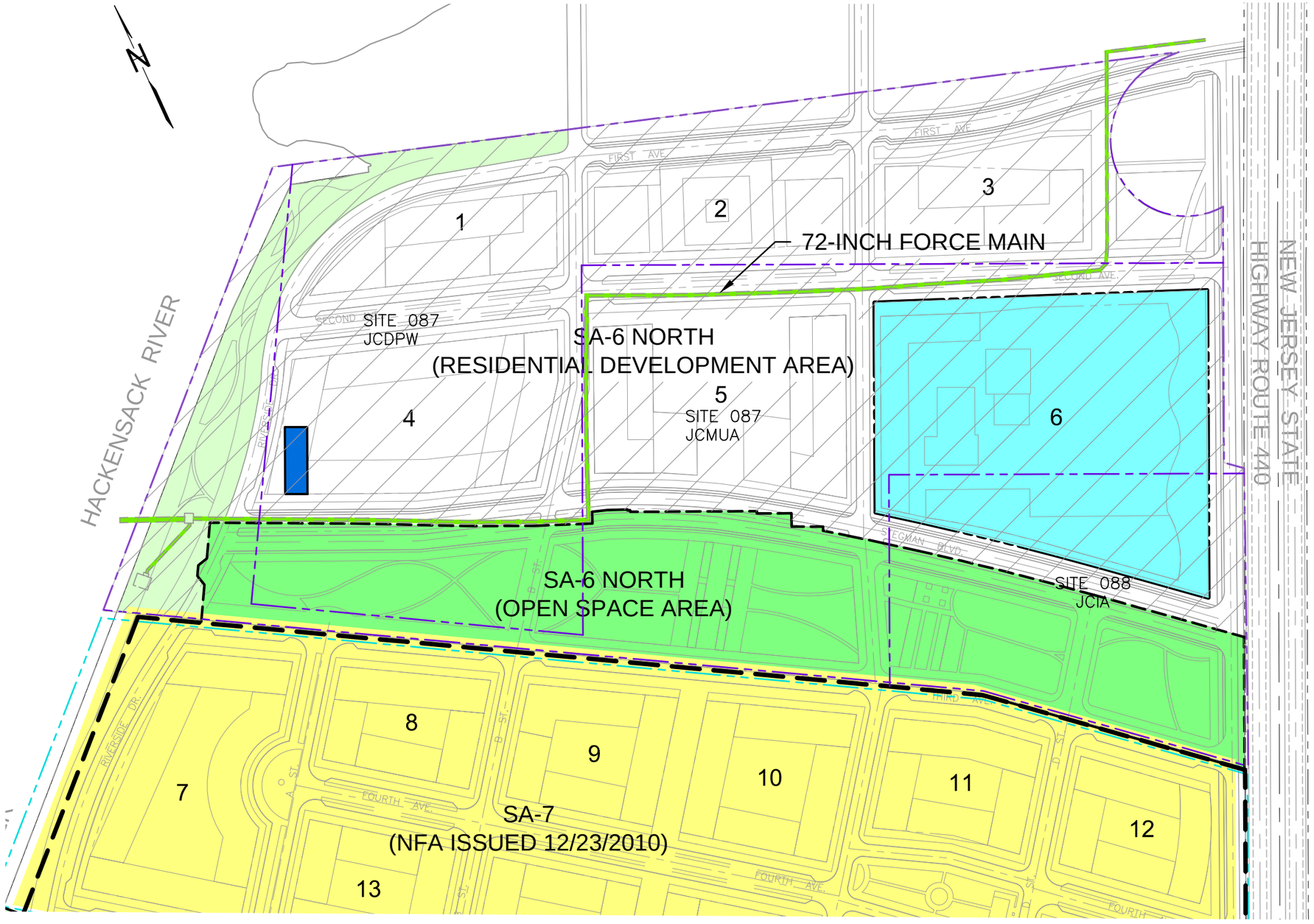
Prepared/Date: WSL 02/25/2016

Checked/Date: NW 04/01/2016

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

Figure B-1
Land Use Map
Site 087 - Jersey City Incinerator Authority (JCIA) Site
Jersey City, New Jersey

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (1) THIS DOCUMENT AND ANY INFORMATION, DATA AND DESIGN HAVE BEEN PREPARED SOLELY FOR THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (2) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY



LEGEND

- PROPERTY LINE SA-7
- PROPERTY LINE SA-6 NORTH
- OTHER OPEN SPACE / DEED RESTRICTED AREA
- SA-7 (RESIDENTIAL AREA)
- SA-6 NORTH OPEN SPACE AREA VERTICAL HYDRAULIC BARRIER (STEEL SHEETPILE) (CHROMIUM DEED NOTICE)
- BLOCK 6 - MUNICIPAL USE AREA
- SA-6 NORTH RESIDENTIAL AREA
- GROUNDWATER TREATMENT PLANT

NOTES:

1. NFA = NO FURTHER ACTION
2. SITE-WIDE SHALLOW GROUNDWATER WILL BE SUBJECT TO A CLASSIFICATION EXCEPTION AREA (CEA) FOR BOTH CHROMIUM & NON-CHROMIUM CONTAMINANTS

0 100 200 400
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: 3480150438-5710-BF6N-0000

PREPARED/DATE: STR 02/09/16

CHECKED/DATE: DEN 02/09/16

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE B-3
FUTURE LAND USE
STUDY AREA 6 NORTH - SITES 87 & 88
JERSEY CITY, NEW JERSEY

C:\scratch 020616\3480150438-5710-BF6N-0000.dwg Thu, 10 Mar 2016 - 8:44am scott.rudkin Layout: Layout1

Honeywell Site 087
SA-6 North
Well Search

Download_Documen	Permit_Number	Well_Use	Potentially_Potable	Document	Date (permitted/drille	Physical_Address	County	Municipality	Block	Lot	Location_Method	Easting_X	
	E201109562	Irrigation	Yes	Permit	6/20/2011	120 Central Ave	Hudson	Kearny Town	288	10.02	GPS		599464

Honeywell Site 087
SA-6 North
Well Search

Permit_Number	Northing_Y	Distance_(feet)	Depth (feet)	Capacity (gal/min)	COORD_METHOD	TOP_OPEN_INT	BOT_OPEN_INT	STATIC_LEVEL	STATUS	WELL_SAMPLED?
E201109562	689488	4963	300	20					Outside Canvass	No

New Jersey Department of Environmental Protection
Site Remediation Program

RECEPTOR EVALUATION (RE) FORM

Date Stamp
(For Department use only)

SECTION A. SITE

Site Name: Study Area 6 North Site 088 (Jersey City Incinerator Authority Well Site)

Program Interest (PI) Number(s): 014142, G000008711

Case Tracking Number(s) for this submission: 97-12-30-1315-23

This form must be attached to the Cover/Certification Form if not submitted through the RIR Online Service

Indicate the type of submission:

☐ Initial RE Submission

☒ Updated RE Submission

Indicate the reason for submission of an updated RE form

☐ Submission of an Immediate Environmental Concern (IEC) source control report;
☐ Submission of a Remedial Investigation Report;
☒ Submission of a Remedial Action Report;

Check if included in updated RE

☐ The known concentration or extent of contamination in any medium has increased;
☐ A new AOC has been identified;
☐ A new receptor is identified;
☐ A new exposure pathway has been identified.

SECTION B. ON SITE AND SURROUNDING PROPERTY USE

1. Identify any sensitive populations/uses that are currently on-site or surrounding property usage within 200 feet of the site boundary (check all that apply):

	On-site	Off-site
None of the following	☒	☒
Residences or residential property	☐	☐
Public or Private Schools grades K-12	☐	☐
Child care centers	☐	☐
Public parks, playgrounds or other recreation areas	☐	☐
Other sensitive population use(s) Explain _____	☐	☐

If any of the above applies, attach a list of addresses, facility names, type of use, and a map depicting each location relative to the site. See Attached Figure B-1

2. Current site uses (check all that apply):

☐ Industrial ☐ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☒ Vacant ☐ Other: _____

3. Planned future site uses and off-site use within 200 ft of site boundary (check all that apply):

☐ Industrial ☒ Residential ☒ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☒ Park or recreational use
☐ Vacant ☐ Other: _____

Provide a map depicting the location of the proposed changes in land use. See Attached Figure B-3

SECTION C. DESCRIPTION OF CONTAMINATION

1. Identify if any of the following exist at the site (check all that apply):
   - ☐ Free product [N.J.A.C. 7:26E-1.8] identified is ☐ LNAPL* or ☐ DNAPL**. Date identified: _____
   - ☐ Residual product [N.J.A.C. 7:26E-1.8]
   - ☒ Other high concentration source materials not identified above (e.g., buried drums, containers, unsecured friable asbestos)

     Explain: FIll material containing chromite ore processing residue (COPR)

   * LNAPL – measured thickness of .01 feet or more

   **DNAPL – See US EPA DNAPL Overview

2. Soil Migration Pathway

   Has soil contamination been delineated to the applicable Direct Contact Soil Remediation Standard? ..... ☒ Yes ☐ No

   Are all soils either below the applicable Direct Contact Criteria or under an institutional control (i.e. deed notice)? ..... ☒ Yes ☐ No

3. If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section D. Otherwise attach a brief summary of all currently available data and information to be included in the site investigation or remedial investigation report. See Attached RAR

SECTION D. GROUND WATER USE

1. Has the requirement for ground water sampling been triggered? ..... ☒ Yes ☐ No ☐ Unknown
   If "No," proceed to Section F. If "Unknown," explain:

   Yes See Attached RAR

2. Is Ground water contaminated above the Ground Water Remediation Standards [N.J.A.C.7:9C]? ..... ☒ Yes ☐ No ☐ Unknown

   Or ☐ Awaiting laboratory data with the expected due date: _____

   If "Yes," provide the date that the laboratory data was available and confirmed contamination above the Ground Water Remediation Standards. Date: 03/13/2009

   If "Unknown," explain: _____

   If "No," or awaiting laboratory data proceed to Section F.

3. Has ground water contamination been delineated to the applicable Remediation Standard? ..... ☒ Yes ☐ No
4. Has a well search been completed? ..... ☒ Yes ☐ No

   Date of most recent or updated well search: 12/11/2015

   Identify if any of the following conditions exist based on the well search [N.J.A.C.7:26E-1.14(a)] (check all that apply):
   - ☐ Potable wells located within 500 feet from the downgradient edge of the currently known extent of contamination.
   - ☐ Potable well located 250 feet upgradient or 500 feet side gradient of the currently known extent of contamination.
   - ☐ Ground water contamination is located within a Tier 1 wellhead protection area (WHPA). See Tables Attached to RAR

5. Is a completed Well Search Spreadsheet or historical well search table attached and has an electronic copy of the spreadsheet been submitted to srpgis_wrs@dep.state.nj.us. ..... ☒ Yes ☐ No

   If "No," explain: Yes See Attached Well Search

6. Are any private potable or irrigation wells located within ½ mile of the currently known extent of contamination? ..... ☐ Yes ☒ No

   If "Yes," was a door to door survey completed? ..... ☐ Yes ☐ No

   If survey was not completed explain: _____

7. Has sampling been conducted of ☐ potable well(s) and /or ☐ non-potable use well(s)? ..... ☐ Yes ☒ No

   If "No," provide justification then proceed to Section E.

   No, wells do not exist in the search radius

8 Has contamination been identified in potable well(s) above Ground Water Remediation Standards that is not suspected to be from the site? (If "Yes," provide justification) ..... ☐ Yes ☐ No

_____

9 Has contamination been identified in potable well(s) that is above the Ground Water Remediation Standards or Federal Drinking Water Standards? ..... ☐ Yes ☐ No

Provide date laboratory data was received: _____

Or ☐ awaiting laboratory data with the expected due date: _____

If "Yes" for potable well contamination **not attributable to background**, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions and answer the following:

Has an engineered system response action been completed on all receptors? ..... ☐ Yes ☐ No

Provide a brief narrative description:

Date completed: _____ NJDEP Case Manager: _____

10. Were Non-potable use well(s) sampled and results were above Class II Ground Water Remediation Standards? ..... ☐ Yes ☐ No

Provide date laboratory data was received: _____

Or ☐ awaiting laboratory data with the expected due date: _____

11. Has the ground water use evaluation been completed? ..... ☐ Yes ☐ No

SECTION E. VAPOR INTRUSION (VI)

1. Contaminants present in ground water exceed the Vapor Intrusion Ground Water Screening Levels that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance). ... ☒ Yes ☐ No ☐ Unknown

Or ☐ Awaiting laboratory data and the expected due date: _____

Provide the date that the laboratory data was available and confirmed contamination above the Vapor Intrusion Trigger Levels. Date: 03/13/2009

2. Other existing conditions that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance)

☐ Wet basement or sump containing free product or ground water containing volatile organics
☐ Methane generating conditions causing oxygen deficient or explosion concern
☐ Other human or safety concern from the VI pathway (i.e. elemental mercury, unsaturated contamination, elevated soil gas or indoor vapor (explain):

If you answered "No," or awaiting laboratory data to Question 1., *and* did not check any boxes in Question 2, proceed to Section F, "Ecological Receptors", otherwise complete the rest of this section.

3. Has ground water contamination been delineated to the applicable Ground Water Vapor Screening Level? ..... ☒ Yes ☐ No

4. Was a site specific screening level, modeling or other alternative approach employed for the VI pathway? ..... ☐ Yes ☒ No

5. Identify and locate on a scaled map any buildings/sensitive populations that exist within the following distances from ground water contamination with concentrations above the Vapor Intrusion Ground Water Screening Levels or specific threats (check all that apply):

☐ 30 feet of petroleum free product or dissolved petroleum hydrocarbon contamination in ground water
☐ 100 feet of any non-petroleum free product or any non-petroleum dissolved volatile organic ground water contamination
☒ No buildings exist within the specified distances

See Attached RAR

6. The vapor intrusion pathway is a concern at or adjacent to the site (if "No," attach justification) ..... ☒ Yes ☐ No

7. Has soil gas sampling of the building(s) been conducted? ☐ Yes ☐ No ☒ N/A
   If "No," or "N/A," proceed to #12

8. Has indoor air sampling been conducted at the identified building(s)? ☐ Yes ☐ No
   If "No," proceed to #12

9 Has indoor air contamination been identified but not suspected to be from the site?
   (if "Yes," attach justification) ☐ Yes ☐ No

10. Indoor air results were above the NJDEP's Rapid Action Levels. ☐ Yes ☐ No

   Provide the date that the laboratory data was available. Date: _____

   Or ☐ Awaiting laboratory data with the expected due date: _____

   If "Yes" to #10 above, follow the IEC Guidance Document at
   http://www.nj.gov/dep/srp/guidance/index.html#iec **for required actions.**

   The IEC engineering system response for control was implemented for all
   identified structures ☐ Yes ☐ No

   Date: _____ NJDEP Case Manager: _____

11. Indoor air sampling was conducted and results were above the NJDEP's Indoor Air Screening
   Levels but at or below the Rapid Action Levels ☐ Yes ☐ No

   Provide the date that the laboratory data was available. Date: _____

   Or ☐ Awaiting laboratory data with the expected due date: _____

   If "Yes" to #11 above, answer the following:

   Has the Vapor Concern (VC) Response Action Form notifying the NJDEP of the exceedances
   been submitted? ☐ Yes ☐ No

   Date: _____

   Has a plan to mitigate and monitor the exposure been submitted? ☐ Yes ☐ No

   Date: _____

   Has the Mitigation Response Action Report been submitted? ☐ Yes ☐ No

   Date: _____

12. Has the vapor intrusion investigation been completed? ☒ Yes ☐ No
   If "No", is the vapor intrusion investigation stepping out as part of the site
   investigation or remedial investigation. (If "No," attach justification) ☐ Yes ☐ No

SECTION F. ECOLOGICAL RECEPTORS

1. Has an Ecological Evaluation (EE) has been conducted? [N.J.A.C. 7:26E-1.16] ☒ Yes ☐ No

   Date conducted: 07/01/2000 4 EE's Completed: 05/2000, 07/2000, 06/2006, 03/2009

2. Do the results of an EE trigger a remedial investigation of ecological receptors? [N.J.A.C. 7:26E-4.8] ☐ Yes ☒ No

3. Has a remedial investigation of ecological receptors been conducted? ☐ Yes ☒ No

   Date conducted: _____

4. Provide the following information for any surface water body on or within 200 feet of the site:

Surface Water Body Name	Stream Classification	Antidegradation Designation	Trout Production	Trout Maintenance
None			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

5. Does the site contain any features regulated by the Land Use Regulation Program (LURP)? (e.g. wetlands, flood hazard area, tidelands, etc.). ☐ Yes ☒ No

   If "Yes," identify the type(s) of features: _____

6. Have any formal LURP jurisdiction letters or approvals been issued for the site? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? _____

7. Have any applications for formal LURP jurisdiction letters or approvals been submitted the NJDEP? ☐ Yes ☒ No

   If "Yes," what is the LURP Program Interest (PI) number(s) for the site? _____

8. Is free product or residual product located within 100 feet from an ecological receptor? ☐ Yes ☒ No

9. Does available data indicate an impact on Ecological receptor(s), Surface water, or Sediment? ☐ Yes ☒ No

   If "Yes,"

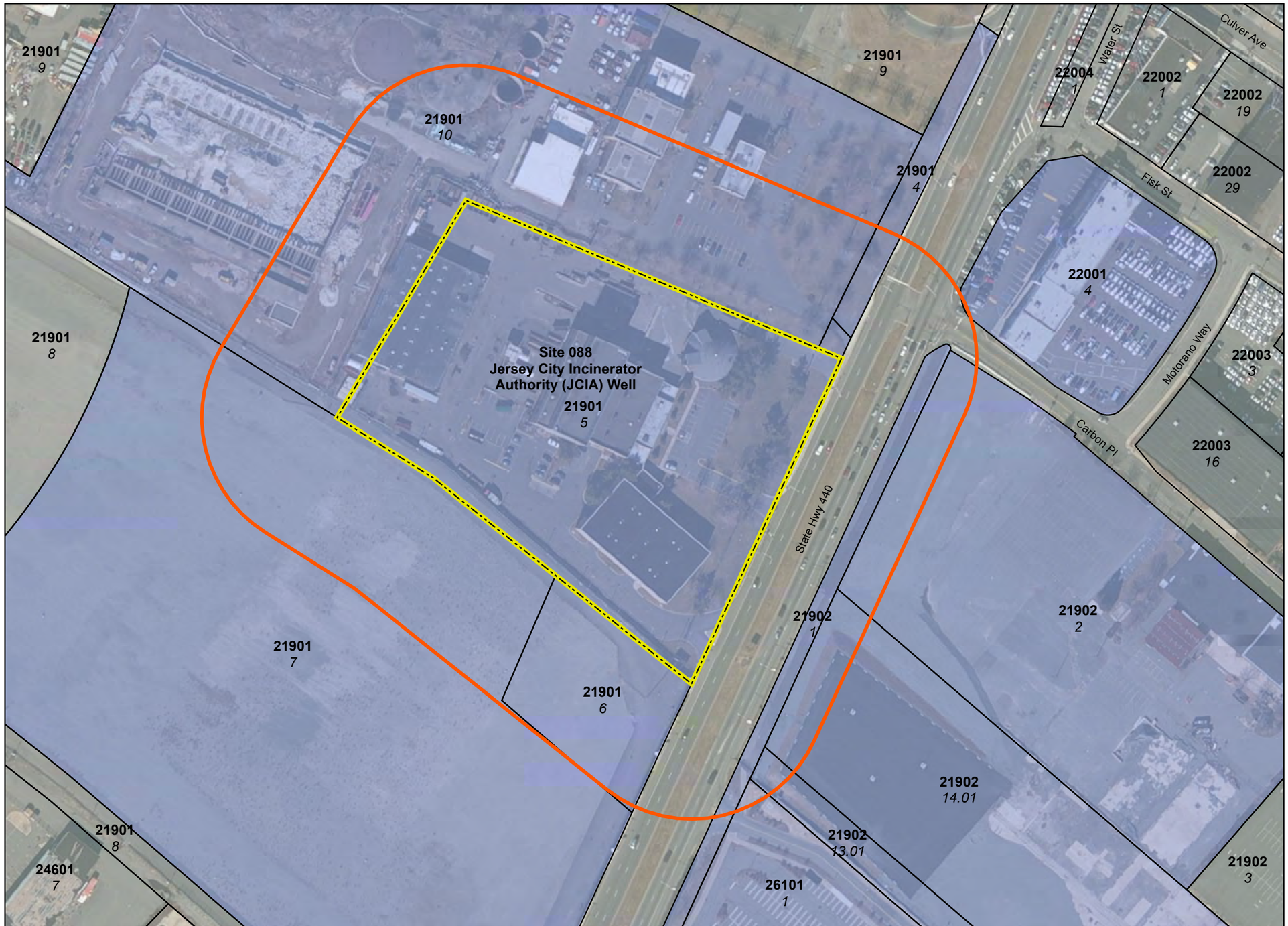
   a) Check all that apply:

      ☐ Ecological receptor(s) ☐ Surface water ☐ Sediment

   b) Submit with this evaluation either a technical document that includes contaminant summary information, or a description of the type of contamination, a schedule, and a description of all actions to be taken to mitigate exposure.

Completed forms should be sent to the municipal clerk, designate health department, and:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420



NAD 1983 StatePlane New Jersey FIPS 2900 Feet Projection: Transverse Mercator Datum: North American 1983 Units: Foot US

Legend

- Area Of Concern Boundary
- 200 Foot Site Radius
- Parcel Boundary

Parcel Label

2048 / 10.A — Block / Lot

Parcel Land Use

- Non-Sensitive Land Use Property

Notes:

1. Non-sensitive land use properties include –
   a. Commercial
   b. Farm
   c. Industrial
   d. Transportation
   e. Vacant Land
2. See Remedial Investigation Report for detailed discussion.

Source:

State of New Jersey Composite of Parcels Data, New Jersey State Plane NAD83 and MOD-IV Tax List Search Database; NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS); Trenton, NJ; 2014/12/10.

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Scale In Feet

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HAMILTON, NEW JERSEY 08619

Figure B-1
Land Use Map
Site 088 - Jersey City Incinerator Authority (JCIA) Well
Jersey City, New Jersey

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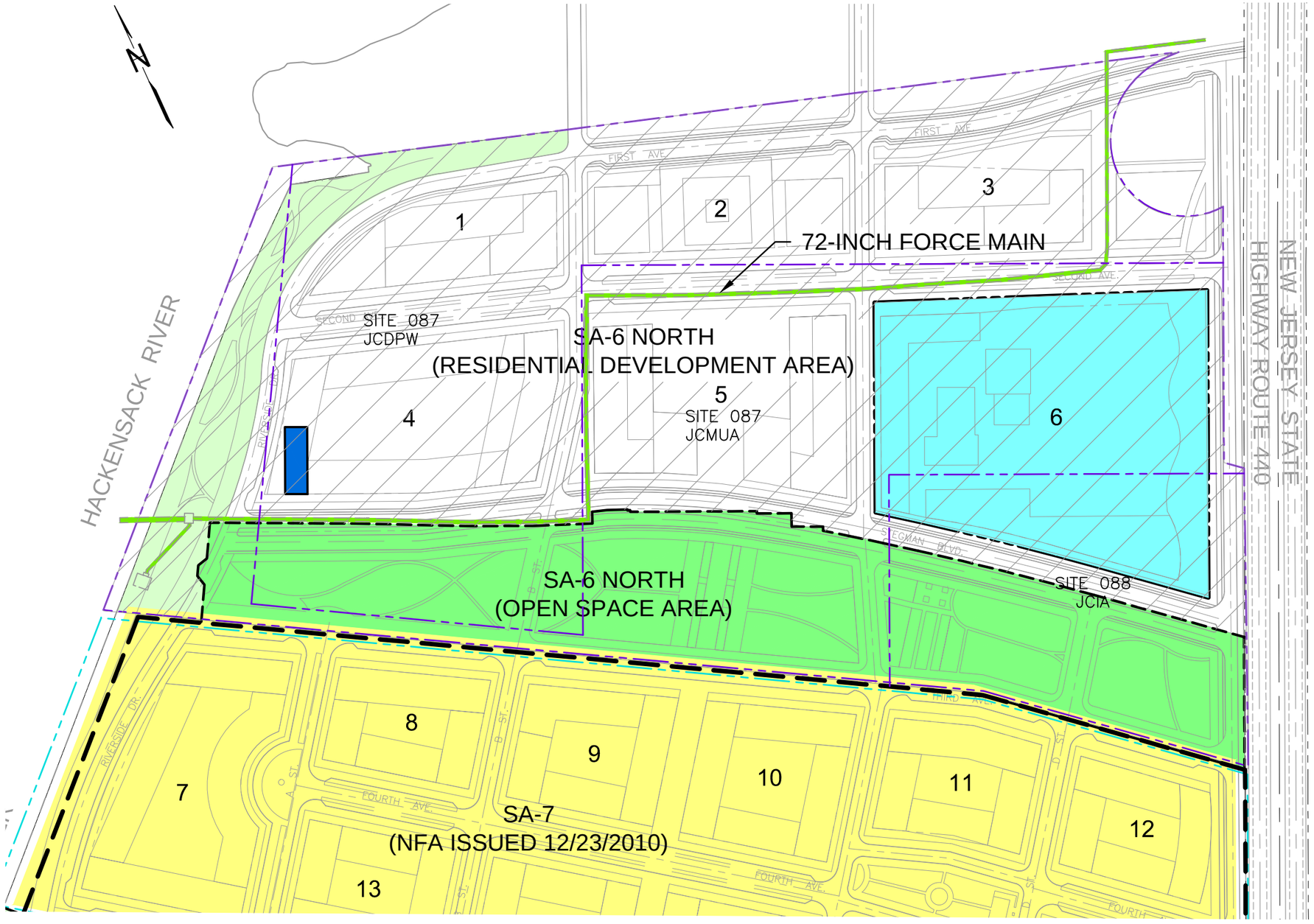

LEGEND

- PROPERTY LINE SA-7
- PROPERTY LINE SA-6 NORTH
- OTHER OPEN SPACE / DEED RESTRICTED AREA
- SA-7 (RESIDENTIAL AREA)
- SA-6 NORTH OPEN SPACE AREA VERTICAL HYDRAULIC BARRIER (STEEL SHEETPILE) (CHROMIUM DEED NOTICE)
- BLOCK 6 - MUNICIPAL USE AREA
- SA-6 NORTH RESIDENTIAL AREA
- GROUNDWATER TREATMENT PLANT

NOTES:

1. NFA = NO FURTHER ACTION
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FIGURE B-3
FUTURE LAND USE
STUDY AREA 6 NORTH - SITES 87 & 88
JERSEY CITY, NEW JERSEY

C:\scratch 020616\3480150438-5710-BF6N-0000.dwg Thu, 10 Mar 2016 - 8:44am scott.rudkin Layout: Layout1

Honeywell Site 088
SA-6 North
Well Search

Download_Documen	Permit_Number	Well_Use	Potentially_Potable	Document	Date (permitted/drille	Physical_Address	County	Municipality	Block	Lot	Location_Method	Easting_X	
	2600001731	Industrial	Yes	Permit	10/11/1957		Hudson	Jersey City			Prop Loc - Hard Copy		604249

Honeywell Site 088
SA-6 North
Well Search

Permit_Number	Northing_Y	Distance_(feet)	Depth (feet)	Capacity (gal/min)	COORD_METHOD	TOP_OPEN_INT	BOT_OPEN_INT	STATIC_LEVEL	STATUS	WELL_SAMPLED?
2600001731	680838				Approx. Addr. Match				Outside Canvass	No

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – SOIL

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North Open Space Area

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case?..... ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One: **Effective July 1, 2016**

☒ Remedial Action Permit Application.....$1,175.00
☐ Remedial Action Permit Modification.....$780.00
☐ Remedial Action Permit Termination.....$1,175.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION F. DEED NOTICE INFORMATION

1. Attach the following:

   ☐ Copy of the Filed Deed Notice or Deed Notice Termination document with Book & Page Numbers (both in paper and electronically in Adobe PDF format)

   ☒ Remedial Action Report (RAR) (electronically only - in Adobe PDF format)
   Provide the location in the RAR (*page # / figure #)*
   of the map(s) showing soil contaminant delineation: Figure 16

2. Deed Notice filing date:

3. Name of County Office the Deed Notice was filed in: Hudson

4. Book Number the Deed Notice is filed in: 21901 Page Numbers: First: to Last:

5. Total Number of Pages filed:

6. Instrument/Control/File Number(s):

7. Block(s) and Lot(s): 21901 Lots 5-10

8. Is the entire site restricted? ☐ Yes ☒ No

   If "No," what percent of the site is restricted? 100 % Open Space Area

9. Is this Deed Notice for Historic Fill material at the site? ☒ Yes ☐ No

   If "Yes," is the Historic Fill material impacting the ground water at the site? ☒ Yes ☐ No

10. If Historic Fill material is impacting the ground water, has the CEA/WRA Fact Sheet Form been submitted to the NJDEP? ☒ Yes ☐ No ☐ N/A

    If "No," attach a completed CEA/WRA Fact Sheet Form to this application.

11. Has the Deed Notice restricted area been accurately mapped on NJ-GeoWeb? ☐ Yes ☒ No

    If "No", then submit a GIS compatible map of the Deed Notice restricted area by email to srpgis_dn@dep.nj.gov and provide the date the email was sent:

SECTION G. FINANCIAL ASSURANCE

1. Does the Remedial Action/Deed Notice include an engineering control? ☐ Yes ☐ No

   If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing Financial Assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

   If "Yes," check the exemption(s) that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

   If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

   If "Yes," have <u>all</u> of the following criteria been met? ☐ Yes ☐ No

   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS $ _____

6. Identify the full amount established as a Financial Assurance: $ 87,507,050.00
   Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: MFUG Union Bank

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION H. ENGINEERING CONTROL

1. Current Land Use for the Engineering Controlled Area *(check all that apply)*

☐ Industrial	☐ Park or Recreational Use	☐ Child Care Center
☐ Residential	☐ Agricultural	☐ Hospital
☐ Commercial	☐ Road/Right of Way	☒ Vacant
☐ Government Facility	☐ School	☐ Other: _____

2. If school, childcare, or residential was checked above, was a presumptive remedy implemented pursuant to N.J.A.C. 7:26E-5.3? ..... ☐ Yes ☐ No ☒ N/A

   If "No," when was the remedy approved by the NJDEP? _____

3. Date Engineering Control(s) was installed: 10/01/2016

4. Identify below the materials used for the engineering control(s).

Area	Engineering Control Description	Thickness	Units
Open Space Area	Lining	1	Inches
	Soil	1	Feet

*Other, describe:

5. In the following table, please list all contaminants that require the use of a Deed Notice/engineering control(s) (attach additional pages if needed). *Please do not attach tables from reports.*

Contaminant	Concentration (mg/kg)	Depth (feet)	Residential Direct Contact Soil Remediation Standard	Non-Residential Direct Contact Soil Remediation Standard
Hexavalent Chromium	See Table		20 mg/kg*	20 mg/kg*
*Per 2007 Chromium Policy				
Benzene	2.7-67.3	6-16	2	5
Methyl Tert Butyl Ether	129	7-7.5	110	320
Historic Fill (see table)				

SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary? Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☐ Surface water
   ☐ Tier 1 Well-head protection areas
   ☐ Ecological receptor (e.g., wetlands, pinelands) Specify: _____

2. Have any of these receptors been impacted?..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this soil contamination?..... ☐ Yes ☒ No

   If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

   ☐ Subsurface Depressurization System
   ☐ Subsurface Ventilation System
   ☐ Soil Vapor Extraction System
   ☐ HVAC Positive Pressure
   ☐ Other (specify): _____

   Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

SECTION J. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained?..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained or the type of Remedial Action Permit(s) being applied for.

Groundwater RAP for Chromium
Non-Chromium Soil RAP
Non-Chromium Groundwater RAP

SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Con

SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Co

SECTION M. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION M. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to the next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – SOIL

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North Route 440 Deferred Area

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case?..... ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One: **Effective July 1, 2016**

☒ Remedial Action Permit Application.....$1,175.00
☐ Remedial Action Permit Modification.....$780.00
☐ Remedial Action Permit Termination.....$1,175.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION F. DEED NOTICE INFORMATION

1. Attach the following:

   ☐ Copy of the Filed Deed Notice or Deed Notice Termination document with Book & Page Numbers (both in paper and electronically in Adobe PDF format)

   ☒ Remedial Action Report (RAR) (electronically only - in Adobe PDF format)
   Provide the location in the RAR (*page # / figure #)*
   of the map(s) showing soil contaminant delineation: Figure 16

2. Deed Notice filing date:

3. Name of County Office the Deed Notice was filed in: Hudson

4. Book Number the Deed Notice is filed in: 21901 Page Numbers: First: to Last:

5. Total Number of Pages filed:

6. Instrument/Control/File Number(s):

7. Block(s) and Lot(s): A Portion of Block 22901 Lot 5

8. Is the entire site restricted? ☐ Yes ☒ No

   If "No," what percent of the site is restricted? 0.2 % Route 440 Deferred Area

9. Is this Deed Notice for Historic Fill material at the site? ☒ Yes ☐ No

   If "Yes," is the Historic Fill material impacting the ground water at the site? ☒ Yes ☐ No

10. If Historic Fill material is impacting the ground water, has the CEA/WRA Fact Sheet Form been submitted to the NJDEP? ☒ Yes ☐ No ☐ N/A

    If "No," attach a completed CEA/WRA Fact Sheet Form to this application.

11. Has the Deed Notice restricted area been accurately mapped on NJ-GeoWeb? ☐ Yes ☒ No

    If "No", then submit a GIS compatible map of the Deed Notice restricted area by email to srpgis_dn@dep.nj.gov and provide the date the email was sent:

SECTION G. FINANCIAL ASSURANCE

1. Does the Remedial Action/Deed Notice include an engineering control? ☐ Yes ☐ No

   If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing Financial Assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

   If "Yes," check the exemption(s) that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

   If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

   If "Yes," have <u>all</u> of the following criteria been met? ☐ Yes ☐ No

   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS $ _____

6. Identify the full amount established as a Financial Assurance: $ 87,507,050.00
   Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: MFUG Union Bank

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION H. ENGINEERING CONTROL

1. Current Land Use for the Engineering Controlled Area *(check all that apply)*

☐ Industrial	☐ Park or Recreational Use	☐ Child Care Center
☐ Residential	☐ Agricultural	☐ Hospital
☐ Commercial	☐ Road/Right of Way	☒ Vacant
☐ Government Facility	☐ School	☐ Other: _____

2. If school, childcare, or residential was checked above, was a presumptive remedy implemented pursuant to N.J.A.C. 7:26E-5.3? ..... ☐ Yes ☐ No ☒ N/A

   If "No," when was the remedy approved by the NJDEP? _____

3. Date Engineering Control(s) was installed: 10/01/2016

4. Identify below the materials used for the engineering control(s).

Area	Engineering Control Description	Thickness	Units
Route 440 Deferred Area	Other *	0.5	Inches
	Permeable Cover	6	Inches

*Other, describe:

Geotextile Demarcation Fabric; Permeable Cover = gravel

5. In the following table, please list all contaminants that require the use of a Deed Notice/engineering control(s) (attach additional pages if needed). *Please do not attach tables from reports.*

Contaminant	Concentration (mg/kg)	Depth (feet)	Residential Direct Contact Soil Remediation Standard	Non-Residential Direct Contact Soil Remediation Standard
Hexavalent Chromium	26 - 4690	0 - 12	20 mg/kg*	20 mg/kg*
*Per 2007 Chromium Policy				

SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary? Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☐ Surface water
   ☐ Tier 1 Well-head protection areas
   ☐ Ecological receptor (e.g., wetlands, pinelands) Specify: _____

2. Have any of these receptors been impacted?..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this soil contamination?..... ☐ Yes ☒ No

   If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

   ☐ Subsurface Depressurization System
   ☐ Subsurface Ventilation System
   ☐ Soil Vapor Extraction System
   ☐ HVAC Positive Pressure
   ☐ Other (specify): _____

   Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

SECTION J. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained?..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained or the type of Remedial Action Permit(s) being applied for.

Groundwater RAP for Chromium
Non-Chromium Soil RAP
Non-Chromium Groundwater RAP

SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Con

SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Co

SECTION M. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION M. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to the next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – SOIL

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North TA-10

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case?..... ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One: **Effective July 1, 2016**

☒ Remedial Action Permit Application.....$1,175.00
☐ Remedial Action Permit Modification.....$780.00
☐ Remedial Action Permit Termination.....$1,175.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION F. DEED NOTICE INFORMATION

1. Attach the following:

   ☐ Copy of the Filed Deed Notice or Deed Notice Termination document with Book & Page Numbers (both in paper and electronically in Adobe PDF format)

   ☒ Remedial Action Report (RAR) (electronically only - in Adobe PDF format)
   Provide the location in the RAR (*page # / figure #)*
   of the map(s) showing soil contaminant delineation: Figure 16

2. Deed Notice filing date:

3. Name of County Office the Deed Notice was filed in: Hudson

4. Book Number the Deed Notice is filed in: 21901 Page Numbers: First: to Last:

5. Total Number of Pages filed:

6. Instrument/Control/File Number(s):

7. Block(s) and Lot(s): Portions of Block 21901 Lots 9 and 10

8. Is the entire site restricted? ☐ Yes ☒ No

   If "No," what percent of the site is restricted? 0.45 % TA-10 Area

9. Is this Deed Notice for Historic Fill material at the site? ☒ Yes ☐ No

   If "Yes," is the Historic Fill material impacting the ground water at the site? ☒ Yes ☐ No

10. If Historic Fill material is impacting the ground water, has the CEA/WRA Fact Sheet Form been submitted to the NJDEP? ☒ Yes ☐ No ☐ N/A

    If "No," attach a completed CEA/WRA Fact Sheet Form to this application.

11. Has the Deed Notice restricted area been accurately mapped on NJ-GeoWeb? ☐ Yes ☒ No

    If "No", then submit a GIS compatible map of the Deed Notice restricted area by email to srpgis_dn@dep.nj.gov and provide the date the email was sent:

SECTION G. FINANCIAL ASSURANCE

1. Does the Remedial Action/Deed Notice include an engineering control? ☐ Yes ☐ No

   If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing Financial Assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

   If "Yes," check the exemption(s) that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

   If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

   If "Yes," have <u>all</u> of the following criteria been met? ☐ Yes ☐ No

   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS $ _____

6. Identify the full amount established as a Financial Assurance: $ 87,507,050.00
   Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: MFUG Union Bank

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION H. ENGINEERING CONTROL

1. Current Land Use for the Engineering Controlled Area *(check all that apply)*

☐ Industrial	☐ Park or Recreational Use	☐ Child Care Center
☐ Residential	☐ Agricultural	☐ Hospital
☐ Commercial	☐ Road/Right of Way	☒ Vacant
☐ Government Facility	☐ School	☐ Other: _____

2. If school, childcare, or residential was checked above, was a presumptive remedy implemented pursuant to N.J.A.C. 7:26E-5.3? ..... ☐ Yes ☐ No ☒ N/A

   If "No," when was the remedy approved by the NJDEP? _____

3. Date Engineering Control(s) was installed: 10/01/2016

4. Identify below the materials used for the engineering control(s).

Area	Engineering Control Description	Thickness	Units
TA-10 Area	Soil	12	Feet
	Asphalt Cap	6	Inches

*Other, describe:

5. In the following table, please list all contaminants that require the use of a Deed Notice/engineering control(s) (attach additional pages if needed). *Please do not attach tables from reports.*

Contaminant	Concentration (mg/kg)	Depth (feet)	Residential Direct Contact Soil Remediation Standard	Non-Residential Direct Contact Soil Remediation Standard
Hexavalent Chromium	39 - 82	0 - 3	20 mg/kg*	20 mg/kg*
*Per 2007 Chromium Policy				

SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary? Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☐ Surface water
   ☐ Tier 1 Well-head protection areas
   ☐ Ecological receptor (e.g., wetlands, pinelands) Specify: _____

2. Have any of these receptors been impacted?..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this soil contamination?..... ☐ Yes ☒ No

   If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

   ☐ Subsurface Depressurization System
   ☐ Subsurface Ventilation System
   ☐ Soil Vapor Extraction System
   ☐ HVAC Positive Pressure
   ☐ Other (specify): _____

   Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

SECTION J. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained?..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained or the type of Remedial Action Permit(s) being applied for.

Groundwater RAP for Chromium
Non-Chromium Soil RAP
Non-Chromium Groundwater RAP

SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Con

SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Co

SECTION M. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION M. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to the next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – SOIL

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North Route 440 Deferred Area - Adjacent to EA1

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case?..... ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One: **Effective July 1, 2016**

☒ Remedial Action Permit Application.....$1,175.00
☐ Remedial Action Permit Modification.....$780.00
☐ Remedial Action Permit Termination.....$1,175.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization:

First Name of Contact: Paul Last Name of Contact: Trenk

Title:

Phone Number: Ext: Fax:

Mailing Address:

City/Town: State: Zip Code:

Email Address:

☐ Primary Responsibility for Permit Compliance

SECTION F. DEED NOTICE INFORMATION

1. Attach the following:

   ☐ Copy of the Filed Deed Notice or Deed Notice Termination document with Book & Page Numbers (both in paper and electronically in Adobe PDF format)

   ☒ Remedial Action Report (RAR) (electronically only - in Adobe PDF format)
   Provide the location in the RAR (*page # / figure #)*
   of the map(s) showing soil contaminant delineation: Figure 16

2. Deed Notice filing date:
3. Name of County Office the Deed Notice was filed in: Hudson
4. Book Number the Deed Notice is filed in: 21901 Page Numbers: First: to Last:
5. Total Number of Pages filed:
6. Instrument/Control/File Number(s):
7. Block(s) and Lot(s): Portions of Block 21901 Lot 4
8. Is the entire site restricted? ☐ Yes ☒ No
   If "No," what percent of the site is restricted? 0.05 % Deferred Area near EA-1
9. Is this Deed Notice for Historic Fill material at the site? ☒ Yes ☐ No
   If "Yes," is the Historic Fill material impacting the ground water at the site? ☒ Yes ☐ No
10. If Historic Fill material is impacting the ground water, has the CEA/WRA Fact Sheet Form been submitted to the NJDEP? ☒ Yes ☐ No ☐ N/A
    If "No," attach a completed CEA/WRA Fact Sheet Form to this application.
11. Has the Deed Notice restricted area been accurately mapped on NJ-GeoWeb? ☐ Yes ☒ No
    If "No", then submit a GIS compatible map of the Deed Notice restricted area by email to srpgis_dn@dep.nj.gov and provide the date the email was sent:

SECTION G. FINANCIAL ASSURANCE

1. Does the Remedial Action/Deed Notice include an engineering control? ☐ Yes ☐ No

   If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing Financial Assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

   If "Yes," check the exemption(s) that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

   If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

   If "Yes," have <u>all</u> of the following criteria been met? ☐ Yes ☐ No

   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS $ _____

6. Identify the full amount established as a Financial Assurance: $ 87,507,050.00
   Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: MFUG Union Bank

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION H. ENGINEERING CONTROL

1. Current Land Use for the Engineering Controlled Area *(check all that apply)*

☐ Industrial	☐ Park or Recreational Use	☐ Child Care Center
☐ Residential	☐ Agricultural	☐ Hospital
☐ Commercial	☐ Road/Right of Way	☒ Vacant
☐ Government Facility	☐ School	☐ Other: _____

2. If school, childcare, or residential was checked above, was a presumptive remedy implemented pursuant to N.J.A.C. 7:26E-5.3? ..... ☐ Yes ☐ No ☒ N/A

   If "No," when was the remedy approved by the NJDEP? _____

3. Date Engineering Control(s) was installed: 10/01/2016

4. Identify below the materials used for the engineering control(s).

Area	Engineering Control Description	Thickness	Units
Deferred Area near EA-1	Soil	1	Feet
	Other *	0.5	Inches
	Permeable Cover	6	Inches

*Other, describe:

Geotextile Demarcation Fabric

5. In the following table, please list all contaminants that require the use of a Deed Notice/engineering control(s) (attach additional pages if needed). *Please do not attach tables from reports.*

Contaminant	Concentration (mg/kg)	Depth (feet)	Residential Direct Contact Soil Remediation Standard	Non-Residential Direct Contact Soil Remediation Standard
Hexavalent Chromium	24 - 4670	0 - 7	20 mg/kg*	20 mg/kg*
*Per 2007 Chromium Policy				

SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary? Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☐ Surface water
   ☐ Tier 1 Well-head protection areas
   ☐ Ecological receptor (e.g., wetlands, pinelands) Specify: _____

2. Have any of these receptors been impacted?..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this soil contamination?..... ☐ Yes ☒ No

   If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

   ☐ Subsurface Depressurization System
   ☐ Subsurface Ventilation System
   ☐ Soil Vapor Extraction System
   ☐ HVAC Positive Pressure
   ☐ Other (specify): _____

   Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

SECTION J. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained?..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained or the type of Remedial Action Permit(s) being applied for.

Groundwater RAP for Chromium
Non-Chromium Soil RAP
Non-Chromium Groundwater RAP

SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Con

SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site:

Representative First Name: Representative Last Name:

Title:

Phone Number: Ext: Fax:

Mailing Address:

City/Town: State: Zip Code:

Email Address:

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title:

SECTION M. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION M. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to the next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – SOIL

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North TA-7

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case?..... ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One: **Effective July 1, 2016**

☒ Remedial Action Permit Application.....$1,175.00
☐ Remedial Action Permit Modification.....$780.00
☐ Remedial Action Permit Termination.....$1,175.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Director - Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Jersey City Municipal Utility Authority

First Name of Contact: Last Name of Contact:

Title:

Phone Number: Ext: Fax:

Mailing Address:

City/Town: State: Zip Code:

Email Address:

☐ Primary Responsibility for Permit Compliance

SECTION F. DEED NOTICE INFORMATION

1. Attach the following:

   ☐ Copy of the Filed Deed Notice or Deed Notice Termination document with Book & Page Numbers (both in paper and electronically in Adobe PDF format)

   ☒ Remedial Action Report (RAR) (electronically only - in Adobe PDF format)
   Provide the location in the RAR (*page # / figure #)*
   of the map(s) showing soil contaminant delineation: Figure 16

2. Deed Notice filing date:

3. Name of County Office the Deed Notice was filed in: Hudson

4. Book Number the Deed Notice is filed in: 21901 Page Numbers: First: to Last:

5. Total Number of Pages filed:

6. Instrument/Control/File Number(s):

7. Block(s) and Lot(s): Portions of Block 24601 Lot 10

8. Is the entire site restricted? ☐ Yes ☒ No
   If "No," what percent of the site is restricted? 0.03 % TA-7 Area

9. Is this Deed Notice for Historic Fill material at the site? ☒ Yes ☐ No
   If "Yes," is the Historic Fill material impacting the ground water at the site? ☒ Yes ☐ No

10. If Historic Fill material is impacting the ground water, has the CEA/WRA Fact Sheet Form been submitted to the NJDEP? ☒ Yes ☐ No ☐ N/A
    If "No," attach a completed CEA/WRA Fact Sheet Form to this application.

11. Has the Deed Notice restricted area been accurately mapped on NJ-GeoWeb? ☐ Yes ☒ No
    If "No", then submit a GIS compatible map of the Deed Notice restricted area by email to srpgis_dn@dep.nj.gov and provide the date the email was sent:

SECTION G. FINANCIAL ASSURANCE

1. Does the Remedial Action/Deed Notice include an engineering control? ☐ Yes ☐ No

   If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing Financial Assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

   If "Yes," check the exemption(s) that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

   If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

   If "Yes," have <u>all</u> of the following criteria been met? ☐ Yes ☐ No

   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS $ _____

6. Identify the full amount established as a Financial Assurance: $ 87,507,050.00
   Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: MFUG Union Bank

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION H. ENGINEERING CONTROL

1. Current Land Use for the Engineering Controlled Area *(check all that apply)*

☐ Industrial	☐ Park or Recreational Use	☐ Child Care Center
☐ Residential	☐ Agricultural	☐ Hospital
☐ Commercial	☐ Road/Right of Way	☒ Vacant
☐ Government Facility	☐ School	☐ Other: _____

2. If school, childcare, or residential was checked above, was a presumptive remedy implemented pursuant to N.J.A.C. 7:26E-5.3? ..... ☐ Yes ☐ No ☒ N/A

   If "No," when was the remedy approved by the NJDEP? _____

3. Date Engineering Control(s) was installed: 10/01/2016

4. Identify below the materials used for the engineering control(s).

Area	Engineering Control Description	Thickness	Units
TA-7 Area	Soil	2	Feet
	Other *	6	Inches

*Other, describe:

Ashpalt or Concrete Cap

5. In the following table, please list all contaminants that require the use of a Deed Notice/engineering control(s) (attach additional pages if needed). *Please do not attach tables from reports.*

Contaminant	Concentration (mg/kg)	Depth (feet)	Residential Direct Contact Soil Remediation Standard	Non-Residential Direct Contact Soil Remediation Standard
Hexavalent Chromium	26 - 44	0 - 3	20 mg/kg*	20 mg/kg*
*Per 2007 Chromium Policy				

SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary? Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☐ Surface water
   ☐ Tier 1 Well-head protection areas
   ☐ Ecological receptor (e.g., wetlands, pinelands) Specify: _____

2. Have any of these receptors been impacted?..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this soil contamination?..... ☐ Yes ☒ No

   If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

   ☐ Subsurface Depressurization System
   ☐ Subsurface Ventilation System
   ☐ Soil Vapor Extraction System
   ☐ HVAC Positive Pressure
   ☐ Other (specify): _____

   Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

SECTION J. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained?..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained or the type of Remedial Action Permit(s) being applied for.

Groundwater RAP for Chromium
Non-Chromium Soil RAP
Non-Chromium Groundwater RAP

SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design and Con

SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site:

Representative First Name: Representative Last Name:

Title:

Phone Number: Ext: Fax:

Mailing Address:

City/Town: State: Zip Code:

Email Address:

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title:

SECTION M. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION M. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to the next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION K. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action/Deed Notice include an engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION L. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIATION COST REVIEW AND RFS/FA FORM

☐ RFS ☐ FA

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; JCMUA; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township Borough or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) or RFS Number(s): G000008710, G000008711

Case Tracking Number(s):

SECTION B. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION

Full Legal Name Person Responsible for Conducting Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Mailing Address: 115 Tabor Road

Municipality: Morris Plains State: NJ Zip Code: 07950

Phone Number: (973) 455-5802 Ext: Fax:

Email Address: William.Hague@Honeywell.com

☒ I am also the person responsible for establishing and maintaining a Remediation Funding Source (RFS).

Billing Contact

☒ Same as Person Responsible for Conducting Remediation / Representative listed above.

Name of Organization:

Name of Billing Contact: Title:

Mailing Address:

Municipality: State: Zip Code:

Phone Number: Ext: Fax:

Email Address:

EXEMPTION CLAIM FOR RFS ONLY (not FA)

If claiming an exemption from the requirement to post Remediation Funding Source pursuant to N.J.A.C. 7:26C-5.2(b), please check the appropriate box below and do not complete sections C through H:

- ☐ Environmental Opportunity Zone
- ☐ Innovative remedial action technology
- ☐ Unrestricted or limited restricted use remedial action
- ☐ Government entity
- ☐ Remediation at primary or secondary residence
- ☐ Owner or operator of a licensed child care center
- ☐ Public, private or charter school

NOTE: All exemptions require additional supporting documentation to be attached. Please refer to the form instructions. If the exemption is only for a portion of the site, you must complete section C through H for the portion of the site that does not meet the exemption criteria. **See instructions**.

SECTION C. PURPOSE OF SUBMISSION

Check all that apply

- ☐ Initial Remediation Funding Source pursuant to N.J.A.C. 7:26C-5.2(a) (*attach original RFS instrument and 1% surcharge payment, as applicable)*
- ☒ Initial Financial Assurance for a Remedial Action Permit pursuant to N.J.A.C. 7:26C-7 (*attach original FA instrument*)
- ☐ Initial Direct Oversight Remediation Trust Fund Agreement pursuant to N.J.A.C. 7:26C-14.2(b)5 (*attach original RTF instrument and 1% surcharge payment)*

- ☐ Initial Direct Oversight Remediation Cost Review pursuant to N.J.A.C. 7:26C-14.2(b)4
- ☐ Annual Remediation Cost Review pursuant to N.J.A.C. 7:26C-5.10 *(attach RFS instrument verification and valuation)*
- ☐ Biennial Cost Review pursuant to N.J.A.C. 7:26C-7.10 *(Remedial Action Permits)*

- ☐ Change in Remediation Funding Source or Financial Assurance Amount pursuant to N.J.A.C. 7:26C-5.11
- ☐ Change in Remediation Funding Source or Financial Assurance Mechanism pursuant to N.J.A. 7:26C-5.11(d)
- ☐ Remediation Funding Source Disbursement Notification pursuant to N.J.A.C. 7:26C-5.12(a)
- ☐ Remediation Funding Source Disbursement Request pursuant to N.J.A.C. 7:26C-5.12(b) – Direct Oversight only
- ☐ Remediation Funding Source/Financial Assurance Disbursement Request pursuant to N.J.A.C. 7:26C-5.13(d) – Department held RFS/FA

- ☐ Request Release of the Remediation Funding Source or Financial Assurance pursuant to N.J.A.C. 7:26C-5.11(e)
- ☐ Using a Remediation Funding Source as Financial Assurance

SECTION D. TYPE AND AMOUNT OF REMEDIATION FUNDING SOURCE OR FINANCIAL ASSURANCE POSTED

Initial or Existing Mechanism for ☐ RFS or ☐ FA

Check all that apply

- ☐ Letter of Credit
- ☐ Remediation Trust Fund
- ☐ Self Guarantee
- ☐ Line of Credit
- ☐ Environmental Insurance Policy
- ☐ Direct Oversight Remediation Trust Fund
- ☐ Fully Funded Trust (Existing only pre-June 1993)
- ☐ Performance Bond (Existing only pre-June 1993)
- ☐ Surety Bond (Existing only pre-June1993)

Replacement Mechanism for ☐ RFS or ☐ FA

Check all that apply

- ☐ Letter of Credit
- ☐ Remediation Trust Fund
- ☐ Self Guarantee
- ☐ Line of Credit
- ☐ Environmental Insurance Policy
- ☐ Direct Oversight Remediation Trust Fund

1. Expiration Date of Remediation Funding Source or Financial Assurance Posted: ..... _____
2. Amount of Remediation Funding Source or Financial Assurance posted prior to any increase, reduction, or disbursement addressed in this submission: ..... _____
3. Do you want to disburse, reduce, or increase the amount of the Remediation Funding Source?..... ☐ Yes ☐ No
   If "Yes," specify below:

   ☐ Disburse RFS ☐ Reduce RFS ☐ Increase RFS by (amount): _____

SECTION E. REMEDIATION COST ESTIMATION

1. Indicate the method(s) used to calculate the remediation cost review/estimate: (*Check all that apply*)

   ☐ RACER® (*attach documentation for estimate*)
   ☐ Cost-Pro® (*attach documentation for estimate*)
   ☐ Surrogate Cost (*ISRA Remediation Certifications, see for instructions for further clarification)*
   A Preliminary Assessment/Site Investigation has NOT been completed for the site, the surrogate remediation funding source has been established in the amount of $100,000 or $250,000.
   ☐ Calculated independently by LSRP/Consultant using (*attach documentation used to generate calculation*):
   ☐ Actual competitive bid(s)
   ☐ Internal company data
   ☐ Other commercially available software. Specify: _____
   ☐ Other. Specify: _____

2. Estimated cost:
   To complete remediation: _____
   or
   For Financial Assurance: _____

3. Full legal name of person who prepared the cost estimate: _____

SECTION F. COST REVIEW FOR REMEDIATION FUNDING SOURCE OR FINANCIAL ASSURANCE

1. **Remediation Funding Source – due annually**

   a. Date of most recent prior cost estimate: ..... _____

   b. Total monies spent to date to remediate the site: ..... _____
   Attach detailed summary of monies spent to remediate.

   c. Estimated remaining costs to complete the remediation: ..... _____
   Attach detailed estimate of remaining costs to complete remediation.

   d. Provide an explanation of any changes from most recent prior cost estimate.

2. Financial Assurance – due biennially

   a. Date of most recent prior cost estimate: ..... _____

   b. Current cost estimate to operate, maintain and monitor the engineering control: ..... _____

   c. Provide an explanation of any changes from most recent prior cost estimate.

SECTION G. LSRP AUTHORIZED DISBURSEMENTS NOTIFICATION AND REQUEST FOR NJDEP REDUCTION APPROVAL

1. Date previous notification/request submitted: ..... _____

2. For Remediation Trust Funds and Lines of Credit:

   a. Date the LSRP authorized disbursement (*Attach copy of authorization*): ..... _____

   b. Total amount of the authorized disbursement: ..... _____

   c. Date the holder of the RFS mechanism disbursed the funds: ..... _____

   d. Amount of RFS remaining after disbursement..... _____

3. For NJDEP authorized reductions:

   a. Amount of funds you are requesting the NJDEP authorize for reduction: ..... _____

   b. Provide RFS account information (e.g., bank name, account number, etc.):

SECTION H. REQUEST FOR NJDEP AUTHORIZED DISBURSEMENTS

ONLY for sites subject to Direct Oversight pursuant to N.J.A.C. 7:26C-14 and disbursement requests in accordance with N.J.A.C. 7:26C-5.13

1. Total amount of requested disbursement ..... _____

2. Provide the name, address, telephone number, email and tax identification number of all parties to receive payment from this disbursement and amount of each payment.

3. Attach a description of remediation costs incurred or to be incurred and the specific remediation that has or will be completed under this request including the following documentation:

   a.) For remediation costs that have been incurred, include a Remediation Report documenting the completion of the remediation activities; or

   b.) For remediation costs to be incurred, include a proposed scope of work of the remediation activities to be completed.

4. Attach an estimate of all remaining costs to complete the remediation.

SECTION I. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ The person responsible for conducting the remediation is the person responsible for establishing and maintaining a remediation funding source/financial assurance.

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

I certify I am fully aware of the requirements of N.J.A.C. 7:26C-5 et seq. as they pertain to Remediation Funding Sources and Financial Assurances and the language of any provided Remediation Funding Source or Financial Assurance instrument does not deviate in any way from the language in the Department's model documents found at www.nj.gov/dep/srp/guidance/rfsguide except as approved by the Department.

For disbursement notification or request pursuant to N.J.A.C. 7:26C-5.12 or 5.13(d), I certify that the disbursement relates to actual remediation costs, incurred or to be incurred, and does not include ineligible legal fees.

Signature: Date:

Name/Title: William Hague/Gobal Director, Remediation Design

SECTION J. PERSON ESTABLISHING AND MAINTAINING A REMEDIATION FUNDING SOURCE/FINANCIAL ASSURANCE (complete if different person than Section I)

Full Legal Name of Person Establishing and Maintaining a Remediation Funding Source: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person establishing and maintaining a remediation funding source/financial assurance who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

I certify I am fully aware of the requirements of N.J.A.C. 7:26C-5 et seq. as they pertain to Remediation Funding Sources and Financial Assurances and the language of any provided Remediation Funding Source or Financial Assurance instrument does not deviate in any way from the language in the Department's model documents found at www.nj.gov/dep/srp/guidance/rfsguide except as approved by the Department.

For a disbursement notification or request pursuant to N.J.A.C. 7:26C-5.12, I certify that the disbursement relates to actual remediation costs, incurred or to be incurred, and does not include ineligible legal fees

Signature: _____ Date: _____

Name/Title: _____

SECTION K. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

For a disbursement notification or request pursuant to N.J.A.C. 7:26C-5.12(a) and (c), I certify that the disbursement relates to actual remediation costs, incurred or to be incurred, and does not include ineligible legal fees.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation and Waste Management Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

New Jersey Department of Environmental Protection
Site Remediation and Waste Management Program

REMEDIAL ACTION PERMIT APPLICATION – GROUND WATER

☐ LSRP ☐ Subsurface Evaluator (UHOT only)

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Study Area SA-6 North Open Space Area

List All AKAs: Site 087 JCIA Site; Site 088 JCIA Well Site; See Section 1.2 of RAR for additional AKAs

Street Address: 501, 555, and 575 Route 440

Municipality: Jersey City (Township, Borough, or City)

County: Hudson Zip Code: 07305-4806

Program Interest (PI) Number(s): G000008710, G000008711

Case Tracking Number(s):

Municipal Block(s) and Lot(s) of the entire site: Block 21901 Lots 5-10

Is this site a Federal case? ☐ Yes ☒ No

If "Yes," indicate the Federal Case Type:

☐ **RCRA GPRA 2020** ☐ **CERCLA/NPL** ☐ **USDOD** ☐ **USDOE**

☐ Other (explain):

SECTION B. PERMIT APPLICATION, MODIFICATION, AND TERMINATION FEES

If this Application is for a Modification or Termination please confirm:

☐ All outstanding Remedial Action Permit annual fees are paid in full.

Note: The application will not be processed until all outstanding fees have been paid.

Select One	**Effective July 1, 2016**
☐ Natural Attenuation Permit Application	$1,565.00
☐ Natural Attenuation Permit Modification	$1,175.00
☐ Natural Attenuation Permit Termination	$1,205.00
☒ Active System Permit Application	$1,955.00
☐ Active System Permit Modification	$1,565.00
☐ Active System Permit Termination	$1,720.00

SECTION C. FEE BILLING CONTACT PERSON

Business Name: Honeywell International Inc. Phone: (973) 455-2175

Contact: William Hague Title: Director - Remediation Design and Construction

Mailing Address: 115 Tabor Rd

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax: (973) 455-5802

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Honeywell International Inc.

First Name of Contact: William Last Name of Contact: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax: (973) 455-5802

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

☒ Primary Responsibility for Permit Compliance

SECTION F. CLASSIFICATION EXCEPTION AREA (CEA) INFORMATION

1. Is this Ground Water Remedial Action Permit Application for a previously established CEA? ☒ Yes ☐ No
   If "Yes," provide the date the original CEA was established: 02/16/2012
2. Attach a completed CEA/WRA Fact Sheet Form with all exhibits.
3. Has the CEA been accurately mapped on NJ-GeoWeb? ☒ Yes ☐ No
   If "No", then submit a GIS compatible map of the CEA by email to srpgis_cea@dep.nj.gov .

SECTION G. MONITORING, MAINTENANCE AND EVALUATION INFORMATION

1. Type of Ground Water Remediation
   a. ☐ Monitored Natural Attenuation
      1) Is there a decreasing trend of contaminant concentrations in the ground water? ☐ Yes ☐ No
         If "No", is the ground water plume considered stable? ☐ Yes ☐ No
      2) Is the ground water plume reaching the sentinel wells? ☐ Yes ☐ No
      3) Has all soil contamination in the unsaturated zone been remediated to the applicable numeric Soil Remediation Standard for all area(s) of concern associated with this CEA? ☐ Yes ☐ No ☐ N/A
      4) Has all free and/or residual product in the unsaturated and saturated zones, as determined pursuant to N.J.A.C. 7:26E-5.1(e), been treated or removed for all area(s) of concern associated with this CEA? ☐ Yes ☐ No ☐ N/A
   b. ☒ Active Remediation
      Provide the type of remediation: Hydraulic Barrier, RCRA-equivalent cap, & extraction system
      1) Is there a decreasing trend of contaminant concentrations in the ground water? ☒ Yes ☐ No
         If "No", is the ground water plume considered stable? ☐ Yes ☐ No
      2) Is the ground water plume reaching the sentinel wells? ☐ Yes ☒ No

3) Is the ground water plume migrating horizontally or vertically into an uncontaminated aquifer zone below and adjacent to the contaminant plume? ☐ Yes ☒ No

4) Is the ground water remedial action performing as designed? ☒ Yes ☐ No

5) What is the expected duration of the active remediation? 100 (whole years)

2. Has a Technical Impracticability (TI) Determination been submitted? ☐ Yes ☒ No

If "Yes," attach a summary of the TI Determination and include any additional monitoring requirements in the Ground Water Monitoring Plan.

3. Check the **Monitoring Schedule** you plan to apply:

☐ Monthly ☐ Annual
☒ Quarterly ☐ Biennial
☐ Semi Annual ☐ Other: _____

4. Attach the following:

☒ An electronic copy in Adobe Portable Document Format (PDF) of the applicable Remedial Action Report (RAR). Provide the location in the RAR (*page #(s) / figure #(s)*) of the map(s) showing ground water contaminant delineation (horizontally and vertically): Appendix G

☒ The Ground Water Monitoring Plan in both paper and electronically (in "MS Excel" file format); See CEA

☒ A Site Location Map in both paper and electronically (in ".jpg" file format);

☐ A scaled CEA Map indicating the locations of the proposed ground water sampling points and ground water flow direction in both paper and electronically (in ".jpg" file format).

SECTION H. FINANCIAL ASSURANCE

1. Does the Remedial Action include a ground water or vapor intrusion engineering control? ☒ Yes ☐ No

If "No," proceed to the next section.

2. Are any of the entities identified in Section D or E exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ☐ Yes ☒ No

If "Yes," check the exemption(s) that applies.

Person Responsible for Conducting the Remediation – Co-Permittee	Current Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

If all of the entities identified in Section D or E are exempt, proceed to the next section.

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☒ No

If "Yes," and the association is identified in Section E of this Permit Application, attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.

4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: $ 7,900,000.00

5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ☐ Yes ☒ No

If "Yes," have all of the following criteria been met? ☐ Yes ☐ No

a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
c. The RFS is not in the form of a self-guarantee.

Identify the full amount of the current RFS ..... $ _____

6. Identify the full amount established as a Financial Assurance: ..... $ 87,507,050.00

Attach a completed Remediation Cost Review and RFS/FA Form.

7. What is the Financial Assurance Mechanism? *(check all that apply)*

☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
☐ Environmental Insurance Policy ☒ Letter of Credit

8. Contact information at the financial institution for the Financial Assurance:

Financial Institution: MFUG Union Bank

First Name of Contact: _____ Last Name of Contact: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

SECTION I. LAND USE *(for overlying CEA)*

1. **Current Site Land Use** *(check all that apply)*

☐ Industrial ☐ Park or Recreational Use ☐ Child Care Facility
☐ Residential ☐ Agricultural ☐ Hospital
☐ Commercial ☐ Road/Right of Way ☒ Vacant
☐ Governmental Facility ☐ School ☐ Other _____

2. **Off-site Land Use** *(check all that apply for Blocks/Lots included in the areal extent of the CEA)*

☐ Industrial ☐ Park or Recreational Use ☐ Child Care Facility
☐ Residential ☐ Agricultural ☐ Hospital
☐ Commercial ☐ Road/Right of Way ☐ Vacant
☐ Governmental Facility ☐ School ☐ Other _____

SECTION J. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the site boundary?
Check all that apply.

☐ Residences ☐ Public parks and playgrounds
☐ Potable wells ☒ Surface water
☐ Public and private schools (K-12) ☐ Tier 1 Well-head protection areas
☐ Child care facilities ☐ Ecological receptor (e.g., wetlands, pinelands) *Specify:* _____

2. Have any of these receptors been impacted? ..... ☐ Yes ☒ No

If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

3. Have any vapor intrusion engineering controls/mitigation systems been installed as a result of this ground water contamination? ..... ☐ Yes ☒ No

If "Yes," indicate the type of engineering control that was implemented: *(check all that apply)*

- ☐ Subsurface Depressurization System
- ☐ Subsurface Ventilation System
- ☐ Soil Vapor Extraction System
- ☐ HVAC Positive Pressure
- ☐ Other (specify): _____

Attach the Operation, Maintenance, and Monitoring (OMM) Plan for the vapor intrusion engineering control(s)/mitigation system(s) both in paper and electronically (in "MS Word" file format). The OMM Plan should clearly identify the building(s) and/or structure(s) and vapor intrusion engineering control(s)/mitigation system(s) that are in place (e.g., active or passive), including the address and block and lot of each impacted property.

4. Have any Point of Entry Treatment (POET) water systems been installed as a result of this ground water contamination? ..... ☐ Yes ☒ No

   If "Yes," attach the OMM Plan for the POET water system(s) that are in place both in paper and electronically (in "MS Word" file format). The OMM Plan should provide the address and lot and block of each property with a POET water system in place. The sampling of the POET water system(s) should be included in the Ground Water Monitoring Plan for the site (see Section G.4 above).

5. Are any potable wells that do not have a POET water system being sampled regularly as a result of this ground water contamination? ..... ☐ Yes ☒ No

   If "Yes", include these potable wells in the Ground Water Monitoring Plan for the site (see Section G.4 above).

SECTION K. OTHER REMEDIAL ACTION PERMITS

Are other Remedial Action Permits also being applied for or already obtained? ..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number, and Effective Date for each Remedial Action Permit obtained, or the type of Remedial Action Permit(s) being applied for.

Soil Remedial Action Permits for chromium
Soil Remedial Action Permits for non-chromium
Groundwater Remedial Action Permit for non-chromium

SECTION L. OTHER INFORMATION PROVIDED

If there is other information, please list.

SECTION M. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax: (973) 455-5802

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague, Director - Remediation Design

SECTION N. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax: (973) 455-5802

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: William Hague/Global Director, Remediation Design

SECTION O. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

SECTION O. SUBSURFACE EVALUATOR INFORMATION AND STATEMENT

I certify under penalty of law that the work was performed under my oversight and I have reviewed the report and all attached documents, and the submitted information is true, accurate and complete in accordance with the requirements of N.J.A.C. 7:14B and N.J.A.C. 7:26E. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment.

Name: _____ UST Cert. No.: _____

Firm: _____ Firm's UST Cert. Number: _____

Firm Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Ext: _____ Fax: _____

Email Address: _____

Signature: _____ Date: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

ADDENDUM A
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Title _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action include a ground water or vapor intrusion engineering control? ..... ☐ Yes ☐ No
   If "No ," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption(s) that applies:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
4. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS ..... $ _____
5. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
6. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit
7. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____
8. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM A

ADDENDUM TO SECTION M. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

ADDENDUM B
Additional Property Owners

ADDENDUM TO SECTION E. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

1. Does the Remedial Action include a ground water or vapor intrusion engineering control? ..... ☐ Yes ☐ No
   If "No," proceed to next section.
2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.10(c)? ..... ☐ Yes ☐ No
   If "Yes," check the exemption that applies, and then proceed to the next section:
   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business
3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No
   If "Yes," attach a copy of the association's annual budget that includes funds for the operation, maintenance, and monitoring of the engineering control(s) at the site.
4. Identify the estimated cost of the operation, maintenance, and monitoring of the engineering control(s) at the site: ..... $ _____
5. Are you using an existing Remediation Funding Source (RFS) mechanism for the site as the Financial Assurance? ..... ☐ Yes ☐ No
   If "Yes," have <u>all</u> of the following criteria been met? ..... ☐ Yes ☐ No
   a. There are no remaining areas of concern at the site that need additional remediation (i.e., the LSRP will be issuing a full site Remedial Action Outcome as a result of this permit issuance);
   b. The amount of funds in the RFS equals the amount of funds required to be posted for Financial Assurance; and
   c. The RFS is not in the form of a self-guarantee.

   Identify the full amount of the current RFS..... $ _____
6. Identify the full amount established as a Financial Assurance: ..... $ _____
   Attach a completed Remediation Cost Review and RFS/FA Form.
7. What is the Financial Assurance Mechanism? *(check all that apply)*
   ☐ Remediation Trust Fund ☐ Line of Credit ☐ Loan or Grant
   ☐ Environmental Insurance Policy ☐ Letter of Credit

ADDENDUM B

8. Contact information at the financial institution for the Financial Assurance:

   Financial Institution: _____

   First Name of Contact: _____ Last Name of Contact: _____

   Mailing Address: _____

   City/Town: _____ State: _____ Zip Code: _____

   Email Address: _____

   Phone Number: _____ Ext: _____ Fax: _____

9. Attach the original Financial Assurance mechanism or a copy of the RFS mechanism if using an existing RFS mechanism as the Financial Assurance.

ADDENDUM TO SECTION N. CURRENT OWNER OF THE SITE INFORMATION AND CERTIFICATION

Full Legal Name of the Person who owns the site: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This certification shall be signed by the person who owns the site and is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: _____

Name/Title: _____

TABLES

TABLE 1A
Baseline PAMP Data
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
2	Monday, July 15, 2013	**N1CrD071513***	N1	7:31	15:55	504	1110.0	<	90.0	<	18.0
4	Tuesday, July 16, 2013	N1CrD071613	N1	7:25	15:41	496	1093.0	<	91.0	<	18.0
6	Wednesday, July 17, 2013	N1CrD071713	N1	7:20	15:32	492	1041.0	<	96.0	<	19.0
8	Monday, July 22, 2013	N1CrD072213	N1	7:22	15:40	498	1024.0	<	98.0	<	20.0
10	Wednesday, July 24, 2013	N1CrD072413	N1	7:12	15:39	507	1033.0	<	97.0	<	20.0
12	Thursday, July 25, 2013	N1CrD072513	N1	6:05	14:11	486	985.0	<	100.0	<	20.0
14	Tuesday, July 30, 2013	**N1CrD073013***	N1	7:27	15:45	498	999.6	<	100.0	<	20.0
16	Wednesday, July 31, 2013	N1CrD073113	N1	7:15	15:41	506	997.1	<	100.0	<	20.0
18	Monday, August 05, 2013	N1CrD080513	N1	7:15	15:35	500	999.0	<	100.0	<	20.0
20	Tuesday, August 06, 2013	N1CrD080613	N1	6:55	15:25	510	1037.1	<	96.0	<	19.0

Notes:	**Action Levels**	
Detectable Results Below Action Level	Hexavalent Chromium	221 ng/m^3
ng/m^3: nanograms per cubic meter	***Validated by 3rd Party**	
ug/m^3: microgram per cubic meter		

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1A
Baseline PAMP Data
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for As (ng/m^3)		Analytical Results for Pb(ng/m^3)		Analytical Results for V (ng/m^3)		Analytical Results for Zn (ng/m^3)	
2	Monday, July 15, 2013	**N1Met071513***	N1	7:31	15:55	504	1090.0	<	47	<	47	<	2800	<	920
4	Tuesday, July 16, 2013	N1Met071613	N1	7:25	15:41	496	1073.0	<	47		76	<	2800	<	930
6	Wednesday, July 17, 2013	N1Met071713	N1	7:20	15:32	492	1039.0	<	49	<	50	<	2900	<	960
8	Monday, July 22, 2013	N1Met072213	N1	7:22	15:40	498	1027.0	<	49	<	50	<	2900	<	970
10	Wednesday, July 24, 2013	N1Met072413	N1	7:12	15:39	507	1037.0	<	49	<	50	<	2900	<	960
12	Thursday, July 25, 2013	N1Met072513	N1	6:05	14:11	486	997.0	<	51	<	52	<	3000	<	1000
14	Tuesday, July 30, 2013	**N1Met073013***	N1	7:27	15:45	498	1012.7	<	50	<	3000	<	3000	<	990
16	Wednesday, July 31, 2013	N1Met073113	N1	7:15	15:41	506	1031.1	<	49	<	2900	<	2900		2400
18	Monday, August 05, 2013	N1Met080513	N1	7:15	15:35	500	1029.3	<	49	<	250	<	2900	<	970
20	Tuesday, August 06, 2013	N1Met080613	N1	6:55	15:25	510	1034.5	<	49	<	250	<	2900	<	970

Notes:	**Action Levels**	
Detectable Results Below Action Level	Arsenic (As)	200 ng/m^3
***Validated by 3rd Party**	Lead (Pb)	300 ng/m^3
ng/m^3: nanograms per cubic meter	Vanadium (V)	300 ng/m^3
	Zinc (Zn)	Not Applicable

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
1	Friday, October 09, 2015	**MN1100915***	MN1	7:10	15:50	520	1,773	<	56.0	<	5.8
2	Tuesday, October 13, 2015	N1101315	N1	6:50	15:11	501	1,623	<	62.0	<	6.3
3	Wednesday, October 14, 2015	N1101415	N1	7:06	15:30	504	1,641	<	61.0	<	6.2
4	Thursday, October 15, 2015	MN1101515	MN1	7:03	15:18	495	1,690	<	59.0	<	6.1
5	Friday, October 16, 2015	MN1101615	MN1	6:48	15:23	515	1,697	<	59.0	<	6.0
6	Monday, October 19, 2015	MN1101915	MN1	7:02	15:30	508	1,633	<	61.0	<	6.2
7	Tuesday, October 20, 2015	N1102015	N1	7:38	15:22	464	1,482	<	67.0	<	6.9
8	Wednesday, October 21, 2015	MN1102115	MN1	7:08	15:30	502	1,689		78.0	<	6.0
9	Thursday, October 22, 2015	MN1102215	MN1	6:45	15:00	495	1,661		120.0	<	6.1
10	Friday, October 23, 2015	N3102315	N3	6:50	15:18	508	1,717	<	58.0	<	5.9
11	Monday, October 26, 2015	N3102615	N3	6:55	15:40	525	1,777	<	56.0	<	5.7
12	Tuesday, October 27, 2015	MN1102715	MN1	7:25	15:05	460	1,564	<	64.0	<	6.5
13	Wednesday, October 28, 2015	**MN1102815***	MN1	6:57	15:10	493	1,664	<	60.0	<	6.1
14	Thursday, October 29, 2015	MN1102915	MN1	6:59	15:00	481	1,628	<	61.0	<	6.2
15	Friday, October 30, 2015	N3103015	N3	6:57	15:08	491	1,677	<	60.0	<	6.1
16	Monday, November 02, 2015	N3110215	N3	6:50	15:38	528	1,782	<	56.0	<	5.7
17	Tuesday, November 03, 2015	**N1110315***	N1	6:55	15:10	495	1,685	<	59.0	<	6.0
18	Wednesday, November 04, 2015	MN1110415	MN1	7:10	15:25	495	1,661		62.0	<	6.1
19	Thursday, November 05, 2015	MN1110515	MN1	6:50	15:05	495	1,676	<	60.0	<	6.0
20	Friday, November 06, 2015	MN1110615	MN1	7:05	15:13	488	1,637		79.0	<	6.2
21	Monday, November 09, 2015	MN1110615	MN1	6:55	14:55	480	1,618	<	62.0	<	6.2
22	Tuesday, November 10, 2015	N3111015	N3	6:55	15:15	500	1,695	<	59.0	<	6.0
23	Wednesday, November 11, 2015	N3111115	N3	6:55	15:00	485	1,634	<	61.0	<	6.2
24	Thursday, November 12, 2015	MN1111215	MN1	6:55	15:00	485	1,647	<	61.0	<	6.1
25	Friday, November 13, 2015	N3111315	N3	7:02	15:08	486	1,648	<	61.0	<	6.1
26	Monday, November 16, 2015	N3111615	N3	7:00	15:35	515	1,741	<	57.0	<	5.8
27	Tuesday, November 17, 2015	N3111715	N3	7:05	15:25	500	1,702	<	59.0	<	5.9
28	Wednesday, November 18, 2015	MN1111815	MN1	7:00	15:21	501	1,701	<	59.0	<	5.9
29	Thursday, November 19, 2015	MN1111915	MN1	7:05	15:15	490	1,651	<	61.0	<	6.1
30	Friday, November 20, 2015	N3112015	N3	7:17	15:22	485	1,649	<	61.0	<	6.1
31	Monday, November 23, 2015	**N3112315***	N3	7:00	15:40	520	1,760	<	57.0	<	5.7
32	Tuesday, November 24, 2015	MN2112415	MN2	7:03	15:19	496	1,676		65.0	<	6.0
33	Wednesday, November 25, 2015	N3112515	N3	6:53	14:03	430	1,456	<	69.0	<	6.9
34	Monday, November 30, 2015	N3113015	N3	6:55	15:29	514	1,732	<	58.0	<	5.8
35	Tuesday, December 01, 2015	MN1120115	MN1	7:03	15:28	505	1,712	<	58.0	<	5.9
36	Wednesday, December 02, 2015	MN2120215	MN2	6:54	15:21	507	1,714	<	58.0	<	5.9
37	Thursday, December 03, 2015	MN2120315	MN2	6:50	15:19	509	1,731	<	58.0	<	5.8
38	Friday, December 04, 2015	N3120415	N3	6:55	15:23	508	1,712	<	58.0	<	5.9
39	Monday, December 07, 2015	MN2120715	MN2	6:57	15:42	525	1,775	<	56.0	<	5.6

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
40	Tuesday, December 08, 2015	N3120815	N3	6:53	15:17	504	1,698	<	59.0	<	5.9
41	Wednesday, December 09, 2015	MN1120915	MN1	7:03	15:28	505	1,720		67.0	<	5.8
42	Thursday, December 10, 2015	**MN1121015***	MN1	6:43	15:30	527	1,784	<	56.0	<	5.6
43	Friday, December 11, 2015	N1121115	N1	6:51	15:15	504	1,701		64.0	<	5.9
44	Monday, December 14, 2015	MN1121415	MN1	6:57	15:18	501	1,691		120.0	<	5.9
45	Tuesday, December 15, 2015	MN2121515	MN2	7:00	15:25	505	1,717	<	58.0	<	5.8
46	Wednesday, December 16, 2015	MN1121615	MN1	6:58	15:15	497	1,690	<	59.0	<	5.9
47	Thursday, December 17, 2015	MN1121715	MN1	6:58	15:42	524	1,776	<	56.0	<	5.6
48	Friday, December 18, 2015	N3121815	N3	6:53	15:23	510	1,729	<	58.0	<	5.8
49	Monday, December 21, 2015	N1122115	N1	6:57	15:43	526	1,775	<	56.0	<	5.6
50	Tuesday, December 22, 2015	MN1122215	MN1	6:43	15:30	527	1,792	<	56.0	<	5.6
51	Wednesday, December 23, 2015	N3122315	N3	6:53	14:07	434	1,476	<	68.0	<	6.8
52	Monday, December 28, 2015	**MN1122815***	MN1	6:45	15:28	523	1,765	<	57.0	<	5.7
53	Tuesday, December 29, 2015	MN1122915	MN1	7:08	15:28	500	1,702		350.0	<	5.9
54	Wednesday, December 30, 2015	MN1123015	MN1	6:56	15:15	499	1,669	<	60.0	<	6.0
55	Thursday, December 31, 2015	N3123115	N3	8:50	14:10	320	1,082	<	92.0	<	9.2
56	Monday, January 04, 2016	N3010416	N3	6:55	15:38	523	1,770		130.0	<	5.6
57	Tuesday, January 05, 2016	N3010516	N3	7:03	15:23	500	1,690	<	59.0	<	5.9
58	Wednesday, January 06, 2016	N1010616	N1	7:00	15:25	505	1,712	<	58.0	<	5.8
59	Thursday, January 07, 2016	MN2010716	MN2	7:07	15:30	503	1,698		100.0	<	5.9
60	Friday, January 08, 2016	N1010816	N1	7:03	15:13	490	1,666	<	60.0	<	6.0
61	Monday, January 11, 2016	N3011116	N3	6:47	15:37	530	1,844		74.0	<	5.4
62	Tuesday, January 12, 2016	MN1011216	MN1	7:12	15:28	496	1,724	<	58.0	<	5.8
63	Wednesday, January 13, 2016	N3011316	N3	6:45	15:25	520	1,781		100.0	<	5.6
64	Thursday, January 14, 2016	MN2011416	MN2	7:16	15:37	501	1,811	<	55.0	<	5.5
65	Friday, January 15, 2016	N3011516	N3	6:33	15:38	545	1,883	<	53.0	<	5.3
66	Monday, January 18, 2016	**N3011816***	N3	6:39	15:32	533	1,945	<	51.0	<	5.1
67	Tuesday, January 19, 2016	**N3011916***	N3	6:37	15:20	523	1,838		140.0	<	5.4
68	Wednesday, January 20, 2016	N3012016	N3	6:41	15:11	510	1,780	<	56.0	<	5.6
69	Thursday, January 21, 2016	N3012116	N3	6:34	15:23	529	1,828		77.0	<	5.5
70	Friday, January 22, 2016	N3012216	N3	6:49	15:21	512	1,856	<	54.0	<	5.4
71	Tuesday, January 26, 2016	MN1012616	MN1	6:51	15:16	505	1,783	<	56.0	<	5.6
72	Wednesday, January 27, 2016	N3012716	N3	6:41	15:13	512	1,782	<	56.0	<	5.6
73	Thursday, January 28, 2016	N3012816	N3	7:29	15:19	470	1,610	<	62.0	<	6.2
74	Friday, January 29, 2016	MN1012916	MN1	6:41	15:19	518	1,800	<	56.0	<	5.6
75	Monday, February 01, 2016	MN1020116	MN1	7:18	15:29	491	1,733	<	58.0	<	5.8
76	Tuesday, February 02, 2016	N3020216	N3	7:12	15:24	492	1,724	<	58.0	<	5.8
77	Wednesday, February 03, 2016	MN1020316	MN1	7:26	15:19	473	1,611	<	62.0	<	6.2
78	Thursday, February 04, 2016	N3020416	N3	7:30	15:43	493	1,696	<	59.0	<	5.9

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
79	Friday, February 05, 2016	N3020516	N3	7:07	15:42	515	1,733	<	58.0	<	5.8
80	Monday, February 08, 2016	N3020816	N3	6:50	15:44	534	1,837	<	54.0	<	5.5
81	Tuesday, February 09, 2016	MN1020916	MN1	7:23	15:17	474	1,619	<	62.0	<	6.2
82	Wednesday, February 10, 2016	MN2021016	MN2	7:20	15:10	470	1,622	<	62.0	<	6.2
83	Thursday, February 11, 2016	N3021116	N3	7:19	15:19	480	1,661		65.0	<	6.0
84	Friday, February 12, 2016	N3021216	N3	7:23	15:12	469	1,623	<	62.0	<	6.2
85	Tuesday, February 16, 2016	MN1021616	MN1	9:21	15:24	363	1,218	<	82.0	<	8.3
86	Wednesday, February 17, 2016	MN2021716	MN2	6:47	15:14	507	1,734	<	58.0	<	5.8
87	Thursday, February 18, 2016	N3021816	N3	7:22	15:28	486	1,645	<	61.0	<	6.1
88	Friday, February 19, 2016	N3021916	N3	7:13	15:19	486	1,643	<	61.0	<	6.1
89	Monday, February 22, 2016	**N3022216***	N3	7:22	16:19	537	1,837	<	54.0	<	5.5
90	Tuesday, February 23, 2016	**MN1022316***	MN1	7:35	12:13	278	954	<	100.0	<	11.0
91	Wednesday, February 24, 2016	**N3022416***	N3	7:13	15:19	486	1,660	<	60.0	<	6.1
92	Thursday, February 25, 2016	MN1022516	MN1	6:42	15:14	512	1,733	<	58.0	<	5.8
93	Friday, February 26, 2016	N3022616	N3	7:24	15:15	471	1,590	<	63.0	<	6.4
94	Monday, February 29, 2016	MN1022916	MN1	7:13	15:36	503	1,708	<	59.0	<	5.9
95	Tuesday, March 01, 2016	N3030116	N3	6:51	15:04	493	1,693	<	59.0	<	6.0
96	Wednesday, March 02, 2016	MN2030216	MN2	7:23	15:27	484	1,665	<	60.0	<	6.1
97	Thursday, March 03, 2016	N3030316	N3	6:49	15:16	507	1,714	<	58.0	<	5.9
98	Friday, March 04, 2016	MN1030416	MN1	8:19	15:21	422	1,458	<	69.0	<	6.9
99	Monday, March 07, 2016	MN1030716	MN1	6:41	15:16	515	1,769	<	57.0	<	5.7
100	Tuesday, March 08, 2016	N3030816	N3	8:07	15:23	436	1,491	<	67.0	<	6.8
101	Wednesday, March 09, 2016	N3030916	N3	7:22	15:12	470	1,622		110.0	<	6.2
102	Thursday, March 10, 2016	MN1031016	MN1	6:41	15:35	534	1,842		68.0	<	5.5
103	Friday, March 11, 2016	N3031116	N3	7:10	15:12	482	1,648	<	61.0	<	6.1
104	Monday, March 14, 2016	**N3031416***	N3	6:48	15:37	529	1,833	<	55.0	<	5.5
105	Tuesday, March 15, 2016	**N3031516***	N3	7:15	15:30	495	1,683	<	59.0	<	6.0
106	Wednesday, March 16, 2016	**MN1031616***	MN1	6:45	15:35	530	1,810	<	55.0	<	5.6
107	Thursday, March 17, 2016	N1031716	N1	6:49	15:31	522	1,814	<	55.0	<	5.6
108	Friday, March 18, 2016	N3031816	N3	6:46	15:32	526	1,815		83.0	<	5.6
109	Monday, March 21, 2016	N3032116	N3	7:09	15:32	503	1,720	<	58.0	<	5.9
110	Tuesday, March 22, 2016	MN2032216	MN2	6:42	15:35	533	1,826	<	55.0	<	5.5
111	Wednesday, March 23, 2016	N1032316	N1	7:10	15:28	498	1,711	<	58.0	<	5.9
112	Thursday, March 24, 2016	N3032416	N3	6:45	15:32	527	1,813		63.0	<	5.6
113	Friday, March 25, 2016	N3032516	N3	6:50	15:37	527	1,789		86.0	<	5.7
114	Monday, March 28, 2016	N3032816	N3	6:30	15:45	555	1,912	<	52.0	<	5.3
115	Tuesday, March 29, 2016	N3032916	N3	6:40	16:09	569	1,974		87.0	<	5.1
116	Wednesday, March 30, 2016	MN2033016	MN2	6:40	15:40	540	1,863	<	54.0	<	5.4
117	Thursday, March 31, 2016	MN2033116	MN2	6:37	15:33	536	1,833	<	55.0	<	5.5

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
118	Friday, April 01, 2016	N1040116	N1	6:40	15:17	517	1,768	<	57.0	<	5.7
119	Monday, April 04, 2016	N3040416	N3	6:30	15:40	550	1,884	<	53.0	<	5.4
120	Tuesday, April 05, 2016	N3040516	N3	6:41	15:23	522	1,764	<	57.0	<	5.8
121	Wednesday, April 06, 2016	MN1040616	MN1	6:40	15:21	521	1,792	<	56.0	<	5.7
122	Thursday, April 07, 2016	MN1040716	MN1	6:38	15:30	532	1,830	<	55.0	<	5.6
123	Friday, April 08, 2016	MN2040816	MN2	6:35	15:20	525	1,801	<	56.0	<	5.6
124	Monday, April 11, 2016	MN1041116	MN1	6:35	15:13	518	1,772	<	56.0	<	5.7
125	Tuesday, April 12, 2016	**N3041216***	N3	6:45	15:26	521	1,779	<	56.0	<	5.7
126	Wednesday, April 13, 2016	**N3041316***	N3	6:35	15:13	518	1,795	<	56.0	<	5.7
127	Thursday, April 14, 2016	N3041416	N3	6:41	15:13	512	1,759	<	57.0	<	5.8
128	Friday, April 15, 2016	N3041516	N3	6:45	15:14	509	1,741	<	57.0	<	5.9
129	Monday, April 18, 2016	N3041816	N3	6:35	15:15	520	1,797	<	56.0	<	5.7
130	Tuesday, April 19, 2016	N3041916	N3	6:27	15:20	533	1,820	<	55.0	<	5.6
131	Wednesday, April 20, 2016	N3042016	N3	6:30	15:15	525	1,806	<	55.0	<	5.6
132	Thursday, April 21, 2016	MN1042116	MN1	7:10	15:45	515	1,764	<	57.0	<	5.8
133	Friday, April 22, 2016	MN1042216	MN1	6:30	15:15	525	1,809	<	55.0	<	5.6
134	Monday, April 25, 2016	MN1042516	MN1	6:30	15:35	545	1,869	<	54.0	<	5.5
135	Tuesday, April 26, 2016	N3042616	N3	6:30	15:10	520	1,797	<	56.0	<	5.7
136	Wednesday, April 27, 2016	N3042716	N3	6:42	15:17	515	1,769	<	57.0	<	5.8
137	Thursday, April 28, 2016	N3042816	N3	6:42	15:20	518	1,785	<	56.0	<	5.7
138	Friday, April 29, 2016	MN1042916	MN1	6:30	15:20	530	1,823	<	55.0	<	5.6
139	Monday, May 02, 2016	N1050216	N1	6:30	15:37	547	1,887	<	53.0	<	5.4
140	Tuesday, May 03, 2016	MN1050316	MN1	7:20	15:27	487	1,687	<	59.0	<	6.1
141	Wednesday, May 04, 2016	N3050416	N3	7:30	15:10	460	1,585	<	63.0	<	6.4
142	Thursday, May 05, 2016	N3050516	N3	6:37	15:35	538	1,848	<	54.0	<	5.5
143	Friday, May 06, 2016	N3050616	N3	6:40	15:20	520	1,784		130.0	<	5.7
144	Monday, May 09, 2016	N3050916	N3	6:35	15:34	539	1,843	<	54.0	<	5.5
145	Tuesday, May 10, 2016	N3051016	N3	6:40	15:22	522	1,793	<	56.0	<	5.7
146	Wednesday, May 11, 2016	N3051116	N3	6:38	15:35	537	1,853	<	54.0	<	5.5
147	Thursday, May 12, 2016	MN1051216	MN1	6:20	15:37	557	1,919	<	52.0	<	5.3
148	Friday, May 13, 2016	MN1051316	MN1	6:25	15:20	535	1,835	<	54.0	<	5.6
149	Monday, May 16, 2016	N3051616	N3	6:35	15:33	538	1,848	<	54.0	<	5.5
150	Tuesday, May 17, 2016	N1051716	N1	6:30	15:12	522	1,790	<	56.0	<	5.7
151	Wednesday, May 18, 2016	N3051816	N3	6:30	15:10	520	1,781	<	56.0	<	5.7
152	Thursday, May 19, 2016	N1051916	N1	6:25	15:40	555	1,901	<	53.0	<	5.4
153	Friday, May 20, 2016	N3052016	N3	6:35	15:22	527	1,810	<	55.0	<	5.7
154	Monday, May 23, 2016	MN1052316	MN1	6:30	15:35	545	1,869		75.0	<	5.5
155	Tuesday, May 24, 2016	**N3052416***	N3	6:45	15:15	510	1,752	<	57.0	<	5.8
156	Wednesday, May 25, 2016	**MN1052516***	MN1	6:55	15:30	515	1,779		58.0	<	5.8

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
157	Thursday, May 26, 2016	MN1052616	MN1	6:55	15:29	514	1,773		69.0	<	5.8
158	Friday, May 27, 2016	MN1052716	MN1	6:34	14:31	477	1,646	<	61.0	<	6.2
159	Tuesday, May 31, 2016	N3053116	N3	5:30	14:20	530	1,813	<	55.0	<	5.7
160	Wednesday, June 01, 2016	N3060116	N3	5:40	14:25	525	1,806	<	55.0	<	5.7
161	Thursday, June 02, 2016	MN1060216	MN1	5:45	14:28	523	1,797	<	56.0	<	5.7
162	Friday, June 03, 2016	MN1060316	MN1	5:30	14:15	525	1,803	<	55.0	<	5.7
163	Monday, June 06, 2016	N3060616	N3	5:40	16:02	622	2,130	<	47.0	<	4.8
164	Tuesday, June 07, 2016	N3060716	N3	5:30	16:12	642	2,199		53.0	<	4.7
165	Wednesday, June 08, 2016	N3060816	N3	7:20	13:00	340	1,173	<	85.0	<	8.8
166	Thursday, June 09, 2016	N3 060916	N3	5:33	16:15	642	2,196		57.0		8.5
167	Friday, June 10, 2016	N3 061016	N3	5:40	16:03	623	2,118		76.0		7.3
168	Monday, June 13, 2016	N3 061316	N3	5:45	16:15	630	2,161		55.0	<	4.7
169	Tuesday, June 14, 2016	N3 061416	N3	5:40	16:05	625	2,128	<	47.0	<	4.8
170	Wednesday, June 15, 2016	N3 061516	N3	6:15	15:55	580	1,981	<	50.0	<	5.2
171	Thursday, June 16, 2016	MN1 061616	MN1	5:35	16:10	635	2,184	<	46.0	<	4.7
172	Friday, June 17, 2016	N2 061716	N2	5:48	16:15	627	2,154	<	46.0	<	4.8
173	Monday, June 20, 2016	MN2 062016	MN2	5:12	16:15	663	2,267		47.0	<	4.5
174	Tuesday, June 21, 2016	**N3 062116***	N3	5:40	16:00	620	2,127	<	47.0	<	4.8
175	Wednesday, June 22, 2016	**N3 062216&**	N3	5:45	16:13	628	2,151		120.0		8.4
176	Thursday, June 23, 2016	N3 062316	N3	5:47	16:13	626	2,197		66.0	<	4.7
177	Friday, June 24, 2016	N3 062416	N3	5:40	16:20	640	2,227	<	45.0	<	4.6
178	Saturday, June 25, 2016	MN3 062516	MN3	5:40	14:11	511	1,778	<	56.0	<	5.8
179	Monday, June 27, 2016	MN1 062716	MN1	6:15	19:02	767	2,665		43.0	<	3.9
180	Tuesday, June 28, 2016	MN1 062816	MN1	5:48	16:13	625	2,166	<	46.0	<	4.8
181	Wednesday, June 29, 2016	N3 062916	N3	5:50	15:40	590	2,044	<	49.0	<	5.0
182	Thursday, June 30, 2016	N3 063016	N3	5:48	16:24	636	2,207	<	45.0	<	4.7
183	Friday, July 01, 2016	MN1 070116	MN1	5:48	14:13	505	1,755	<	57.0	<	5.9
184	Tuesday, July 05, 2016	N3 070516	N3	6:15	15:30	555	1,923	<	52.0	<	5.4
185	Wednesday, July 06, 2016	N3 070616	N3	5:50	16:05	615	2,131	<	47.0	<	4.8
186	Thursday, July 07, 2016	MN2 070716	MN2	5:48	16:15	627	2,176	<	46.0		5.2
187	Friday, July 08, 2016	N1 070816	N1	5:48	15:25	577	2,005	<	50.0	<	5.1
188	Monday, July 11, 2016	N3 071116	N3	5:50	16:05	615	2,137	<	47.0	<	4.8
189	Tuesday, July 12, 2016	N1 071216	N1	5:48	16:10	622	2,155	<	46.0	<	4.8
190	Wednesday, July 13, 2016	MN1 071316	MN1	5:50	16:15	625	2,169	<	46.0	<	4.8
191	Thursday, July 14, 2016	MN2 071416	MN2	5:51	16:15	624	2,172	<	46.0	<	4.7
192	Friday, July 15, 2016	N3 071516	N3	5:47	16:11	624	2,168	<	46.0	<	4.8
193	Saturday, July 16, 2016	N3 071616	N3	5:20	13:20	480	1,668	<	60.0	<	6.2
194	Monday, July 18, 2016	N1 071816	N1	5:43	16:05	622	2,155		49.0	<	4.8
195	Tuesday, July 19, 2016	N3 071916	N3	5:40	16:10	630	2,196		130.0	<	4.7

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Hexavalent Chromium Air Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for Particulate (ug/m^3)		Analytical Results for CrVI (ng/m^3)	
196	Wednesday, July 20, 2016	N3 072016	N3	5:30	16:05	635	2,223		55.0	<	4.6
197	Thursday, July 21, 2016	N3 072116	N3	5:35	16:05	630	2,196		110.0	<	4.7
198	Friday, July 22, 2016	N3 072216	N3	5:40	16:07	627	2,179		180.0	<	4.7
199	Monday, July 25, 2016	N1 072516	N1	5:32	16:05	633	2,219	<	45.0	<	4.7
200	Tuesday, July 26, 2016	N3 072616	N3	5:35	16:10	635	2,219	<	45.0	<	4.7
201	Wednesday, July 27, 2016	N3 072716	N3	5:45	16:12	627	2,195	<	50.0	<	4.7
202	Thursday, July 28, 2016	**N1 072816***	N1	5:40	16:05	625	2,178		46.0	<	4.8
203	Friday, July 29, 2016	N3 072916	N3	5:45	14:20	515	1,795	<	56.0	<	5.8
204	Monday, August 01, 2016	N1 080116	N1	5:25	16:10	645	2,238	<	45.0	<	4.6
205	Tuesday, August 02, 2016	N3 080216	N3	5:30	16:10	640	2,237	<	45.0	<	4.6
206	Wednesday, August 03, 2016	N3 080316	N3	5:42	16:05	623	2,187	<	46.0	<	4.7
207	Thursday, August 04, 2016	N3 080416	N3	6:13	16:05	592	2,057	<	49.0	<	5.0
208	Friday, August 05, 2016	N3 080516	N3	6:15	16:10	595	2,074	<	48.0	<	5.0
209	Monday, August 08, 2016	N3 080816	N3	6:10	16:10	600	2,079		79.0		36.0
210	Tuesday, August 09, 2016	N3 080916	N3	5:35	16:15	640	2,234		78.0		9.8
211	Wednesday, August 10, 2016	N1 081016	N1	5:45	17:05	680	2,383	<	42.0	<	4.3
212	Thursday, August 11, 2016	N1 081116	N1	6:13	17:05	652	2,282	<	44.0	<	4.5
213	Friday, August 12, 2016	N1 081216	N1	6:15	17:05	650	2,265	<	44.0	<	4.6
214	Saturday, August 13, 2016	N1 081316	N1	6:15	16:05	590	2,068	<	48.0	<	5.0
215	Monday, August 15, 2016	N3 081516	N3	6:10	14:10	480	1,682		73.0	<	6.1
216	Tuesday, August 16, 2016	N3 081616	N3	6:15	14:00	465	1,623	<	62.0	<	6.4

Notes:	**Action Levels**	
Detectable Results Below Action Level	Hexavalent Chromium	221 ng/m³
ng/m³: nanograms per cubic meter	***Validated by 3rd Party**	
ug/m³: microgram per cubic meter		

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Metals
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for As (ng/m^3)		Analytical Results for Pb (ng/m^3)		Analytical Results for V (ng/m^3)		Analytical Results for Zn (ng/m^3)	
1	Friday, October 16, 2015	MN1MET101615	MN1	6:53	15:30	517	1,678	<	30	<	30	<	30	<	300
2	Friday, October 23, 2015	N3MET102315	N3	6:50	15:18	508	1,722	<	29	<	29	<	30	<	290
3	Thursday, October 29, 2015	MN1MET102915	MN1	6:59	15:00	481	1,631	<	31	<	31	<	31	<	310
4	Wednesday, November 04, 2015	MN1MET110415	MN1	7:10	15:25	495	1,681	<	30		40	<	30	<	300
5	Wednesday, November 11, 2015	**N3MET111115***	N3	7:05	15:03	478	1,620	<	31	<	31	<	32	<	310
6	Wednesday, November 18, 2015	MN1MET111815	MN1	7:00	15:21	501	1,698	<	30	<	30	<	30	<	290
7	Tuesday, November 24, 2015	MN2MET112415	MN2	7:03	15:19	496	1,689	<	30	<	30	<	30	<	300
8	Thursday, December 03, 2015	MN2MET120315	MN2	6:50	15:19	509	1,664	<	30	<	30	<	31	<	300
9	Thursday, December 10, 2015	**MN1MET121015***	MN1	6:43	15:30	527	1,747	<	29	<	29	<	29	<	290
10	Wednesday, December 16, 2015	MN1MET121615	MN1	6:58	15:15	497	1,675	<	30	<	30	<	31	<	300
11	Tuesday, December 22, 2015	MN1MET122215	MN1	6:43	15:30	527	1,779	<	29	<	28	<	29	<	280
12	Wednesday, January 06, 2016	N1MET010616	N1	7:00	15:25	505	1,720	<	29	<	29	<	30	<	290
13	Wednesday, January 13, 2016	**N3MET011316***	N3	6:45	15:25	520	1,750	<	29	<	29	<	29	<	290
14	Wednesday, January 20, 2016	N3MET012016	N3	6:41	15:11	510	1,703	<	30	<	29	<	30	<	290
15	Wednesday, January 27, 2016	N3MET012716	N3	6:41	15:13	512	1,738	<	29	<	29	<	30	<	290
16	Wednesday, February 03, 2016	**MN1MET020316***	MN1	7:26	15:19	473	1,632	<	31	<	31	<	31	<	310
17	Wednesday, February 10, 2016	MN2MET021016	MN2	7:20	15:10	470	1,622	<	31	<	31	<	32	<	310
18	Wednesday, February 17, 2016	MN2MET021716	MN2	6:47	15:14	507	1,739	<	29	<	29	<	29	<	290
19	Thursday, February 25, 2016	**MN1MET022516***	MN1	6:42	15:24	522	1,798	<	28	<	28	<	28	<	280
20	Wednesday, March 02, 2016	MN2MET030216	MN2	7:23	15:27	484	1,626	<	31	<	31	<	31	<	310
21	Wednesday, March 09, 2016	MN1MET030916	MN1	7:20	15:12	472	1,612	<	31	<	31	<	32	<	310
22	Thursday, March 17, 2016	N1031716MET	N1	6:49	15:31	522	1,790	<	28		32	<	28	<	280
23	Tuesday, March 22, 2016	MN2MET032216	MN2	6:42	15:35	533	1,826	<	28	<	27	<	28	<	270
24	Wednesday, March 30, 2016	MN2MET033016	MN2	6:40	15:40	540	1,836	<	27	<	27	<	28	<	270
25	Wednesday, April 06, 2016	MN1MET040616	MN1	6:40	15:21	521	1,766	<	28	<	28	<	29	<	280
26	Wednesday, April 13, 2016	N3MET041316	N3	6:35	15:13	518	1,774	<	28	<	28	<	29	<	280
27	Wednesday, April 20, 2016	N3MET042016	N3	6:30	15:15	525	1,798	<	28		44	<	28	<	280
28	Wednesday, April 27, 2016	N3MET042716	N3	6:42	15:17	515	1,766	<	28	<	28	<	29	<	280
29	Wednesday, May 04, 2016	N3MET050416	N3	7:30	15:10	460	1,587	<	32	<	32	<	32	<	320
30	Wednesday, May 11, 2016	N3MET051116	N3	6:38	15:35	537	1,834	<	27	<	27	<	28	<	270
31	Wednesday, May 18, 2016	N3MET051816	N3	6:30	15:10	520	1,794	<	28	<	28	<	28	<	280
32	Wednesday, May 25, 2016	MN1MET052516	MN1	6:55	15:30	515	1,769	<	28	<	28	<	29	<	280
33	Wednesday, June 01, 2016	N3MET060116	N3	5:40	14:25	525	1,801	<	28	<	28	<	28	<	280
34	Wednesday, June 08, 2016	N3MET060816	N3	7:20	13:00	340	1,170	<	43	<	43	<	43	<	430
35	Wednesday, June 15, 2016	N3MET061516	N3	6:15	15:55	580	1,981	<	25	<	25	<	25	<	250
36	Wednesday, June 22, 2016	N3MET062216	N3	5:45	16:13	628	2,151	<	23		140		33		260
37	Wednesday, June 29, 2016	N3MET062916	N3	5:50	15:40	590	2,044	<	24	<	24	<	25	<	240
38	Thursday, June 30, 2016	N3MET 063016	N3	5:47	15:24	577	2,207	<	25	<	25	<	25	<	250
39	Wednesday, July 06, 2016	N3MET 070616	N3	5:50	16:05	615	2,131	<	23		33	<	24	<	230

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 1B
Tracking Log
Metals
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Entry	Date	Sample #	Location	Start	Stop	Minutes	Volume	Analytical Results for As (ng/m^3)		Analytical Results for Pb (ng/m^3)		Analytical Results for V (ng/m^3)		Analytical Results for Zn (ng/m^3)	
40	Tuesday, July 12, 2016	N1 MET 071216	N1	5:48	16:10	622	2,155	<	23	<	23	<	23	<	230
41	Thursday, July 21, 2016	N3 MET 072116	N3	5:35	16:05	630	2,196	<	23	<	23	<	23	<	230
42	Thursday, July 28, 2016	N1 MET 072816	N1	5:40	16:05	625	2,178	<	23	<	23	<	23	<	230
43	Tuesday, August 02, 2016	N3 MET 080216	N3	5:30	16:10	640	2,237	<	22	<	22	<	23	<	220
44	Thursday, August 11, 2016	N1 MET 081116	N1	6:13	17:05	652	2,282	<	22	<	22	<	22	<	220
45	Tuesday, August 16, 2016	N3 MET081616	N3	6:15	14:00	465	1,623	<	30	<	30	<	30	<	300

Notes:	**Action Levels**	
Detectable Results Below Action Level	Arsenic (As)	200 ng/m³
***Validated by 3rd Party**	Lead (Pb)	300 ng/m³
ng/m³: nanograms per cubic meter	Vanadium (V)	300 ng/m³
	Zinc (Zn)	Not Applicable

Prepared by: NW 12/13/2016
Reviewed by: JLD 12/15/2016

TABLE 2A

EA2 Soil Boring and EA-5 Sidewall Soil Samples

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Client Sample ID				087-EA5-SW-092915		088-SB-190-0201	
Lab Sample ID				JC4911-1R		JC14037-1	
Date Sampled				09/29/2015		02/10/2016	
Sample Purpose		NJ 2012 MOST		REG		REG	
Parameter Name	**Units**	**STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**	**CONC**	**Q**
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.65		0.94	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 2B

Site 087 Misc 087-EA5-Asphalt Solid Samples

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

		Location ID			**087-EA5-Asphalt**	
		Client Sample ID			087-EA5-Asphalt-092815	
		Lab Sample ID			JC4878-1	
		Date Sampled			09/28/2015	
		Sample Purpose			REG	
Parameter Group Name	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**
SA-6 TAL Metals	ALUMINUM	mg/kg	78000	6000	4110	J
SA-6 TAL Metals	ANTIMONY	mg/kg	31	6	2	UJ
SA-6 TAL Metals	ARSENIC	mg/kg	19	19	**22.8**	
SA-6 TAL Metals	BARIUM	mg/kg	16000	2100	36	
SA-6 TAL Metals	BERYLLIUM	mg/kg	16	0.7	0.24	
SA-6 TAL Metals	CADMIUM	mg/kg	78	2	0.51	U
SA-6 TAL Metals	CALCIUM	mg/kg	NC	NC	5810	
SA-6 TAL Metals	CHROMIUM	mg/kg	NC	NC	5	
SA-6 TAL Metals	COBALT	mg/kg	590	90	7.5	
SA-6 TAL Metals	COPPER	mg/kg	3100	11000	9.6	
SA-6 TAL Metals	IRON	mg/kg	NC	NC	13800	
SA-6 TAL Metals	LEAD	mg/kg	400	90	4.2	
SA-6 TAL Metals	MAGNESIUM	mg/kg	NC	NC	2590	
SA-6 TAL Metals	MANGANESE	mg/kg	11000	65	**198**	
SA-6 TAL Metals	MERCURY	mg/kg	23	0.1	0.034	U
SA-6 TAL Metals	NICKEL	mg/kg	1600	48	10.3	
SA-6 TAL Metals	POTASSIUM	mg/kg	NC	NC	1450	
SA-6 TAL Metals	SELENIUM	mg/kg	390	11	2	U
SA-6 TAL Metals	SILVER	mg/kg	390	1	0.51	U
SA-6 TAL Metals	SODIUM	mg/kg	NC	NC	1000	U
SA-6 TAL Metals	THALLIUM	mg/kg	5	3	1	U
SA-6 TAL Metals	VANADIUM	mg/kg	78	NC	41.1	
SA-6 TAL Metals	ZINC	mg/kg	23000	930	26.4	
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1016	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1221	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1232	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1242	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1248	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1254	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1260	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1262	mg/kg	NC	NC	0.073	U
SA-6 PCB/Pesticide/Herbicide	AROCLOR-1268	mg/kg	NC	NC	0.073	U
	Total PCBs	mg/kg	0.2	0.2	0.073	U
SA-6 General Chemistry	HEXAVALENT CHROMIUM	mg/kg	20	NC	0.41	U
SA-6 General Chemistry	OXIDATION-REDUCTION POTENTIAL	mV	NC	NC	279	
SA-6 General Chemistry	pH	S.U.	NC	NC	8.64	

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

NJ 2013 IGW SOIL

NJ 2012 MOST STRINGENT SRS

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 2B

Site 087 Misc 087-EA5-Asphalt Solid Samples - TCLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

		Client Sample ID		**087-EA5-Asphalt-092815**	
		Lab Sample ID		JC4878-1A	
		Date Sampled		09/28/2015	
		Sample Purpose		REG	
Parameter Group Name	**Parameter Name**	**Units**	**RCRA Toxicity Characteristics (40 CFR261.24)**	**CONC**	**Q**
SA-6 TAL Metals	ARSENIC	mg/L	5	0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100	1	U
SA-6 TAL Metals	CADMIUM	mg/L	1	0.025	U
SA-6 TAL Metals	CHROMIUM	mg/L	5	0.05	U
SA-6 TAL Metals	LEAD	mg/L	5	0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2	0.0002	U
SA-6 TAL Metals	SELENIUM	mg/L	1	0.5	U
SA-6 TAL Metals	SILVER	mg/L	5	0.05	U

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

RCRA Toxicity Characteristics (40 CFR261.24)

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per liter (mg/L)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 3A
CWTP Effluent Results - VOCs
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

	SAMPLE LOCATION		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01	
	FIELD SAMPLE ID		087-TW-01-031016		087-TW-01-040816		087-TW-01-050616		087-TW-01-060816		087-TW-01-070716		087-TW-01-080116		087-TW-01-090816		087-TW-01-100516	
	SAMPLING DATE		03/10/2016		04/08/2016		05/06/2016		06/08/2016		07/07/2016		08/01/2016		09/08/2016		10/05/2016	
	LAB SAMPLE ID		JC15961-1		JC17922-1		JC19783-1		JC21786-1		JC23594-1		JC24999-1		JC27228-1		JC29071-1	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG	
	Filtered	SA-6 CWTP Effluent	N		N		N		N		N		N		N		N	
PARAMETER	Report Units	Criteria	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
1,1,1-TRICHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-TETRACHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-TRICHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-DICHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-DICHLOROETHENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-DICHLOROBENZENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-DICHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-DICHLOROPROPANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-DICHLOROBENZENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-DICHLOROBENZENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-CHLOROETHYL VINYL ETHER	ug/l	NC	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
ACROLEIN	ug/l	NC	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
ACRYLONITRILE	ug/l	NC	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
BENZENE	ug/l	NC	0.48	J	0.24	J	0.31	J	0.18	J	0.16	J	1.0	U	1.0	U	1.0	U
BROMODICHLOROMETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
BROMOFORM	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
BROMOMETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
CARBON TETRACHLORIDE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
CHLOROBENZENE	ug/l	NC	0.22	J	0.14	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
CHLOROETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
CHLOROFORM	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
CHLOROMETHANE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
CIS-1,2-DICHLOROETHENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
CIS-1,3-DICHLOROPROPENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
DICHLORODIFLUOROMETHANE	ug/l	NC	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U
ETHYLBENZENE	ug/l	NC	1.0	U	0.39	J	0.22	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
METHYLENE CHLORIDE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TETRACHLOROETHENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TOLUENE	ug/l	NC	0.32	J	0.50	J	0.36	J	0.22	J	0.23	J	1.0	U	1.0	U	1.0	U
TRANS-1,2-DICHLOROETHENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TRANS-1,3-DICHLOROPROPENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TRICHLOROETHENE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TRICHLOROFLUOROMETHANE	ug/l	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
VINYL CHLORIDE	ug/l	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
XYLENES, TOTAL	ug/l	NC	0.42	J	2.8		1.4		1.0	U	0.4	J	1.0	U	1.0	U	1.0	U
Total VOCs	ug/l	2130	1.44		4.07		2.3		0.4		0.8		0.0		0.0		0.0	

Notes:
SA-6 CWTP Effluent Criteria is the discharge limitation criteria from Sewer Use Permit #31630019
NC: No criterion established
CONC: Concentration reported in micrograms per liter (ug/l)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 3B
CWTP Effluent Results - General Chemistry
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

PARAMETER	Report Units	SA-6 CWTP Effluent Criteria	SAMPLE LOCATION	087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01	
			FIELD SAMPLE ID	087-TW-01-031016C		087-TW-01-040816C		087-TW-01-050616C		087-TW-01-060816C		087-TW-01-070716C		087-TW-01-080116C		087-TW-01-090816C		087-TW-01-100516C	
			SAMPLING DATE	03/10/2016		04/08/2016		05/06/2016		06/08/2016		07/07/2016		08/01/2016		09/08/2016		10/05/2016	
			LAB SAMPLE ID	JC15961-2		JC17922-2		JC19783-2		JC21786-2		JC23594-2		JC24999-2		JC27228-2		JC29071-2	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Filtered	N		N		N		N		N		N		N		N	
				CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
CHROMIUM	mg/L	NC		7.83		6.19		8.7		5.27		6.14		3.68		1.68		3.07	
COPPER	mg/L	3.6		0.0105		0.0202		0.0128		0.0106		0.01	U	0.0155		0.01	U	0.01	U
LEAD	mg/L	1		0.0064		0.0087		0.0110		0.0045		0.0030	U	0.0231		0.0052		0.0030	U
MERCURY	mg/L	0.08		0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
NICKEL	mg/L	3.9		0.0178		0.0167		0.0187		0.0130		0.0181		0.01	U	0.0172		0.0153	J
ZINC	mg/L	4.2		0.771		0.196		0.02	U	0.0568		0.0288		0.151		0.0214		0.0307	

Notes:

SA-6 CWTP Effluent Criteria is the discharge limitation criteria from Sewer Use Permit #31630019

NC: No criterion established

CONC: Concentration reported in milligrams per liter (mg/L)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 3C
CWTP Effluent Results - General Chemistry
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

SAMPLE LOCATION			087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01		087-TW-01	
FIELD SAMPLE ID			087-TW-01-031016		087-TW-01-031016C		087-TW-01-040816		087-TW-01-040816C		087-TW-01-050616		087-TW-01-050616C		087-TW-01-060816		087-TW-01-060816C		087-TW-01-070716		087-TW-01-070716C		087-TW-01-080116		087-TW-01-080116C	
SAMPLING DATE			03/10/2016		03/10/2016		04/08/2016		04/08/2016		05/06/2016		05/06/2016		06/08/2016		06/08/2016		07/07/2016		07/07/2016		08/01/2016		08/01/2016	
LAB SAMPLE ID			JC15961-1		JC15961-2		JC17922-1		JC17922-2		JC19783-1		JC19783-2		JC21786-1		JC21786-2		JC23594-1		JC23594-2		JC24999-1		JC24999-2	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Filtered		SA-6 CWTP	N		N		N		N		N		N		N		N		N		N		N		N	
PARAMETER	Report Units	Effluent Criteria	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	mg/L	NC			13.7				6.9				3.7				3.4	U			5.0	U			5.0	U
HEXANE EXT MATERIAL SILICA GEL TREATED	mg/L	100	5.1	U			5.1	UJ			5.1	U			5.0	U			5.0	U			5.0	UJ		
pH	S.U.	5-10.5	6.15				8.84				9.12				8.86				8.16				7.43			

SAMPLE LOCATION			087-TW-01		087-TW-01		087-TW-01	
FIELD SAMPLE ID			087-TW-01-090816		087-TW-01-090816C			
SAMPLING DATE			09/08/2016		09/08/2016			
LAB SAMPLE ID			JC27228-1		JC27228-2			
Sample Purpose			REG		REG			
Filtered		SA-6 CWTP	N		N			
PARAMETER	Report Units	Effluent Criteria	CONC	Q	CONC	Q		
BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	mg/L	NC			4.1			
HEXANE EXT MATERIAL SILICA GEL TREATED	mg/L	100	5.0	U				
pH	S.U.	5-10.5	8.66					

Notes:

SA-6 CWTP Effluent Criteria is the discharge limitation criteria from Sewer Use Permit #31630019

NC: No criterion established

CONC: Concentration reported in milligrams per liter (mg/L)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 3C
CWTP Effluent Results - General Chemistry
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

SAMPLE LOCATION			087-TW-01		087-TW-01	
FIELD SAMPLE ID			087-TW-01-100516		087-TW-01-100516C	
SAMPLING DATE			10/05/2016		10/05/2016	
LAB SAMPLE ID			JC29071-1		JC29071-2	
Sample Purpose			REG		REG	
Filtered		SA-6 CWTP	N		N	
PARAMETER	Report Units	Effluent Criteria	CONC	Q	CONC	Q
BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	mg/L	NC			15.0	
HEXANE EXT MATERIAL SILICA GEL TREATED	mg/L	100	5.1	U		
pH	S.U.	5-10.5	9.05			

Notes:

SA-6 CWTP Effluent Criteria is the discharge limitation criteria from Sewer Use Permit #31630019

NC: No criterion established

CONC: Concentration reported in milligrams per liter (mg/L)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 4

Groundwater Elevation Monitoring

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

	SA-6 North Cap Contingent Groundwater System Water Elevations			
	Access MH#1 STA 1+50	Extraction Pump Station #1	Extraction Pump Station #2	Access MH#2 STA 18+00
10/1/2015	Temp. Unavailable	4.60	2.74	2.81
10/28/2015	Temp. Unavailable	4.65	2.97	3.06
12/1/2015	Temp. Unavailable	4.58	2.05	2.22
12/30/2015	Temp. Unavailable	5.40	1.54	4.34
2/1/2016	Temp. Unavailable	7.73	2.45	6.24
3/1/2016	0.80	0.90	0.60	3.34
4/1/2016	1.00	1.70	0.72	2.19
5/2/2016	0.79	1.30	1.09	2.00
6/1/2016	1.10	1.21	1.43	2.14
6/28/2016	1.25	1.45	1.80	2.27
7/27/2016	1.25	1.45	1.80	2.27
8/29/2016	2.63	2.77	2.89	3.02
9/29/2016	1.54	1.53	3.25	3.32
11/4/2016	2.25	2.47	3.32	3.19
12/1/2016	2.64	2.86	3.46	3.36
1/17/2017	Temp. Unavailable	3.16	3.51	3.36

	SA-6 North Monitoring Wells								
	087-MW-132	087-MW-133	087-MW-134	115-W6-SO	115-W1-SO	115-E4-SO	115-E5-SO	088-MW-112	088-MW-111
10/1/2015	5.16	5.08	5.07	5.76	NR	3.24	3.65	NR	NR
10/28/2015	5.48	5.52	5.56	6.06	6.92	3.94	4.05	NR	NR
12/1/2015	5.26	5.23	5.37	5.56	6.22	3.64	3.85	2.18	2.25
12/30/2015	5.75	5.80	5.83	6.85	7.55	4.93	4.75	Temp. Unavailable	Temp. Unavailable
2/1/2016	5.94	Temp. Unavailable	6.06	7.52	7.72	6.18	Temp. Unavailable	2.73	3.02
3/1/2016	6.23	3.60	6.28	3.96	5.12	4.94	5.37	3.63	3.72
4/1/2016	5.89	5.89	5.88	2.51	3.52	2.69	4.27	3.12	3.17
5/2/2016	5.71	5.74	5.70	2.10	Temp. Unavailable	2.63	4.10	2.89	3.02
6/1/2016	5.60	5.70	5.68	1.66	2.48	2.55	3.02	2.79	2.89
6/28/2016	5.72	5.74	5.70	1.73	2.35	2.42	3.23	2.60	2.69
7/27/2016	5.98	6.22	6.05	2.00	2.34	2.62	3.25	2.93	3.00
8/29/2016	5.40	5.43	5.46	2.65	2.77	3.16	2.56	3.05	3.10
9/29/2016	5.16	5.18	5.22	1.71	2.99	3.27	3.32	2.80	2.90
11/4/2016	5.63	5.71	5.71	2.43	2.39	3.37	3.29	2.74	Abandoned
12/1/2016	6.44	6.71	6.57	2.84	2.47	3.54	4.13	2.96	Abandoned
1/17/2017	6.71	6.78	6.80	3.16	2.75	3.60	4.18	3.42	Abandoned

Prepared by: JLD 02/09/2017

Reviewed by: DEN 02/09/2017

TABLE 4

Groundwater Elevation Monitoring

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

	SA-6 North Piezometers									
	087-PZ-1	087-PZ-2	087-PZ-3	087-PZ-4	087-PZ-5	087-PZ-6	087-PZ-7	087-PZ-8	087-PZ-9	087-PZ-10
10/1/2015	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/28/2015	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/1/2015	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/30/2015	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/1/2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/1/2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/1/2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/2/2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/1/2016	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/28/2016	3.47	2.66	2.73	3.05	Temp. Unavailable	Temp. Unavailable	5.48	1.44	2.12	1.72
7/27/2016	3.54	2.68	2.85	3.22	Temp. Unavailable	Temp. Unavailable	5.63	1.52	2.11	1.86
8/29/2016	3.35	3.21	3.11	3.18	Temp. Unavailable	Temp. Unavailable	5.22	2.50	2.50	2.58
9/29/2016	3.21	3.21	2.80	3.27	Temp. Unavailable	Temp. Unavailable	4.96	1.50	3.03	1.48
11/4/2016	3.53	3.31	2.76	3.38	3.70	3.25	5.36	2.32	2.51	2.37
12/1/2016	4.96	3.27	3.00	3.46	5.82	3.39	6.39	2.64	2.77	2.99
1/17/2017	4.59	3.60	3.45	3.51	5.30	3.50	6.41	2.97	2.07	3.18

Notes:

NI : Not Installed at time of measurement

Temp. Unavailable: Could not be accessed

NR: Not Recorded

Elev.: Groundwater Elevation, feet

Prepared by: JLD 02/09/2017

Reviewed by: DEN 02/09/2017

TABLE 5

SHALLOW MONITORING WELL LIST

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Study Area	Site	Well	Easting	Northing	Permit Number	Well Depth (feet below TOC)	Well Diam (in)	Well Construction
SA-7	115	115-E4-SO	603480.0	685090.0	2600076844	13.45	2.0	PVC
SA-7	115	115-E5-SO	603099.3	685381.4	2600078862	19.80	2.0	PVC
SA-7	115	115-W1-SO	602463.9	685748.8	-	24.66	2.0	PVC
SA-7	115	115-W6-SO	602121.0	685951.0	-	18.15	2.0	PVC
SA-6 North	87	087-PZ-1	603719.0	685108.0	E201606638	10.81	4.0	SS
SA-6 North	87	087-PZ-2	603710.2	685111.3	E201606639	15.21	4.0	SS
SA-6 North	87	087-PZ-3	603365.3	685484.2	E201606641	16.87	4.0	SS
SA-6 North	87	087-PZ-4	603361.6	685478.8	E201606642	20.26	4.0	SS
SA-6 North	87	087-PZ-5	602959.3	685779.8	E201606645	23.07	4.0	SS
SA-6 North	87	087-PZ-6	602956.0	685773.1	E201606646	25.25	4.0	SS
SA-6 North	87	087-PZ-7	602442.3	685973.9	E201606650	25.19	4.0	SS
SA-6 North	87	087-PZ-8	602430.4	685947.7	E201606651	20.27	4.0	SS
SA-6 North	87	087-PZ-9	602087.3	686064.8	E201606647	20.04	4.0	SS
SA-6 North	87	087-PZ-10	602101.8	686066.4	E201606648	20.03	4.0	SS

Notes:
1. New Jersey State Plane Coordinates relative to North American Datum (NAD) of 1983.
2. Diam (in) = Well diameter in inches
3. PVC = Polyvinyl Chloride
4. SS = Stainless Steel
5. SA-7 wells included are within the SA-6 North Open Space AOC.
6. Well depth is feet below top of casing (April 2016).
7. NM = not measured.

Prepared by JLD 01/19/2017
Reviewed by NW 01/19/2017

TABLE 6A

Stockpile Tracking Table

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Excavated Material Location (Grid No.)	Material Designation (<20 or >1,000)	Stockpile ID	Estimated Stockpile Volume (CY)	Sample ID	Sample Date	Hexavalent Chromium Result (mg/kg)	FINAL PLACEMENT OF MATERIAL*		
							<20 Backfill in Excavation (Excavation Cell)	>20 - <240 Placed Under Cap	>240 Shipped Off Site as Haz or Non Haz
EA8	<20	087-EA8-20-a,b	1500	087-EA8-20-a1	6/24/2015	<2.3	Yes (Placed in EA7)		
				087-EA8-20-a2	6/24/2015	<2.3	Yes (Placed in EA7)		
				087-EA8-20-a3	6/24/2015	<1.9	Yes (Placed in EA7)		
				087-EA8-20-a4	6/24/2015	<1.9	Yes (Placed in EA7)		
				087-EA8-20-b1	6/24/2015	<2.1	Yes (Placed in EA7)		
				087-EA8-20-b2	6/24/2015	0.78	Yes (Placed in EA7)		
				087-EA8-20-b3	6/24/2015	2.10	Yes (Placed in EA7)		
				087-EA8-20-b4	6/24/2015	<2.0	Yes (Placed in EA7)		
EA8	<20	087-EA8-20-c (bermed/trench material)	250	087-EA8-20-c1	6/24/2015	<1.9	Yes (Placed in EA8)		
				087-EA8-20-c2	6/24/2015	<2.1	Yes (Placed in EA8)		
				087-EA8-20-c3	6/24/2015	<2.1	Yes (Placed in EA8)		
				087-EA8-20-c4	6/24/2015	<1.9	Yes (Placed in EA8)		
EA7	<20	087-EA7-20-a (bermed/trench material)	900	087-EA7-20-a1	6/26/2015	<1.8	Yes (Placed in EA7)		
				087-EA7-20-a2	6/26/2015	<1.4	Yes (Placed in EA7)		
				087-EA7-20-a3	6/26/2015	<1.4	Yes (Placed in EA7)		
				087-EA7-20-a4	6/26/2015	5.5	Yes (Placed in EA7)		
EA7	<20	087-EA7-20-b West Pile	600	087-EA7-20-b1	7/14/2015	5.2	Yes (Placed in EA7)		
				087-EA7-20-b2	7/14/2015	2.6	Yes (Placed in EA7)		
				087-EA7-20-b3	7/14/2015	4.3	Yes (Placed in EA7)		
				087-EA7-20-b4	7/14/2015	2.8	Yes (Placed in EA7)		
EA7	<20	087-EA7-20-c East Pile	200	087-EA7-20-c1	7/14/2015	<.47	Yes (Placed in EA7)		
				087-EA7-20-c2	7/14/2015	<1.6	Yes (Placed in EA7)		
3S cap material	<240	124-3S-EX-a,b,c,d (Excess 3S material)	3500	124-3S-EX-a1	8/10/2015	51.6		Yes	
				124-3S-EX-a2	8/10/2015	18.6	Yes (Placed in EA2/EA3)		
				124-3S-EX-a3	8/10/2015	37.1		Yes	
				124-3S-EX-a4	8/10/2015	18.9	Yes (Placed in EA2/EA3)		
				124-3S-EX-b1	8/10/2015	24.8		Yes	
				124-3S-EX-b2	8/10/2015	49.3		Yes	
				124-3S-EX-b3	8/10/2015	37.9		Yes	
				124-3S-EX-b4	8/10/2015	40.4		Yes	
				124-3S-EX-c1	8/10/2015	24.7		Yes	
				124-3S-EX-c2	8/10/2015	36.3		Yes	
				124-3S-EX-c3	8/10/2015	46.7		Yes	
				124-3S-EX-c4	8/10/2015	8.1	Yes (Placed in EA2/EA3)		
				124-3S-EX-d1	8/10/2015	25.6		Yes	
				124-3S-EX-d2	8/10/2015	32.1		Yes	
				124-3S-EX-d3	8/10/2015	74.6		Yes	
				124-3S-EX-d4	8/10/2015	34.7		Yes	
EA4	<20	087-EA4-20-a (bermed/trench material)	225	087-EA4-20-a1	9/11/2015	2	Yes (Placed in EA-4)		
				087-EA4-20-a2	9/11/2015	<1.4	Yes (Placed in EA-4)		
				087-EA4-20-a3	9/11/2015	<1.8	Yes (Placed in EA-4)		
				087-EA4-20-a4	9/11/2015	5.0	Yes (Placed in EA-4)		
EA-5	<20	087-EA5-20-a1:b4 (benched of A material)	1300	087-EA5-20-a1	9/11/2015	0.7	Yes (Placed in EA-5)		
				087-EA5-20-a2	9/11/2015	<1.7	Yes (Placed in EA-5)		
				087-EA5-20-a3	9/11/2015	<.46	Yes (Placed in EA-5)		
				087-EA5-20-a4	9/11/2015	<1.1	Yes (Placed in EA-5)		
				087-EA5-20-b1	9/11/2015	<2.0	Yes (Placed in EA-5)		
				087-EA5-20-b2	9/11/2015	6.8	Yes (Placed in EA-5)		
				087-EA5-20-b3	9/11/2015	8.3	Yes (Placed in EA-5)		
				087-EA5-20-b4	9/11/2015	<.55	Yes (Placed in EA-5)		

Prepared by JD 05/01/2016

Reviewed by NW 05/15/2016

TABLE 6A

Stockpile Tracking Table

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Excavated Material Location (Grid No.)	Material Designation (<20 or >1,000)	Stockpile ID	Estimated Stockpile Volume (CY)	Sample ID	Sample Date	Hexavalent Chromium Result (mg/kg)	FINAL PLACEMENT OF MATERIAL*		
							<20 Backfill in Excavation (Excavation Cell)	>20 - <240 Placed Under Cap	>240 Shipped Off Site as Haz or Non Haz
EA-5	<20	087-EA5-20-c1:d4 (stockpile of A material)	2000	087-EA5-20-c1	9/11/2015	<1.8	Yes (Placed in EA2/EA3)		
				087-EA5-20-c2	9/11/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-EA5-20-c3	9/11/2015	<.56	Yes (Placed in EA2/EA3)		
				087-EA5-20-c4	9/11/2015	<.60	Yes (Placed in EA2/EA3)		
				087-EA5-20-d1	9/11/2015	<.56	Yes (Placed in EA2/EA3)		
				087-EA5-20-d2	9/11/2015	<.44	Yes (Placed in EA2/EA3)		
				087-EA5-20-d3	9/11/2015	<.5	Yes (Placed in EA2/EA3)		
				087-EA5-20-d4	9/11/2015	9.6	Yes (Placed in EA2/EA3)		
EA-5 UST	WC	087-EA5-UST-WC	50	087-EA5-UST-WC	9/25/2015	<1.9			Yes
3S cap material	<240	124-3S-EX2-a	780	124-3S-EX2-a1	9/28/2015	50		Yes	
				124-3S-EX2-a2	9/28/2015	48.5		Yes	
				124-3S-EX2-a3	9/28/2015	82.3		Yes	
				124-3S-EX2-a4	9/28/2015	785			Yes
Material from under 3S asphalt roadway	<240	124-3S-Roadway-a	525	124-3S-Roadway-a1	9/28/2015	327			Yes
				124-3S-Roadway-a2	9/28/2015	2100			Yes
				124-3S-Roadway-a3	9/28/2015	1970			Yes
				124-3S-Roadway-a4	9/28/2015	5900			Yes
EA-5 Asphalt	<240	087-EA5-Asphalt	100	087-EA5-Asphalt-092815	9/28/2015	<.41		Yes	
Utility material (waterline break; excavated material)	<20	087-EA2-waterline	50	087-EA2-waterline-092815	9/28/2015	13.5	Yes (Placed in EA2/EA3)		
3S cap material	<240	124-3S-EX3-a	1000	124-3S-EX3-a1	10/21/2015	3120			Yes
				124-3S-EX3-a2	10/21/2015	6820			Yes
				124-3S-EX3-a3	10/21/2015	5690			Yes
				124-3S-EX3-a4	10/21/2015	4300			Yes
1N (2 foot cut material)	<20	087-1N-20-a, b, c	3000	087-1N-20-a1	10/28/2015	<.5	Yes (Placed in SA-6 South)		
				087-1N-20-a2	10/28/2015	2.1	Yes (Placed in SA-6 South)		
				087-1N-20-a3	10/28/2015	<.48	Yes (Placed in SA-6 South)		
				087-1N-20-a4	10/28/2015	5.4	Yes (Placed in SA-6 South)		
				087-1N-20-b1	10/28/2015	1.0	Yes (Placed in SA-6 South)		
				087-1N-20-b2	10/28/2015	<2.0	Yes (Placed in SA-6 South)		
				087-1N-20-b3	10/28/2015	0.65	Yes (Placed in SA-6 South)		
				087-1N-20-b4	10/28/2015	<1.9	Yes (Placed in SA-6 South)		
				087-1N-20-c1	10/28/2015	<2.0	Yes (Placed in SA-6 South)		
				087-1N-20-c2	10/28/2015	<1.8	Yes (Placed in SA-6 South)		
				087-1N-20-c3	10/28/2015	<1.8	Yes (Placed in SA-6 South)		
				087-1N-20-c4	10/28/2015	<.51	Yes (Placed in SA-6 South)		

Prepared by JD 05/01/2016

Reviewed by NW 05/15/2016

TABLE 6A

Stockpile Tracking Table

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Excavated Material Location (Grid No.)	Material Designation (<20 or >1,000)	Stockpile ID	Estimated Stockpile Volume (CY)	Sample ID	Sample Date	Hexavalent Chromium Result (mg/kg)	FINAL PLACEMENT OF MATERIAL*		
							<20 Backfill in Excavation (Excavation Cell)	>20 - <240 Placed Under Cap	>240 Shipped Off Site as Haz or Non Haz
1 N (2 foot cut material)	<20	087-1N-20-d1:n4	11,160	087-1N-20-d1	11/17/2015	<1.4	Yes (Placed in SA-6 South)		
				087-1N-20-d2	11/17/2015	9.5	Yes (Placed in SA-6 South)		
				087-1N-20-d3	11/17/2015	19.9	Yes (Placed in SA-6 South)		
				087-1N-20-d4	11/17/2015	<1.5	Yes (Placed in SA-6 South)		
				087-1N-20-e1	11/17/2015	<1.3	Yes (Placed in SA-6 South)		
				087-1N-20-e2	11/17/2015	<1.4	Yes (Placed in SA-6 South)		
				087-1N-20-e3	11/17/2015	<1.4	Yes (Placed in SA-6 South)		
				087-1N-20-e4	11/17/2015	<1.4	Yes (Placed in SA-6 South)		
				087-1N-20-f1	11/17/2015	<1.5	Yes (Placed in SA-6 South)		
				087-1N-20-f2	11/17/2015	<.93	Yes (Placed in SA-6 South)		
				087-1N-20-f3	11/17/2015	<.90	Yes (Placed in SA-6 South)		
				087-1N-20-f4	11/17/2015	<1.5	Yes (Placed in SA-6 South)		
				087-1N-20-g1	11/17/2015	<.95	Yes (Placed in SA-6 South)		
				087-1N-20-g2	11/17/2015	<.86	Yes (Placed in SA-6 South)		
				087-1N-20-g3	11/17/2015	<.96	Yes (Placed in SA-6 South)		
				087-1N-20-g4	11/17/2015	<1.3	Yes (Placed in SA-6 South)		
				087-1N-20-h1	11/17/2015	1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-h2	11/17/2015	<.92	Yes (Placed in EA2/EA3)		
				087-1N-20-h3	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-h4	11/17/2015	<.92	Yes (Placed in EA2/EA3)		
				087-1N-20-i1	11/17/2015	<1.3	Yes (Placed in EA2/EA3)		
				087-1N-20-i2	11/17/2015	<2.0	Yes (Placed in EA2/EA3)		
				087-1N-20-i3	11/17/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-i4	11/17/2015	<2.1	Yes (Placed in EA2/EA3)		
				087-1N-20-j1	11/17/2015	<1.8	Yes (Placed in EA2/EA3)		
				087-1N-20-j2	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-j3	11/17/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-j4	11/17/2015	<1.8	Yes (Placed in EA2/EA3)		
				087-1N-20-k1	11/17/2015	<1.6	Yes (Placed in EA2/EA3)		
				087-1N-20-k2	11/17/2015	<2.0	Yes (Placed in EA2/EA3)		
				087-1N-20-k3	11/17/2015	<2.1	Yes (Placed in EA2/EA3)		
				087-1N-20-k4	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-l1	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-l2	11/17/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-l3	11/17/2015	<2.0	Yes (Placed in EA2/EA3)		
				087-1N-20-l4	11/17/2015	<2.1	Yes (Placed in EA2/EA3)		
				087-1N-20-m1	11/17/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-m2	11/17/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-1N-20-m3	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-m4	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-n1	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-n2	11/17/2015	<1.4	Yes (Placed in EA2/EA3)		
				087-1N-20-n3	11/17/2015	<1.3	Yes (Placed in EA2/EA3)		
				087-1N-20-n4	11/17/2015	<1.5	Yes (Placed in EA2/EA3)		
EA2/EA3	<20	087-EA2-20-a (bermed/trench material)	400	087-EA2-20-a1	12/11/2015	<1.8	Yes (Placed in EA2/EA3)		
				087-EA2-20-a2	12/11/2015	6.7	Yes (Placed in EA2/EA3)		
				087-EA2-20-a3	12/11/2015	<1.9	Yes (Placed in EA2/EA3)		
				087-EA2-20-a4	12/11/2015	3.8	Yes (Placed in EA2/EA3)		

Prepared by JD 05/01/2016

Reviewed by NW 05/15/2016

TABLE 6A

Stockpile Tracking Table

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Excavated Material Location (Grid No.)	Material Designation (<20 or >1,000)	Stockpile ID	Estimated Stockpile Volume (CY)	Sample ID	Sample Date	Hexavalent Chromium Result (mg/kg)	FINAL PLACEMENT OF MATERIAL*		
							<20 Backfill in Excavation (Excavation Cell)	>20 - <240 Placed Under Cap	>240 Shipped Off Site as Haz or Non Haz
EA2/EA3	<20	087-EA2-20-b1:g1 (A material)	5200 cy	087-EA2-20-b1	12/30/2015	3.0	Yes (Placed in EA2/EA3)		
				087-EA2-20-b2	12/30/2015	3.0	Yes (Placed in EA2/EA3)		
				087-EA2-20-b3	12/30/2015	0.55	Yes (Placed in EA2/EA3)		
				087-EA2-20-b4	12/30/2015	0.97	Yes (Placed in EA2/EA3)		
				087-EA2-20-c1	12/30/2015	4.3	Yes (Placed in EA2/EA3)		
				087-EA2-20-c2	12/30/2015	1.5	Yes (Placed in EA2/EA3)		
				087-EA2-20-c3	12/30/2015	1.6	Yes (Placed in EA2/EA3)		
				087-EA2-20-c4	12/30/2015	0.53	Yes (Placed in EA2/EA3)		
				087-EA2-20-d1	12/30/2015	0.60	Yes (Placed in EA2/EA3)		
				087-EA2-20-d2	12/30/2015	15.9	Yes (Placed in EA2/EA3)		
				087-EA2-20-d3	12/30/2015	5.4	Yes (Placed in EA2/EA3)		
				087-EA2-20-d4	12/30/2015	1.7	Yes (Placed in EA2/EA3)		
				087-EA2-20-e1	12/30/2015	0.53	Yes (Placed in EA2/EA3)		
				087-EA2-20-e2	12/30/2015	12.3	Yes (Placed in EA2/EA3)		
				087-EA2-20-e3	12/30/2015	3.1	Yes (Placed in EA2/EA3)		
				087-EA2-20-e4	12/30/2015	0.57	Yes (Placed in EA2/EA3)		
				087-EA2-20-f1	12/30/2015	0.52	Yes (Placed in EA2/EA3)		
				087-EA2-20-f2	12/30/2015	0.53	Yes (Placed in EA2/EA3)		
				087-EA2-20-f3	12/30/2015	0.57	Yes (Placed in EA2/EA3)		
				087-EA2-20-f4	12/30/2015	0.54	Yes (Placed in EA2/EA3)		
				087-EA2-20-g1	12/30/2015	0.53	Yes (Placed in EA2/EA3)		
EA2/EA3	<20	087-EA2-20-h1 (overburden)	150 cy	087-EA2-20-h1	12/30/2015	0.7	Yes (Placed in EA2/EA3)		
EA2/EA3	<20	087-EA2-20-i1 (overburden)	200 cy	087-EA2-20-i1	12/30/2015	0.54	Yes (Placed in EA2/EA3)		
EA2/EA3	<20	087-EA2-20-h2:j3 (overburden)	2200 cy	087-EA2-20-h2	1/8/2016	24.1		Yes	
				087-EA2-20-h3	1/8/2016	<1.4	Yes (Placed in EA2/EA3)		
				087-EA2-20-h4	1/8/2016	19	Yes (Placed in EA2/EA3)		
				087-EA2-20-i2	1/8/2016	0.66	Yes (Placed in EA2/EA3)		
				087-EA2-20-i3	1/8/2016	<1.9	Yes (Placed in EA2/EA3)		
				087-EA2-20-i4	1/8/2016	<1.4	Yes (Placed in EA2/EA3)		
				087-EA2-20-j1	1/8/2016	<2.0	Yes (Placed in EA2/EA3)		
				087-EA2-20-j2	1/8/2016	8.9	Yes (Placed in EA2/EA3)		
				087-EA2-20-j3	1/8/2016	<1.9	Yes (Placed in EA2/EA3)		
EA2/EA3	<20	087-EA2-20-k1:k4	1000 cy	087-EA2-20-k1	1/8/2016	7	Yes (Placed in EA2/EA3)		
				087-EA2-20-k2	1/8/2016	10	Yes (Placed in EA2/EA3)		
				087-EA2-20-k3	1/8/2016	8	Yes (Placed in EA2/EA3)		
				087-EA2-20-k4	1/8/2016	<1.9	Yes (Placed in EA2/EA3)		
EA1	<20	087-EA1-20-a1:a4	210 cy	087-EA1-20-a1	2/29/2016	0.89	Yes (Placed in EA2/EA3)		
				087-EA1-20-a2	2/29/2016	3.2	Yes (Placed in EA2/EA3)		
				087-EA1-20-a3	2/29/2016	29		Yes	
				087-EA1-20-a4	2/29/2016	2.3	Yes (Placed in EA2/EA3)		

mg/kg = milligrams per kilogram

*Material placement locations are approximate and based on concentrations in mg/kg.

Prepared by JD 05/01/2016

Reviewed by NW 05/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA8-20-a								087-EA8-20-b								087-EA8-20-c							
Client Sample ID				087-EA8-20-a1		087-EA8-20-a2		087-EA8-20-a3		087-EA8-20-a4		087-EA8-20-b1		087-EA8-20-b2		087-EA8-20-b3		087-EA8-20-b4		087-EA8-20-c1		087-EA8-20-c2		087-EA8-20-c3		087-EA8-20-c4	
Lab Sample ID				JB97778-1		JB97778-2		JB97778-3		JB97778-4		JB97778-5		JB97778-6R		JB97778-7R		JB97778-8		JB97778-9		JB97778-10		JB97778-11R		JB97778-12	
Date Sampled				06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015		06/24/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	2.3	U	2.3	U	1.9	U	1.9	U	2.1	U	0.78		2.1		2	U	1.9	U	2.1	U	0.54		1.9	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA7-20-a						087-EA7-20-c				087-EA7-20-b								087-EA4-20-a							
Client Sample ID				087-EA7-20-a1		087-EA7-20-a2		087-EA7-20-a3		087-EA7-20-a4		087-EA7-20-c1		087-EA7-20-c2		087-EA7-20-b1		087-EA7-20-b2		087-EA7-20-b3		087-EA7-20-b4		087-EA4-20-a1		087-EA4-20-a2		087-EA4-20-a3		087-EA4-20-a4	
Lab Sample ID				JB97995-1RT		JB97995-2R		JB97995-3R		JB97995-4R		JB99075-1		JB99075-2		JB99075-3R		JB99075-4R		JB99075-5		JB99075-6		JC3673-1T		JC3673-2		JC3673-3T		JC3673-4	
Date Sampled				06/26/2015		06/26/2015		06/26/2015		06/26/2015		07/14/2015		07/14/2015		07/14/2015		07/14/2015		07/14/2015		07/14/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	1.8		1.4	U	1.4	U	5.5		0.47	UJ	1.6	UJ	5.2		2.6		4.3		2.8	J	0.47	UJ	1.4	UJ	0.46	UJ	5	J

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA5-20-a								087-EA5-20-b								087-EA5-20-c							
Client Sample ID				087-EA5-20-a1		087-EA5-20-a2		087-EA5-20-a3		087-EA5-20-a4		087-EA5-20-b1		087-EA5-20-b2		087-EA5-20-b3		087-EA5-20-b4		087-EA5-20-c1		087-EA5-20-c2		087-EA5-20-c3		087-EA5-20-c4	
Lab Sample ID				JC3673-5		JC3673-6T		JC3673-7T		JC3673-8		JC3673-9T		JC3673-10T		JC3673-11T		JC3673-12T		JC3673-13		JC3673-14		JC3673-15		JC3673-16R	
Date Sampled				09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.7	J	0.57	UJ	0.45	UJ	1.1	UJ	0.49	UJ	6.8	J	0.57	UJ	0.55	UJ	1.8	UJ	1.9	UJ	0.56	UJ	0.6	UJ

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA5-20-d								087-EA2-WATERLINE-092815		087-1N-20-a								087-1N-20-b							
Client Sample ID				087-EA5-20-d1		087-EA5-20-d2		087-EA5-20-d3		087-EA5-20-d4		087-EA2-WATERLINE-092815		087-1N-20-a1		087-1N-20-a2		087-1N-20-a3		087-1N-20-a4		087-1N-20-b1		087-1N-20-b2		087-1N-20-b3		087-1N-20-b4	
Lab Sample ID				JC3673-17T		JC3673-18		JC3673-19		JC3673-20T		JC4875-1R		JC7275-1		JC7275-2R		JC7275-3R		JC7275-4R		JC7275-5R		JC7275-6R		JC7275-7		JC7275-8R	
Date Sampled				09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/28/2015		10/28/2015		10/28/2015		10/28/2015		10/28/2015		10/28/2015		10/28/2015		10/28/2015		10/28/2015	
Sample Purpose				REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.53	UJ	0.44	UJ	0.5	UJ	0.51	UJ	13.5	J	0.5	UJ	2.1		0.48	U	5.4		0.98		2	U	0.65	J	1.9	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-1N-20-c								087-1N-20-d								087-1N-20-e							
Client Sample ID				087-1N-20-c1		087-1N-20-c2		087-1N-20-c3		087-1N-20-c4		087-1N-20-d1		087-1N-20-d2		087-1N-20-d3		087-1N-20-d4		087-1N-20-e1		087-1N-20-e2		087-1N-20-e3		087-1N-20-e4	
Lab Sample ID				JC7275-9R		JC7275-10		JC7275-11R		JC7275-12R		JC8711-1		JC8711-2		JC8711-3R		JC8711-4		JC8711-5		JC8711-6R		JC8711-7		JC8711-8	
Date Sampled				10/28/2015		10/28/2015		10/28/2015		10/28/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015	
Sample Purpose				REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	2	U	0.76	J	1.8	U	0.51	U	1.4	U	9.5		19.9		1.5	U	1.5	U	1.3	U	1.4	U	1.4	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-1N-20-f								087-1N-20-g								087-1N-20-h							
Client Sample ID				087-1N-20-f1		087-1N-20-f2		087-1N-20-f3		087-1N-20-f4		087-1N-20-g1		087-1N-20-g2		087-1N-20-g3		087-1N-20-g4		087-1N-20-h1		087-1N-20-h2		087-1N-20-h3		087-1N-20-h4	
Lab Sample ID				JC8711-9R		JC8711-10		JC8711-11		JC8711-12		JC8711-13		JC8711-14		JC8711-15		JC8711-16R		JC8711-17		JC8711-18R		JC8711-19R		JC8711-20	
Date Sampled				11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015	
Sample Purpose				REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	1.5	U	0.93	U	0.9	U	1.5	U	0.95	U	0.86	U	0.96	U	1.3	U	1.9		0.92	U	1.4	U	0.92	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-1N-20-i								087-1N-20-j								087-1N-20-k							
Client Sample ID				087-1N-20-i1		087-1N-20-i2		087-1N-20-i3		087-1N-20-i4		087-1N-20-j1		087-1N-20-j2		087-1N-20-j3		087-1N-20-j4		087-1N-20-k1		087-1N-20-k2		087-1N-20-k3		087-1N-20-k4	
Lab Sample ID				JC8711-21		JC8711-22		JC8711-23		JC8711-24		JC8711-25		JC8711-26		JC8711-27		JC8711-28		JC8711-29		JC8711-30		JC8711-31		JC8711-32	
Date Sampled				11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	1.3	U	2	U	1.9	U	2.1	U	1.8	U	1.4	U	1.9	U	1.8	U	1.6	U	2	U	2.1	U	1.4	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-1N-20-L								087-1N-20-m								087-1N-20-n							
Client Sample ID				087-1N-20-L1		087-1N-20-L2		087-1N-20-L3		087-1N-20-L4		087-1N-20-m1		087-1N-20-m2		087-1N-20-m3		087-1N-20-m4		087-1N-20-n1		087-1N-20-n2		087-1N-20-n3		087-1N-20-n4	
Lab Sample ID				JC8711-33		JC8711-34		JC8711-35		JC8711-36		JC8711-37		JC8711-38		JC8711-39		JC8711-40		JC8711-41		JC8711-42		JC8711-43		JC8711-44R	
Date Sampled				11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015		11/17/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	1.4	U	1.9	U	2	U	2.1	U	1.9	U	1.9	U	1.4	U	1.4	U	1.4	U	1.4	U	1.3	U	1.5	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA2-20-a								087-EA2-20-B								087-EA2-20-C							
Client Sample ID				087-EA2-20-a1		087-EA2-20-a2		087-EA2-20-a3		087-EA2-20-a4		087-EA2-20-B1		087-EA2-20-B2		087-EA2-20-B3		087-EA2-20-B4		087-EA2-20-C1		087-EA2-20-C2		087-EA2-20-C3		087-EA2-20-C4	
Lab Sample ID				JC10492-1R		JC10492-2R		JC10492-3R		JC10492-4R		JC11783-1R		JC11783-2R		JC11783-3		JC11783-4		JC11783-5R		JC11783-6R		JC11783-7R		JC11783-8R	
Date Sampled				12/11/2015		12/11/2015		12/11/2015		12/11/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	1.8	U	6.7		1.9	U	3.8		3	J	3	J	0.55		0.97		4.3	J	1.5	J	1.6	J	0.53	UJ

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA2-20-D								087-EA2-20-E								087-EA2-20-F								087-EA2-20-G		087-EA2-20-H	
Client Sample ID				087-EA2-20-D1		087-EA2-20-D2		087-EA2-20-D3		087-EA2-20-D4		087-EA2-20-E1		087-EA2-20-E2		087-EA2-20-E3		087-EA2-20-E4		087-EA2-20-F1		087-EA2-20-F2		087-EA2-20-F3		087-EA2-20-F4		087-EA2-20-G1		087-EA2-20-H1	
Lab Sample ID				JC11783-9		JC11783-10		JC11783-11R		JC11783-12		JC11783-13		JC11783-14R		JC11783-15R		JC11783-16		JC11783-17		JC11783-18R		JC11783-19R		JC11783-20		JC11783-21		JC11783-22	
Date Sampled				12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015		12/30/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.6		15.9		5.4	J	1.7		0.53	U	12.3		3.1		0.57		0.52	U	0.53	U	0.57		0.54	U	0.53	U	0.7	

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA2-20-I		087-EA2-20-H			087-EA2-20-I			087-EA2-20-J			087-EA2-20-K			
Client Sample ID				087-EA2-20-I1		087-EA2-20-H2	087-EA2-20-H3	087-EA2-20-H4	087-EA2-20-I2	087-EA2-20-I3	087-EA2-20-I4	087-EA2-20-J1	087-EA2-20-J2	087-EA2-20-J3	087-EA2-20-K1	087-EA2-20-K2	087-EA2-20-K3	087-EA2-20-K4
Lab Sample ID				JC11783-23R		JC12267-1	JC12267-2	JC12267-3R	JC12267-4R	JC12267-5R	JC12267-6	JC12267-7	JC12267-8R	JC12267-9	JC12267-10R	JC12267-11	JC12267-12	JC12267-13R
Date Sampled				12/30/2015		01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016	01/08/2016
Sample Purpose		NJ 2012 MOST		REG		REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q CONC	Q CONC	Q	CONC	Q CONC	Q	CONC	Q CONC	Q CONC	Q	CONC	Q CONC	Q CONC	Q CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.54	U	**24.1**	1.4	U 19	J 0.66	J	0.55 J	1.4	U 2	U 8.9	1.9	U 7	J 9.5	7.5	0.55	

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 6B

Stockpile Soil Results <20 ppm

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-EA1-20-a							
Client Sample ID				087-EA1-20-a1		087-EA1-20-a2		087-EA1-20-a3		087-EA1-20-a4	
Lab Sample ID				JC15059-1		JC15059-2R		JC15059-3R		JC15059-4R	
Date Sampled				02/29/2016		02/29/2016		02/29/2016		02/29/2016	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	0.89	J	3.2	J	**29**	J	2.3	J

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 6C
Stockpile Soil Results <240 ppm
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

				124-3S-EX-A								124-3S-EX-B								124-3S-EX-C							
Client Sample ID				124-3S-EX-A1		124-3S-EX-A2		124-3S-EX-A3		124-3S-EX-A4		124-3S-EX-B1		124-3S-EX-B2		124-3S-EX-B3		124-3S-EX-B4		124-3S-EX-C1		124-3S-EX-C2		124-3S-EX-C3		124-3S-EX-C4	
Lab Sample ID				JC1124-1R		JC1124-2/2R		JC1124-3/3R		JC1124-4/4R		JC1124-5		JC1124-6/6R		JC1124-7		JC1124-8		JC1124-9/9R		JC1124-10/10R		JC1124-11/11R		JC1124-12	
Date Sampled				08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015		08/10/2015	
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	**51.6**	J	18.6	J	**37.1**	J	18.9	J	**24.8**	J	**49.3**	J	**37.9**	J	**40.4**	J	**24.7**	J	**36.3**	J	**46.7**	J	8.1	J

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold, shaded and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 6C
Stockpile Soil Results <240 ppm
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

				124-3S-EX-D								124-3S-EX2-a				124-3S-EX-Roadway-a			
Client Sample ID				124-3S-EX-D1		124-3S-EX-D2		124-3S-EX-D3		124-3S-EX-D4		124-3S-EX2-a1	124-3S-EX2-a2	124-3S-EX2-a3	124-3S-EX2-a4	124-3S-Roadway-a1	124-3S-Roadway-a2	124-3S-Roadway-a3	124-3S-Roadway-a4
Lab Sample ID				JC1124-13		JC1124-14		JC1124-15/15R		JC1124-16		JC4876-1/1U	JC4876-2/2U	JC4876-3/3U	JC4876-4	JC4877-1	JC4877-2	JC4877-3	JC4877-4
Date Sampled				08/10/2015		08/10/2015		08/10/2015		08/10/2015		09/28/2015	09/28/2015	09/28/2015	09/28/2015	09/28/2015	09/28/2015	09/28/2015	09/28/2015
Sample Purpose		NJ 2012 MOST		REG		REG		REG		REG		REG	REG	REG	REG	REG	REG	REG	REG
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	**25.6**	J	**32.1**	J	**74.6**	J	**34.7**	J	**50.0**		**48.5**		**82.3**		**785**	J	**327**		**2100**		**1970**		**5900**	

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold, shaded and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 6C
Stockpile Soil Results <240 ppm
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

				124-3S-EX3-a			
Client Sample ID				124-3S-EX3-a1	124-3S-EX3-a2	124-3S-EX3-a3	124-3S-EX3-a4
Lab Sample ID				JC6745-1	JC6745-2	JC6745-3	JC6745-4
Date Sampled				10/21/2015	10/21/2015	10/21/2015	10/21/2015
Sample Purpose		NJ 2012 MOST		REG	REG	REG	REG
Parameter Name	Units	STRINGENT SRS	NJ 2013 IGW SOIL	CONC Q	CONC Q	CONC Q	CONC Q
HEXAVALENT CHROMIUM	mg/kg	20	NC	**3120**	**6820**	**5690**	**4300**

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold, shaded and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

Prepared by: DMP 12/14/2016
Checked by: JLD 12/21/2016

TABLE 7A
Excavation EA-8 Soil Sample Results
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-SB-630		087-SB-631		087-SB-632		087-SB-632		087-SB-633		087-SB-634		087-SB-635		087-SB-636		087-SB-637		087-SB-638		087-SB-639		087-SB-639	
					087-SB-630-0807		087-SB-631-0504		087-SB-632-0504		087-SB-632-0302		087-SB-633-0807		087-SB-634-0706		087-SB-635-0402		087-SB-636-0302		087-SB-637-0504		087-SB-638-0706		087-SB-639-0504		087-SB-639-0302	
					JB97871-1/1RTU		JB97873-1		JB97871-2/2RTU		JB97871-3		JB97871-4/4RTU		JB97873-2/2R		JB97996-1/1R		JB97996-2		JB97996-3/3R		JB97996-4		JB99800-1/1RU		JB99800-2/2RU	
					06/25/2015		06/25/2015		06/25/2015		06/25/2015		06/25/2015		06/25/2015		06/26/2015		06/26/2015		06/26/2015		06/26/2015		07/23/2015		07/23/2015	
					REG		Reg		REG		REG		REG		Reg		REG		REG		REG		REG		REG		REG	
Analytical Method	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SW7199	HEXAVALENT CHROMIUM	mg/kg	20	NC	**23.9**	J	**283**	J	**95.3**	J	**51.4**	J	9.2	J	**53.4**		**80.5**	J	**36.8**		2.7		2.3		1.4	UJ	**97.8**	J

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/26/2016
Reviewed by: JLD 12/15/2016

TABLE 7A
Excavation EA-8 Soil Sample Results
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-SB-640		087-SB-641		087-SB-642		087-SB-643		087-SB-644		087-SB-645		087-SB-646	
				Client Sample ID	087-SB-640-0504		087-SB-641-0807		087-SB-642-0201		087-SB-643-102115		087-SB-644-102115		087-SB-645-102115		087-SB-646-0302	
				Lab Sample ID	JB99800-3/3RU		JB99800-4/4RU		JC1382-1		JC6736-1		JC6736-2		JC6736-3		JC8424-1	
				Date Sampled	07/23/2015		07/23/2015		08/12/2015		10/21/2015		10/21/2015		10/21/2015		11/12/2015	
				Sample Purpose	REG		REG		REG		REG		REG		REG		REG	
Analytical Method	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SW7199	HEXAVALENT CHROMIUM	mg/kg	20	NC	5.2	J	6.1	J	0.52	U	5.4	J	5	J	**104**	J	2.5	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012]

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/26/2016
Reviewed by: JLD 12/15/2016

TABLE 7B
TA-7 and TA-8 Soil Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-SB-657A		087-SB-657A		087-SB-657B		087-SB-657B		087-SB-658		087-SB-658		087-SB-659		087-SB-659		087-SB-660		087-SB-660		087-SB-661		087-SB-661		087-SB-662		087-SB-662		087-SB-663		087-SB-663	
Client Sample ID			087-SB-657A-1011		087-SB-657A-1112		087-SB-657B-1516		087-SB-657B-1617		087-SB-658-1011		087-SB-658-1112		087-SB-659-0203		087-SB-659-0304		087-SB-660-0203		087-SB-660-0304		087-SB-661-1617		087-SB-661-1718A		087-SB-662-1617		087-SB-662-1718A		087-SB-663-1516		087-SB-663-1617	
Lab Sample ID			JC23027-1		JC23027-2		JC23027-3/3R		JC23027-4		JC23027-5/5R		JC23027-6		JC23027-9/9R		JC23027-10		JC23027-11/11T		JC23027-12		JC23027-13		JC23027-14		JC23027-16/16R		JC23027-17		JC23027-7/7R		JC23027-8	
Date Sampled		NJ 2012 MOST	06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016		06/27/2016	
Parameter Name	**Units**	**STRINGENT SRS**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
CHROMIUM	mg/kg	NC	21.7	J	11.0	J	1980	J	64.6	J	102	J	17.8	J	598	J	196	J	382	J	19.4	J	5050	J	168		6450	J	142		719	J	63.8	J
HEXAVALENT CHROMIUM	mg/kg	20	0.49	U	0.61		0.81	U	0.82		0.74		0.49	U	0.54	U	0.55	U	**26.3**	**J**	1.3		0.77	U	1.7		0.92	U	1.7		0.92		0.69	U
SULFIDE	mg/kg	NC	4.8	J	4.8	J	15.1	J	6.6	J	7.3	J	4.9	UJ	5.2	UJ	5.5	UJ	4.9	UJ	5.2	UJ	26.2	J	31.7		26.2	J	23.0		18.5	J	6.6	J

Notes:
NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NC: No criterion established
Bold and shaded concentrations exceed the NJ 2012 MOST STRINGENT SRS
Italicized values not detected; reporting limit exceeds criteria
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DMP 12/9/2016
Checked by: JLD 12/15/2016

TABLE 7C

TA-10 In-Situ Soil Samples

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Location ID			087-SB-647		087-SB-647		087-SB-648		087-SB-648		087-SB-649		087-SB-649		087-SB-650		087-SB-650		087-SB-651		087-SB-651		087-SB-652		087-SB-652		087-SB-653		087-SB-653	
Client Sample ID			087-SB-647-1213		087-SB-647-1314		087-SB-648-1213		087-SB-648-1314		087-SB-649-1213		087-SB-649-1314		087-SB-650-1213		087-SB-650-1314		087-SB-651-1213		087-SB-651-1314		087-SB-652-1213		087-SB-652-1314		087-SB-653-1213		087-SB-653-1314	
Lab Sample ID			JC16343-1		JC16343-2		JC16343-3		JC16343-4/4R		JC16343-5		JC16343-6		JC16343-7		JC16343-8/8R		JC16343-9		JC16343-10/10R		JC16343-11/11R		JC16343-12		JC16343-13/13R		JC16343-14	
Date Sampled			03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016		03/15/2016	
Sample Purpose		NJ 2012 MOST	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**STRINGENT SRS**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
CHROMIUM	mg/kg	NC	1340	J	204	J	2080	J	309	J	3250	J	73.5	J	776	J	1980	J	159	J	72.9	J	160	J	66.0	J	412	J	143	J
HEXAVALENT CHROMIUM	mg/kg	20	4.0	J	1.1	J	1.3	J	**128**		2.3	J	1.5	J	**42.2**	**J**	**87.7**		0.63	J	1.7		1.8		0.55	UJ	1.6		6.2	J
SULFIDE	mg/kg	NC	6.1	U	5.1	U	5.2	U	5.2	U	5.1	U	5.4	U	5.0		5.0		5.3	U	5.2	U	4.9	U	5.3	U	5.0	U	4.9	U

Notes:

NJ 2012 MOST STRINGENT SRS

NC: No criterion established

Bold and underlined concentrations exceed the NJ2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) and Cr(VI) stability fields. Statistical examination of the laboratory Eh QC data indicates these samples are not oxidizing with the preferred level of certainty of p = 0.95 or greater (0.85 for these samples). This result coupled with the extremely low recovery of the soluble (-0.3%) and insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the appearance of a reducing character. Additional spikes as high as 3500 mg/kg for this sample failed to recover more than 10% of the Cr(VI) spike

Prepared by: DP 05/31/2016
Reviewed by: JLD 12/15/2016

TABLE 7C

TA-10 In-Situ Soil Samples

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Location ID			087-SB-654		087-SB-654		087-SB-655		087-SB-655		087-SB-656		087-SB-656		087-SB-710-1213		087-SB-710-1314		087-SB-711-1213		087-SB-711-1314		087-SB-712-1213		087-SB-712-1314		087-SB-713-1213		087-SB-713-1314		087-SB-714-1213		087-SB-714-1314	
Client Sample ID			087-SB-654-1213		087-SB-654-1314		087-SB-655-1213		087-SB-655-1314		087-SB-656-1213		087-SB-656-1314		12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14	
Lab Sample ID			JC16343-15		JC16343-16		JC16343-17		JC16343-18		JC16343-19		JC16343-20/20R		JC32905-1/1R/1T		JC32905-2		JC32905-3/3R		JC32905-4		JC32905-5		JC32905-6/6T/6TA		JC32905-7/7T/7TA		JC32905-8/8R		JC32905-9/9R		JC32905-10/10R	
Date Sampled			03/15/2016		03/15/2016		03/16/2016		03/16/2016		03/16/2016		03/16/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016	
Sample Purpose		NJ 2012 MOST	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**STRINGENT SRS**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
CHROMIUM	mg/kg	NC	674	J	174	J	580	J	1930	J	7310	J	113	J	582	J	5120	J	9150	J	1660	J	1930	J	1030	J	6180	J	1460	J	137	J	288	J
HEXAVALENT CHROMIUM	mg/kg	20	1.7	J	1.1	J	2.7	J	**21.5**	**J**	10.9	J	**90.9**		1.8		0.56	U	0.57	U	0.56	U	1.9		**33.3**	**J**	2.2	J	0.53	U	0.57		0.56	U
SULFIDE	mg/kg	NC	5.4	U	4.7	U	4.5	U	5.3	U	7.5	U	4.0	U	5.3	U	684.0		5.6	U	662.0		5.7	U	161.0		279.0		558.0		5.3	U	284.0	

Notes:

NJ 2012 MOST STRINGENT SRS

NC: No criterion established

Bold and underlined concentrations exceed the NJ2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) and Cr(VI) stability fields. Statistical examination of the laboratory Eh QC data indicates these samples are not oxidizing with the preferred level of certainty of p = 0.95 or greater (0.85 for these samples). This result coupled with the extremely low recovery of the soluble (-0.3%) and insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the appearance of a reducing character. Additional spikes as high as 3500 mg/kg for this sample failed to recover more than 10% of the Cr(VI) spike

Prepared by: DP 05/31/2016
Reviewed by: JLD 12/15/2016

TABLE 7C

TA-10 In-Situ Soil Samples

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Location ID			087-SB-715-1213		087-SB-715-1314		087-SB-716-1213		087-SB-716-1314		087-SB-717-1213		087-SB-717-1314		087-SB-718-1213		087-SB-718-1314		087-SB-719-1213		087-SB-719-1314	
Client Sample ID			12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14		12 - 13		13 - 14	
Lab Sample ID			JC32905-11		JC32905-12		JC32905-13		JC32905-14		JC32905-15/15R		JC32905-16/16R		JC32905-17		JC32905-18		JC32905-19		JC32905-20	
Date Sampled			12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016		12/05/2016	
Sample Purpose		NJ 2012 MOST	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**STRINGENT SRS**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
CHROMIUM	mg/kg	NC	321	J	701	J	75.9	J	1020	J	168	J	722	J	820	J	3130	J	104	J	3470	J
HEXAVALENT CHROMIUM	mg/kg	20	0.57	U	0.55	U	1	U	0.54	U	0.83	U	0.5	U	0.66	U	0.58	U	0.71	U	0.54	U
SULFIDE	mg/kg	NC	5.5	U	439.0		359.0		897.0		8.0	U	77.0		67.2		287.0		318.0		419.0	

Notes:

NJ 2012 MOST STRINGENT SRS

NC: No criterion established

Bold and underlined concentrations exceed the NJ2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) and Cr(VI) stability fields. Statistical examination of the laboratory Eh QC data indicates these samples are not oxidizing with the preferred level of certainty of p = 0.95 or greater (0.85 for these samples). This result coupled with the extremely low recovery of the soluble (-0.3%) and insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the appearance of a reducing character. Additional spikes as high as 3500 mg/kg for this sample failed to recover more than 10% of the Cr(VI) spike

Prepared by: DP 05/31/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133	
Client Sample ID			087-TWP-37-081415		087-TWP-38-081415		087-TWP-39-081415		087-TWP-40-081415		087-TWP-41-081415		087-MW-132-081415		087-MW-133-081415		087-MW-134-081415		087-TWP-37-081915		087-TWP-38-081915		087-TWP-39-081915		087-TWP-40-081915		087-TWP-41-081915		087-MW-132-081915		087-MW-133-081915	
Lab Sample ID			JC1623-1		JC1623-2		JC1623-3		JC1623-4		JC1623-5		JC1623-6		JC1623-7		JC1623-8		JC1875-1		JC1875-2		JC1875-3		JC1875-4		JC1875-5		JC1875-6		JC1875-7	
Date Sampled			08/14/2015		08/14/2015		08/14/2015		08/14/2015		08/14/2015		08/14/2015		08/14/2015		08/14/2015		08/19/2015		08/19/2015		08/19/2015		08/19/2015		08/19/2015		08/19/2015		08/19/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	10	U	15.2		10	U	10	U	10	U	10	U	16.0		10	U	10.1		10	U	10	U	10	U	10	U	10	U	10.0		
SULFIDE	mg/L	NC	204		54.0		12.0		2.0	U	4.3		2.0	U	2.0	U	2.0	U	524		98.0		90.0		44.0		23.3		20.0		2.6	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132	
Client Sample ID			087-MW-134-081915		087-TWP-37-091115		087-TWP-38-091115		087-TWP-39-091115		087-TWP-40-091115		087-TWP-41-091115		087-MW-132-091115		087-MW-133-091115		087-MW-134-091115		087-TWP-37-091815		087-TWP-38-091815		087-TWP-39-091815		087-TWP-40-091815		087-TWP-41-091815		087-MW-132-091815	
Lab Sample ID			JC1875-8		JC3675-1		JC3675-2		JC3675-3		JC3675-4		JC3675-5		JC3675-6		JC3675-7		JC3675-8		JC4291-1		JC4291-2		JC4291-3		JC4291-4		JC4291-5		JC4291-6	
Date Sampled			08/19/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/11/2015		09/18/2015		09/18/2015		09/18/2015		09/18/2015		09/18/2015		09/18/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	10	U	35.5		31.6		48.3		10	U	81.4		22.4		10	U	26.5		55.0		164		144		82.7		21.9		85.3	
SULFIDE	mg/L	NC	16.0		123		70.0		180		75.0		681		30.0		10.0		10.0		690		190		76.0		84.0		452		56.0	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
Client Sample ID			087-MW-133-091815		087-MW-134-091815		087-TWP-37-092515		087-TWP-38-092515		087-TWP-39-092515		087-TWP-40-092515		087-TWP-41-092515		087-MW-132-092515		087-MW-133-092515		087-MW-134-092515		087-TWP-37-100115		087-TWP-38-100115		087-TWP-39-100115		087-TWP-40-100115		087-TWP-41-100115	
Lab Sample ID			JC4291-7		JC4291-8		JC4761-1		JC4761-2		JC4761-3		JC4761-4		JC4761-5		JC4761-6		JC4761-7		JC4761-8		JC5247-1		JC5247-2		JC5247-3		JC5247-4		JC5247-5	
Date Sampled			09/18/2015		09/18/2015		09/25/2015		09/25/2015		09/25/2015		09/25/2015		09/25/2015		09/25/2015		09/25/2015		09/25/2015		10/01/2015		10/01/2015		10/01/2015		10/01/2015		10/01/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	10		10		103		114		52.2		61.6		21.6		82.1		10	U	10	U	169		175		47.0		92.7		33.4	
SULFIDE	mg/L	NC	32.0		28.0		101		39.8		45.8		30.9		158		22.9		3.0		11.0		77.7		47.8		32.9		24.6		101	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40	
Client Sample ID			087-MW-132-100115		087-MW-133-100115		087-MW-134-100115		087-TWP-37-100915		087-TWP-38-100915		087-TWP-39-100915		087-TWP-40-100915		087-TWP-41-100915		087-MW-132-100915		087-MW-133-100915		087-MW-134-100915		087-TWP-37-101615		087-TWP-38-101615		087-TWP-39-101615		087-TWP-40-101615	
Lab Sample ID			JC5247-6		JC5247-7		JC5247-8		JC5899-1		JC5899-2		JC5899-3		JC5899-4		JC5899-5		JC5899-6		JC5899-7		JC5899-8		JC6517-1		JC6517-2		JC6517-3		JC6517-4	
Date Sampled			10/01/2015		10/01/2015		10/01/2015		10/09/2015		10/09/2015		10/09/2015		10/09/2015		10/09/2015		10/09/2015		10/09/2015		10/09/2015		10/16/2015		10/16/2015		10/16/2015		10/16/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	120		10	U	10	U	218		145		81.1		89.9		85.8		129		10	U	10	U	226		175		41.3		69.7	
SULFIDE	mg/L	NC	25.2		4.5		11.3		41.6		40.4		29.9		57.8		124		27.9		7.3		49.8		131		23.9		13.3		42.5	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39	
Client Sample ID			087-TWP-41-101615		087-MW-132-101615		087-MW-133-101615		087-MW-134-101615		087-TWP-37-102315		087-TWP-38-102315		087-TWP-39-102315		087-TWP-40-102315		087-TWP-41-102315		087-MW-132-102315		087-MW-133-102315		087-MW-134-102315		087-TWP-37-103015		087-TWP-38-103015		087-TWP-39-103015	
Lab Sample ID			JC6517-5		JC6517-6		JC6517-7		JC6517-8		JC6985-1		JC6985-2		JC6985-3		JC6985-4		JC6985-5		JC6985-6		JC6985-7		JC6985-8		JC7505-1		JC7505-2		JC7505-3	
Date Sampled			10/16/2015		10/16/2015		10/16/2015		10/16/2015		10/23/2015		10/23/2015		10/23/2015		10/23/2015		10/23/2015		10/23/2015		10/23/2015		10/23/2015		10/30/2015		10/30/2015		10/30/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	201		120		10		10		227		231		55.1		29.8		**335**		127		10		10		213		**271**		58.3	
SULFIDE	mg/L	NC	70.7		16.9		5.0		6.6		43.3		39.8		21.9		39.8		45.8		16.6		10		2.0		44.5		37.2		21.2	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38	
Client Sample ID			087-TWP-40-103015		087-TWP-41-103015		087-MW-132-103015		087-MW-133-103015		087-MW-134-103015		087-TWP-37-110615		087-TWP-38-110615		087-TWP-39-110615		087-TWP-40-110615		087-TWP-41-110615		087-MW-132-110615		087-MW-133-110615		087-MW-134-110615		087-TWP-37-111315		087-TWP-38-111315	
Lab Sample ID			JC7505-4		JC7505-5		JC7505-6		JC7505-7		JC7505-8		JC8009-1		JC8009-2		JC8009-3		JC8009-4		JC8009-5		JC8009-6		JC8009-7		JC8009-8		JC8523-1		JC8523-2	
Date Sampled			10/30/2015		10/30/2015		10/30/2015		10/30/2015		10/30/2015		11/06/2015		11/06/2015		11/06/2015		11/06/2015		11/06/2015		11/06/2015		11/06/2015		11/06/2015		11/13/2015		11/13/2015	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	37.0		**439**		133		10.5		10	U	174		206		61.3		25.2		**483**		118		10	U	10	U	167		226		
SULFIDE	mg/L	NC	42.5		26.9		22.4		2.5		2.0	U	2.0		2.0	U	2.0	U	2.0	U	4.5		3.0		2.0	U	2.0		39.3		28.7		

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-MW-132	
Client Sample ID			087-TWP-39-111315		087-TWP-40-111315		087-TWP-41-111315		087-MW-132-111315		087-MW-133-111315		087-MW-134-111315		087-TWP-37-031616		087-TWP-38-031616		087-TWP-39-031616		087-TWP-40-031616		087-TWP-41-031616		087-MW-132-031616		087-MW-133-031616		087-MW-134-031616		087-MW-132-082316	
Lab Sample ID			JC8523-3		JC8523-4		JC8523-5		JC8523-6		JC8523-7		JC8523-8		JC16342-1		JC16342-2		JC16342-3		JC16342-4		JC16342-5		JC16342-6		JC16342-7		JC16342-8		JC26324-6	
Date Sampled			11/13/2015		11/13/2015		11/13/2015		11/13/2015		11/13/2015		11/13/2015		03/16/2016		03/16/2016		03/16/2016		03/16/2016		03/16/2016		03/16/2016		03/16/2016		03/16/2016		08/23/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	47.2		22.5		**561**		143		10	U	10	U	10	U	13.2		16.7		10	U	**386**		13.0		10.7		46.6		10	U
SULFIDE	mg/L	NC	15.3		55.3		44.0		19.3		2.0	U	3.3		4.9		5.4		4.1		5.4		6.3		2.0	U	2.0	U	2.0	U	2.3	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
Client Sample ID			087-MW-133-082316		087-MW-134-082316		087-TWP-37-082316		087-TWP-38-082316		087-TWP-39-082316		087-TWP-40-082316		087-TWP-41-082316		087-MW-132-091216		087-MW-133-091216		087-MW-134-091216		087-TWP-37-091216		087-TWP-38-091216		087-TWP-39-091216		087-TWP-40-091216		087-TWP-41-091216	
Lab Sample ID			JC26324-7		JC26324-8		JC26324-1		JC26324-2		JC26324-3		JC26324-4		JC26324-5		JC27421-6		JC27421-7		JC27421-8		JC27421-1		JC27421-2		JC27421-3		JC27421-4		JC27421-5	
Date Sampled			08/23/2016		08/23/2016		08/23/2016		08/23/2016		08/23/2016		08/23/2016		08/23/2016		09/12/2016		09/12/2016		09/12/2016		09/12/2016		09/12/2016		09/12/2016		09/12/2016		09/12/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	10	U	10	U	10	U	10	U	10	U	10	U	81.7		28.8		10	U	10	U	10	U	10	U	10	U	10	U	115	
SULFIDE	mg/L	NC	2.0	U	2.0	U	5.6		6.3		5.2		4.4		18.9		154		2.0	U	2.0	U	23.1		2.7		2.4		3.6		800	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40	
Client Sample ID			087-MW-132-091916		087-MW-133-091916		087-MW-134-091916		087-TWP-37-091916		087-TWP-38-091916		087-TWP-39-091916		087-TWP-40-091916		087-TWP-41-091916		087-MW-132-092616		087-MW-133-092616		087-MW-134-092616		087-TWP-37-092616		087-TWP-38-092616		087-TWP-39-092616		087-TWP-40-092616	
Lab Sample ID			JC27906-6		JC27906-7		JC27906-8		JC27906-1		JC27906-2		JC27906-3		JC27906-4		JC27906-5		JC28401-6		JC28401-7		JC28401-8		JC28401-1		JC28401-2		JC28401-3		JC28401-4	
Date Sampled			09/19/2016		09/19/2016		09/19/2016		09/19/2016		09/19/2016		09/19/2016		09/19/2016		09/19/2016		09/26/2016		09/26/2016		09/26/2016		09/26/2016		09/26/2016		09/26/2016		09/26/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	239		12.4		20	U	57.4		10	U	53.4		10	U	**295**		**459**		10	U	10	U	74.4		10	U	34.9		10	U
SULFIDE	mg/L	NC	1140		2.0	U	2.0	U	4.1		3.1		3.0		3.9		2560		1140		2.0	U	12.1		114		73.6		6.0	U	12.4	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39	
Client Sample ID			087-TWP-41-092616		087-MW-132-100316		087-MW-133-100316		087-MW-134-100316		087-TWP-37-100316		087-TWP-38-100316		087-TWP-39-100316		087-TWP-40-100316		087-TWP-41-100316		087-MW-132-101016		087-MW-133-101016		087-MW-134-101016		087-TWP-37-101016		087-TWP-38-101016		087-TWP-39-101016	
Lab Sample ID			JC28401-5		JC28833-6		JC28833-7		JC28833-8		JC28833-1		JC28833-2		JC28833-3		JC28833-4		JC28833-5		JC29329-6		JC29329-7		JC29329-8		JC29329-1		JC29329-2		JC29329-3	
Date Sampled			09/26/2016		10/03/2016		10/03/2016		10/03/2016		10/03/2016		10/03/2016		10/03/2016		10/03/2016		10/03/2016		10/10/2016		10/10/2016		10/10/2016		10/10/2016		10/10/2016		10/10/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	**437**		**359**		10.3		10	U	92.8		10	U	36.0		10	U	**372**		**368**		18.8		10	U	100		31.0		50.3	
SULFIDE	mg/L	NC	1160		680		2.0	U	4.0	U	8.0	U	4.0	U	4.0	U	4.0	U	1080		2000		2.0	U	3.9		186		26.8		2.0	U

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38	
Client Sample ID			087-TWP-40-101016		087-TWP-41-101016		087-MW-132-102416		087-MW-133-102416		087-MW-134-102416		087-TWP-37-102416		087-TWP-38-102416		087-TWP-39-102416		087-TWP-40-102416		087-TWP-41-102416		087-MW-132-103116		087-MW-133-103116		087-MW-134-103116		087-TWP-37-103116		087-TWP-38-103116	
Lab Sample ID			JC29329-4		JC29329-5		JC30348-6		JC30348-7		JC30348-8		JC30348-1		JC30348-2		JC30348-3		JC30348-4		JC30348-5		JC30800-6		JC30800-7		JC30800-8		JC30800-1		JC30800-2	
Date Sampled			10/10/2016		10/10/2016		10/24/2016		10/24/2016		10/24/2016		10/24/2016		10/24/2016		10/24/2016		10/24/2016		10/24/2016		10/31/2016		10/31/2016		10/31/2016		10/31/2016		10/31/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	10	U	**469**		**1090**		10	U	10	U	120		157		86.3		10	U	**607**		**766**		20.2		23.5		196		247	
SULFIDE	mg/L	NC	18.8		1590		2700		2.0	U	2.0	U	12.4		3.1		2.0	U	2.0	U	832		3210		2.0	U	2.0	U	6.5		150	

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-132		087-MW-133		087-MW-134		087-TWP-37	
Client Sample ID			087-TWP-39-103116		087-TWP-40-103116		087-TWP-41-103116		087-MW-132-110716		087-MW-133-110716		087-MW-134-110716		087-TWP-37-110716		087-TWP-38-110716		087-TWP-39-110716		087-TWP-40-110716		087-TWP-41-110716		087-MW-132-120716		087-MW-133-120716		087-MW-134-120716		087-TWP-37-120716	
Lab Sample ID			JC30800-3		JC30800-4		JC30800-5		JC31312-6		JC31312-7		JC31312-8		JC31312-1		JC31312-2		JC31312-3		JC31312-4		JC31312-5		JC33092-6		JC33092-7		JC33092-8		JC33092-1	
Date Sampled			10/31/2016		10/31/2016		10/31/2016		11/07/2016		11/07/2016		11/07/2016		11/07/2016		11/07/2016		11/07/2016		11/07/2016		11/07/2016		12/07/2016		12/07/2016		12/07/2016		12/07/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	111		10	U	**739**		**413**		10		23.4		214		176		110		10	U	**978**		**1340**		54.1		19.7		185	
SULFIDE	mg/L	NC	2.0	U	16.5		1380		1700		2.0	U	2.0	U	15.4		256		2.3		7.1		574		760		2.0	U	2.0	U	4.0	U

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 7D
TA-10 In-Situ Groundwater Samples
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

Location ID			087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41		087-MW-133		087-MW-134	
Client Sample ID			087-TWP-38-120716		087-TWP-39-120716		087-TWP-40-120716		087-TWP-41-120716		087-MW-133-122116		087-MW-134-122116	
Lab Sample ID			JC33092-2		JC33092-3		JC33092-4		JC33092-5		JC34135-1		JC34135-2	
Date Sampled			12/07/2016		12/07/2016		12/07/2016		12/07/2016		12/21/2016		12/21/2016	
Sample Purpose		NJDEP GW Criteria	REG		REG		REG		REG		REG		REG	
Parameter Name	**Units**	**Highest**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SULFATE	mg/L	250	**324**		**278**		10	U	**1120**		56.6		10	U
SULFIDE	mg/L	NC	72.6		2.0	U	4.0	U	282		2.0	U	2.0	U

Notes:
NJDEP GW CRITERIA HIGHEST
NC: No criterion established
Bold and shaded concentrations exceed the NJDEP GW CRITERIA HIGHEST
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 06/21/2016
Reviewed by: JLD 12/15/2016

TABLE 8A
Concrete Sample Results - VOCs
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

						088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316		087-WC-C19-021814		087-WC-C20-021814	
			Client Sample ID			JB94630-1		JB94630-2		JC9030-1		JC12656-1		JC12656-2		JC12656-3		JC12656-4		JC16819-1		JC16819-2		JC16819-3		JB60011-1		JB60011-2	
			Lab Sample ID			05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016		02/18/2014		02/18/2014	
			Date Sampled			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
			Sample Purpose	NJ 2012 MOST	NJ 2013 IGW	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
Parameter Group Name	Analytical Method	Parameter Name	Units	STRINGENT SRS	SOIL																								
SA-6 GC/MS Volatiles	SW8260	1,1,1-TRICHLOROETHANE	mg/kg	290	0.3	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,1,2,2-TETRACHLOROETHANE	mg/kg	1	0.007	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	NC	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,1,2-TRICHLOROETHANE	mg/kg	2	0.02	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,1-DICHLOROETHANE	mg/kg	8	0.2	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,1-DICHLOROETHENE	mg/kg	11	0.008	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,2,3-TRICHLOROBENZENE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,2,4-TRICHLOROBENZENE	mg/kg	73	0.7	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.08	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	*0.0094*	*UJ*	*0.01*	*U*
SA-6 GC/MS Volatiles	SW8260	1,2-DIBROMOETHANE	mg/kg	0.008	0.005	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROBENZENE	mg/kg	5300	17	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROETHANE	mg/kg	0.9	0.005	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROPROPANE	mg/kg	2	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,3-DICHLOROBENZENE	mg/kg	5300	19	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	1,4-DICHLOROBENZENE	mg/kg	5	2	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	2-BUTANONE	mg/kg	3100	0.9	0.011	U	0.0092	U	0.01	U	0.0097	U	0.0094	U	0.0091	U	0.0093	U	0.011	U	0.0072	U	0.0067	J	0.0094	R	0.01	U
SA-6 GC/MS Volatiles	SW8260	2-HEXANONE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	4-METHYL-2-PENTANONE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	ACETONE	mg/kg	70000	19	0.009	J	0.01560		0.009	J	0.02770		0.02440		0.01050		0.0057	J	0.01200		0.0056	J	0.02500		0.0179	R	0.01250	
SA-6 GC/MS Volatiles	SW8260	BENZENE	mg/kg	2	0.005	0.00054	U	0.00046	U	0.0002	J	0.00049	U	0.00047	U	0.00046	U	0.00046	U	0.00053	U	0.00036	U	0.00041	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	BROMOCHLOROMETHANE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	BROMODICHLOROMETHANE	mg/kg	1	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	BROMOFORM	mg/kg	81	0.03	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	BROMOMETHANE	mg/kg	25	0.04	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CARBON DISULFIDE	mg/kg	7800	6	0.0022	U	0.00240		0.00029	J	0.0017	J	0.00033	J	0.0018	U	0.00027	J	0.0021	U	0.0014	U	0.00200		0.0047	UJ	0.00500	U
SA-6 GC/MS Volatiles	SW8260	CARBON TETRACHLORIDE	mg/kg	0.6	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CHLOROBENZENE	mg/kg	510	0.6	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CHLOROETHANE	mg/kg	220	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CHLOROFORM	mg/kg	0.6	0.4	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CHLOROMETHANE	mg/kg	4	NC	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CIS-1,2-DICHLOROETHENE	mg/kg	230	0.3	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CIS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	CYCLOHEXANE	mg/kg	NC	NC	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	Dibromochloromethane	mg/kg	3	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	DICHLORODIFLUOROMETHANE	mg/kg	490	39	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	ETHYLBENZENE	mg/kg	7800	13	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	ISOPROPYLBENZENE	mg/kg	NC	NC	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	METHYL ACETATE	mg/kg	78000	22	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	METHYL TERT-BUTYL ETHER	mg/kg	110	0.2	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	METHYLCYCLOHEXANE	mg/kg	NC	NC	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	METHYLENE CHLORIDE	mg/kg	34	0.01	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0012	J	0.0019	J	0.0016	J	0.0016	JJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	O-XYLENE	mg/kg	NC	NC	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	STYRENE	mg/kg	90	3	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	TETRACHLOROETHENE	mg/kg	2	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	TOLUENE	mg/kg	6300	7	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	TRANS-1,2-DICHLOROETHENE	mg/kg	300	0.6	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	TRANS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	TRICHLOROETHENE	mg/kg	7	0.01	0.0011	U	0.00092	U	0.001	U	0.00097	U	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	TRICHLOROFLUOROMETHANE	mg/kg	23000	34	0.0054	U	0.0046	U	0.005	U	0.0049	U	0.0047	U	0.0046	U	0.0046	U	0.0053	U	0.0036	U	0.0041	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	VINYL CHLORIDE	mg/kg	0.7	0.005	0.0022	U	0.0018	U	0.002	U	0.0019	U	0.0019	U	0.0018	U	0.0019	U	0.0021	U	0.0014	U	0.0016	U	0.0047	UJ	0.005	U
SA-6 GC/MS Volatiles	SW8260	XYLENES, TOTAL	mg/kg	12000	19	0.0011	U	0.00092	U	0.001	U	0.00041	J	0.00094	U	0.00091	U	0.00093	U	0.0011	U	0.00072	U	0.00082	U	0.00094	UJ	0.001	U
SA-6 GC/MS Volatiles	SW8260	TOTAL TICS, ALKANES	mg/kg	NC	NC							0		0.0063	J	0		0		0		0		0		0		0	
SA-6 GC/MS Volatiles	SW8260	TOTAL TICS, VOLATILES	mg/kg	NC	NC							0.0161	J	0.1614	J	0		0.0049	J	0		0		0		0	J	0	

Notes:
NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
Results with a value of "0" indicates no TICs were detected

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 8A
Concrete Sample Results - VOCs
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

		Client Sample ID			087-WC-C21-021814		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
		Lab Sample ID			JB60011-3		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
		Date Sampled			02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
		Sample Purpose			REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 GC/MS Volatiles	SW8260	1,1,1-TRICHLOROETHANE	mg/kg	290	0.3	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,1,2,2-TETRACHLOROETHANE	mg/kg	1	0.007	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,1,2-TRICHLOROETHANE	mg/kg	2	0.02	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,1-DICHLOROETHANE	mg/kg	8	0.2	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,1-DICHLOROETHENE	mg/kg	11	0.008	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,2,3-TRICHLOROBENZENE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,2,4-TRICHLOROBENZENE	mg/kg	73	0.7	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.08	0.005	*0.011*	*U*	*0.0092*	*U*	*0.0092*	*U*	*0.01*	*U*	*0.012*	*U*	*0.011*	*U*	*0.01*	*U*
SA-6 GC/MS Volatiles	SW8260	1,2-DIBROMOETHANE	mg/kg	0.008	0.005	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROBENZENE	mg/kg	5300	17	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROETHANE	mg/kg	0.9	0.005	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	1,2-DICHLOROPROPANE	mg/kg	2	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	1,3-DICHLOROBENZENE	mg/kg	5300	19	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	1,4-DICHLOROBENZENE	mg/kg	5	2	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	2-BUTANONE	mg/kg	3100	0.9	0.011	U	0.0092	U	0.0092	U	0.01	U	0.012	U	0.011	U	0.01	U
SA-6 GC/MS Volatiles	SW8260	2-HEXANONE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	4-METHYL-2-PENTANONE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	ACETONE	mg/kg	70000	19	0.01510		0.01030		0.01170		0.01310		0.01580		0.02960		0.01970	
SA-6 GC/MS Volatiles	SW8260	BENZENE	mg/kg	2	0.005	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	BROMOCHLOROMETHANE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	BROMODICHLOROMETHANE	mg/kg	1	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	BROMOFORM	mg/kg	81	0.03	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	BROMOMETHANE	mg/kg	25	0.04	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CARBON DISULFIDE	mg/kg	7800	6	0.00540	U	0.00460	U	0.00160	J	0.00500	U	0.00590	U	0.00560	U	0.00510	U
SA-6 GC/MS Volatiles	SW8260	CARBON TETRACHLORIDE	mg/kg	0.6	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	CHLOROBENZENE	mg/kg	510	0.6	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CHLOROETHANE	mg/kg	220	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CHLOROFORM	mg/kg	0.6	0.4	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CHLOROMETHANE	mg/kg	4	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CIS-1,2-DICHLOROETHENE	mg/kg	230	0.3	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CIS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	CYCLOHEXANE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	Dibromochloromethane	mg/kg	3	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	DICHLORODIFLUOROMETHANE	mg/kg	490	39	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	ETHYLBENZENE	mg/kg	7800	13	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	ISOPROPYLBENZENE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	METHYL ACETATE	mg/kg	78000	22	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	METHYL TERT-BUTYL ETHER	mg/kg	110	0.2	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	METHYLCYCLOHEXANE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	METHYLENE CHLORIDE	mg/kg	34	0.01	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	O-XYLENE	mg/kg	NC	NC	0.0011	U	0.00092	U	0.00023	J	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	STYRENE	mg/kg	90	3	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	TETRACHLOROETHENE	mg/kg	2	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	TOLUENE	mg/kg	6300	7	0.0011	U	0.00092	U	0.00092	U	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	TRANS-1,2-DICHLOROETHENE	mg/kg	300	0.6	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	TRANS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	TRICHLOROETHENE	mg/kg	7	0.01	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	TRICHLOROFLUOROMETHANE	mg/kg	23000	34	0.0054	U	0.0046	U	0.0046	U	0.005	U	0.0059	U	0.0056	U	0.0051	U
SA-6 GC/MS Volatiles	SW8260	VINYL CHLORIDE	mg/kg	0.7	0.005	*0.0054*	*U*	0.0046	U	0.0046	U	0.005	U	*0.0059*	*U*	*0.0056*	*U*	*0.0051*	*U*
SA-6 GC/MS Volatiles	SW8260	XYLENES, TOTAL	mg/kg	12000	19	0.0011	U	0.00092	U	0.00023	J	0.001	U	0.0012	U	0.0011	U	0.001	U
SA-6 GC/MS Volatiles	SW8260	TOTAL TICS, ALKANES	mg/kg	NC	NC	0		0		0		0		0		0		0	
SA-6 GC/MS Volatiles	SW8260	TOTAL TICS, VOLATILES	mg/kg	NC	NC	0		0		0		0		0		0		0	

Notes:
NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
Results with a value of "0" indicates no TICs were detected

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 8B
Concrete Sample Results - SVOCs
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

| | | |

TABLE 8B

Concrete Sample Results - SVOCs

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

						Client Sample ID		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
						Lab Sample ID		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
						Date Sampled		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
						Sample Purpose		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**			**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 GC/MS Semi-Volatiles	**SW8270**	1,1'-BIPHENYL	mg/kg	3100	140			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	1,2,4,5-TETRACHLOROBENZENE	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	1,4-DIOXANE	mg/kg	NC	NC			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	23	5			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,3,4,6-TETRACHLOROPHENOL	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4,5-TRICHLOROPHENOL	mg/kg	6100	68			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4,6-TRICHLOROPHENOL	mg/kg	19	0.2			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4-DICHLOROPHENOL	mg/kg	180	0.2			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4-DIMETHYLPHENOL	mg/kg	1200	1			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4-DINITROPHENOL	mg/kg	120	0.3			*0.76*	*U*	*0.71*	*U*	*0.73*	*U*	*0.68*	*U*	*0.72*	*U*	*0.78*	*U*
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,4-DINITROTOLUENE	mg/kg	0.7	NC			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2,6-DINITROTOLUENE	mg/kg	0.7	NC			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-CHLORONAPHTHALENE	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-CHLOROPHENOL	mg/kg	310	0.8			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-METHYLNAPHTHALENE	mg/kg	230	8			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-METHYLPHENOL	mg/kg	310	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-NITROANILINE	mg/kg	39	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	2-NITROPHENOL	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	3&4-METHYLPHENOL	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	3,3'-DICHLOROBENZIDINE	mg/kg	1	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	3-NITROANILINE	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4,6-DINITRO-2-METHYLPHENOL	mg/kg	6	0.3			*0.76*	*U*	*0.71*	*U*	*0.73*	*U*	*0.68*	*U*	*0.72*	*U*	*0.78*	*U*
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-BROMOPHENYL PHENYL ETHER	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-CHLORO-3-METHYLPHENOL	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-CHLOROANILINE	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-CHLOROPHENYL PHENYL ETHER	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-NITROANILINE	mg/kg	NC	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	4-NITROPHENOL	mg/kg	NC	NC			0.38	U	0.35	U	0.37	U	0.34	U	0.36	U	0.39	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ACENAPHTHENE	mg/kg	3400	110			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ACENAPHTHYLENE	mg/kg	300000	NC			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ACETOPHENONE	mg/kg	2	3			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ANTHRACENE	mg/kg	17000	2400			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ATRAZINE	mg/kg	210	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZALDEHYDE	mg/kg	6100	NC			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZO(A)ANTHRACENE	mg/kg	0.6	0.8			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZO(A)PYRENE	mg/kg	0.2	0.2			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZO(B)FLUORANTHENE	mg/kg	0.6	2			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZO(G,H,I)PERYLENE	mg/kg	30000	NC			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BENZO(K)FLUORANTHENE	mg/kg	6	25			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BIS(2-CHLOROETHOXY)METHANE	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BIS(2-CHLOROETHYL)ETHER	mg/kg	0.4	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	35	1200			0.221		0.133		0.182		0.283		0.154		0.254	
SA-6 GC/MS Semi-Volatiles	**SW8270**	BUTYLBENZYL PHTHALATE	mg/kg	1200	230			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	CAPROLACTAM	mg/kg	31000	12			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	CARBAZOLE	mg/kg	24	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	CHRYSENE	mg/kg	62	80			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DI-N-BUTYL PHTHALATE	mg/kg	6100	760			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DI-N-OCTYL PHTHALATE	mg/kg	2400	3300			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DIBENZO(A,H)ANTHRACENE	mg/kg	0.2	0.8			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DIBENZOFURAN	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DIETHYL PHTHALATE	mg/kg	49000	88			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	DIMETHYL PHTHALATE	mg/kg	NC	NC			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	FLUORANTHENE	mg/kg	2300	1300			0.038	U	0.035	U	0.037	U	0.0203	J	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	FLUORENE	mg/kg	2300	170			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	HEXACHLOROBENZENE	mg/kg	0.3	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	HEXACHLOROBUTADIENE	mg/kg	6	0.9			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	HEXACHLOROCYCLOPENTADIENE	mg/kg	45	320			0.38	U	0.35	U	0.37	U	0.34	U	0.36	U	0.39	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	HEXACHLOROETHANE	mg/kg	35	0.2			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	INDENO(1,2,3-CD)PYRENE	mg/kg	0.6	7			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	ISOPHORONE	mg/kg	510	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.2	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	N-NITROSODIPHENYLAMINE	mg/kg	99	0.4			0.19	U	0.18	U	0.18	U	0.17	U	0.18	U	0.2	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	NAPHTHALENE	mg/kg	6	25			0.038	U	0.035	U	0.037	U	0.034	U	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	NITROBENZENE	mg/kg	31	0.2			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	PHENANTHRENE	mg/kg	300000	NC			0.038	U	0.035	U	0.037	U	0.027	J	0.036	U	0.0207	J
SA-6 GC/MS Semi-Volatiles	**SW8270**	PHENOL	mg/kg	18000	8			0.076	U	0.071	U	0.073	U	0.068	U	0.072	U	0.078	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	PYRENE	mg/kg	1700	840			0.038	U	0.035	U	0.037	U	0.0259	J	0.036	U	0.039	U
SA-6 GC/MS Semi-Volatiles	**SW8270**	TOTAL TICS, ALKANES	mg/kg	NC	NC			0		0		0		0.31	J	0		0.91	J
SA-6 GC/MS Semi-Volatiles	**SW8270**	TOTAL TICS, SEMI-VOLATILES	mg/kg	NC	NC			1.25	J	0.45	J	0.89	J	2.19	J	0.37	J	2.55	J

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

NT: Not tested

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Results with a value of "0" indicates no TICs were detected

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8C
Concrete Sample Results - Metals
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

						Client Sample ID		088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316		087-WC-C19-021814		087-WC-C20-021814	
						Lab Sample ID		JB94630-1		JB94630-2		JC9030-1		JC12656-1		JC12656-2		JC12656-3		JC12656-4		JC16819-1		JC16819-2		JC16819-3		JB60011-1		JB60011-2	
						Date Sampled		05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016		02/18/2014		02/18/2014	
						Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL			CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 TAL Metals	SW6010	ALUMINUM	mg/kg	78000	6000			**7120**		**7940**		**7720**		3570		5030		**7020**		3850		**8660**		**8380**		**8500**		**7050**	J	**6860**	
SA-6 TAL Metals	SW6010	ANTIMONY	mg/kg	31	6			2	U	2	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2	U	2	U	2	U	2.3	UJ	2.2	U
SA-6 TAL Metals	SW6010	ARSENIC	mg/kg	19	19			2.3		2.1		3.3		2.1	U	2.1	U	2.5		2.1	U	2	U	2.8		2.8		3.9		12.7	
SA-6 TAL Metals	SW6010	BARIUM	mg/kg	16000	2100			54.3		57.6		36.6		34.6		30.3		34		33.3		54.7		49.7		64.7		43.1		38.7	
SA-6 TAL Metals	SW6010	BERYLLIUM	mg/kg	16	0.7			0.29		0.45		0.28		0.24		0.22		0.29		0.23		0.29		0.34		0.34		0.23	U	0.22	U
SA-6 TAL Metals	SW6010	CADMIUM	mg/kg	78	2			0.51	U	0.51	U	0.52	U	0.53	U	0.53	U	0.53	U	0.52	U	0.5	U	0.5	U	0.49	U	0.58	U	0.56	U
SA-6 TAL Metals	SW6010	CALCIUM	mg/kg	NC	NC			91300		85100		70400		26300		54500		70000		46700		73500		78000		75600		71200		67000	
SA-6 TAL Metals	SW6010	CHROMIUM	mg/kg	NC	NC			12.6		16.8		14.7		8.9		8		43.5		9.7		16.4		110		141		10.8	J	8.8	J
SA-6 TAL Metals	SW6010	COBALT	mg/kg	590	90			5.1	U	5.4		13.5		5.3	U	5.3	U	5.3	U	5.2	U	14.5		8.4		15.3		5.8	U	5.6	U
SA-6 TAL Metals	SW6010	COPPER	mg/kg	3100	11000			11.7		38.8		52.1		9.3		9.2		11.4		15		6.8		10.7		24.5		6.7	J	5.8	
SA-6 TAL Metals	SW6010	IRON	mg/kg	NC	NC			5290		7720		15100		3790		4970		6400		3230		8980		10700		11000		8010	J	6390	
SA-6 TAL Metals	SW6010	LEAD	mg/kg	400	90			22.9		29.5		10.9		9.3		9.5		10.6		9.7		6.6		16.6		45.1		3		2.7	
SA-6 TAL Metals	SW6010	MAGNESIUM	mg/kg	NC	NC			3850		4910		6440		2190		2570		3080		2020		4360		4620		4820		4590	J	4210	
SA-6 TAL Metals	SW6010	MANGANESE	mg/kg	11000	65			**137**		**190**		**190**		**86.3**		**116**		**147**		**87.2**		**196**		**215**		**202**		**140**	J	**126**	
SA-6 TAL Metals	SW7471	MERCURY	mg/kg	23	0.1			0.033	U	0.032	U	0.034	U	0.032	U	0.032	U	0.031	U	0.035		0.035	U	**0.25**		**0.31**		0.036	U	0.038	U
SA-6 TAL Metals	SW6010	NICKEL	mg/kg	1600	48			5.8		10.5		38.8		4.2	U	5.3		21.9		6.3		8.6		20.6		**48.8**		5.9	J	5.8	
SA-6 TAL Metals	SW6010	POTASSIUM	mg/kg	NC	NC			1000	U	1100		1240		1100	U	1100	U	1100	U	1000	U	1220		1010		1250		1200	UJ	1100	U
SA-6 TAL Metals	SW6010	SELENIUM	mg/kg	390	11			2	U	2	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2	U	2	U	2	U	2.3	U	2.2	U
SA-6 TAL Metals	SW6010	SILVER	mg/kg	390	1			1	U	1	U	*2.6*	*U*	0.53	U	0.53	U	0.53	U	0.52	U	*2.5*	*U*	*2.5*	*U*	*2.5*	*U*	0.58		0.56	U
SA-6 TAL Metals	SW6010	SODIUM	mg/kg	NC	NC			1000	U	1000	U	1460		1100	U	1100	U	1100	U	1000	U	1000	U	1000	U	990	U	1200	U	1100	U
SA-6 TAL Metals	SW6010	THALLIUM	mg/kg	5	3			1	U	1	U	1	U	1.1	U	1.1	U	1.1	U	1	U	1	U	1	U	0.99	U	1.2	U	1.1	U
SA-6 TAL Metals	SW6010	VANADIUM	mg/kg	78	NC			11.2		12.5		45.3		6.5		7.5		9.7		5.5		15.1		15.4		19.4		9.6		8.8	
SA-6 TAL Metals	SW6010	ZINC	mg/kg	23000	930			53		132		36.9		30.9		34.4		35.6		74.7		40.1		80.8		280		32.9	J	19.6	

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 8C
Concrete Sample Results - Metals
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

			Client Sample ID			087-WC-C21-021814		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
			Lab Sample ID			JB60011-3		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
			Date Sampled			02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
			Sample Purpose			REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 TAL Metals	SW6010	ALUMINUM	mg/kg	78000	6000	**6430**		**7090**		**6740**		**7110**		**7200**		**7290**		**8600**	
SA-6 TAL Metals	SW6010	ANTIMONY	mg/kg	31	6	2.1	U	2.3	U	2.2	U	2.3	U	2.3	U	2.2	U	2.4	U
SA-6 TAL Metals	SW6010	ARSENIC	mg/kg	19	19	2.1	U	2.3	U	2.2	U	2.3	U	2.5		2.2	U	2.6	
SA-6 TAL Metals	SW6010	BARIUM	mg/kg	16000	2100	34.8		39.4		37.8		40.9		51.8		37.8		47.9	
SA-6 TAL Metals	SW6010	BERYLLIUM	mg/kg	16	0.7	0.21	U	0.23	U	0.22	U	0.23	U	0.23	U	0.22	U	0.24	U
SA-6 TAL Metals	SW6010	CADMIUM	mg/kg	78	2	0.54	U	0.57	U	0.55	U	0.57	U	0.59	U	0.54	U	0.61	U
SA-6 TAL Metals	SW6010	CALCIUM	mg/kg	NC	NC	61700		75200		71700		76700		69500		72700		79800	
SA-6 TAL Metals	SW6010	CHROMIUM	mg/kg	NC	NC	9.4	J	8.8	J	8.1	J	9.1	J	27.4	J	13.5	J	19.3	J
SA-6 TAL Metals	SW6010	COBALT	mg/kg	590	90	5.4	U	5.7	U	5.5	U	5.7	U	5.9	U	5.4	U	6.1	U
SA-6 TAL Metals	SW6010	COPPER	mg/kg	3100	11000	6.7		5.3		5.3		5.9		14.9		14.7		19.9	
SA-6 TAL Metals	SW6010	IRON	mg/kg	NC	NC	9340		5970		5240		5480		7820		7750		10600	
SA-6 TAL Metals	SW6010	LEAD	mg/kg	400	90	2.1	U	2.7		2.5		3.5		6.1		4.8		6	
SA-6 TAL Metals	SW6010	MAGNESIUM	mg/kg	NC	NC	4070		5010		4430		4730		4970		5180		6660	
SA-6 TAL Metals	SW6010	MANGANESE	mg/kg	11000	65	**132**		**120**		**102**		**118**		**116**		**120**		**140**	
SA-6 TAL Metals	SW7471	MERCURY	mg/kg	23	0.1	0.036	U	0.055		**0.41**		0.036	U	0.035	U	0.038	U	0.036	U
SA-6 TAL Metals	SW6010	NICKEL	mg/kg	1600	48	5.8		5.9		5		5.2		7.6		7.4		8.8	
SA-6 TAL Metals	SW6010	POTASSIUM	mg/kg	NC	NC	1100	U	1100	U	1100	U	1100	U	1200	U	1100	U	1200	U
SA-6 TAL Metals	SW6010	SELENIUM	mg/kg	390	11	2.1	U	2.3	U	2.2	U	2.3	U	2.3	U	2.2	U	2.4	U
SA-6 TAL Metals	SW6010	SILVER	mg/kg	390	1	0.58		0.57	U	0.58		0.63		0.59		0.54	U	0.61	U
SA-6 TAL Metals	SW6010	SODIUM	mg/kg	NC	NC	1100	U	1100	U	1100	U	1100	U	1200	U	1100	U	1200	U
SA-6 TAL Metals	SW6010	THALLIUM	mg/kg	5	3	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U	1.1	U	1.2	U
SA-6 TAL Metals	SW6010	VANADIUM	mg/kg	78	NC	8.5		9		7.8		8.6		16		16		25.1	
SA-6 TAL Metals	SW6010	ZINC	mg/kg	23000	930	17.1		15.3		13.4		17.1		39.2		25.9		43.7	

Notes:
TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)
NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Italicized values not detected; reporting limit exceeds criteria
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

TABLE 8D
Concrete Sample Results - Pesticides and PCBs
Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

						Client Sample ID		088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316		087-WC-C19-021814		087-WC-C20-021814	
						Lab Sample ID		JB94630-1		JB94630-2		JC9030-1		JC12656-1		JC12656-2		JC12656-3		JC12656-4		JC16819-1		JC16819-2		JC16819-3		JB60011-1		JB60011-2	
						Date Sampled		05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016		02/18/2014		02/18/2014	
						Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**			**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDD	mg/kg	3	4			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.0069		0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDE	mg/kg	2	18			0.0012	NJ	0.0011		0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.0024		0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDT	mg/kg	2	11			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00075		0.0012		0.008		0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALDRIN	mg/kg	0.04	0.2			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALPHA-BHC	mg/kg	0.1	0.002			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALPHA-CHLORDANE	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	BETA-BHC	mg/kg	0.4	0.002			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	BETA-CHLORDANE	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	CHLORDANE	mg/kg	0.2	0.05			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	DELTA-BHC	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	DIELDRIN	mg/kg	0.04	0.003			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN I	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN II	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN SULFATE	mg/kg	470	2			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN	mg/kg	23	1			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN ALDEHYDE	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN KETONE	mg/kg	NC	NC			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	GAMMA-BHC (LINDANE)	mg/kg	0.4	0.002			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	HEPTACHLOR	mg/kg	0.1	0.5			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	HEPTACHLOR EPOXIDE	mg/kg	0.07	0.01			0.0007	U	0.00069	U	0.00069	U	0.00067	U	0.00068	U	0.00061	U	0.00068	U	0.00065	U	0.00063	U	0.00063	U	0.00071	U	0.00068	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	METHOXYCHLOR	mg/kg	390	160			0.0014	U	0.0014	U	0.0014	U	0.0013	U	0.0014	U	0.0012	U	0.0014	U	0.0013	U	0.0013	U	0.0013	U	0.0014	U	0.0014	U
SA-6 PCB/Pesticide/Herbicide	**SW8270**	PENTACHLOROPHENOL	mg/kg	3	0.3			0.17	U	0.16	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U			0.17	U	0.17	U	*0.36*	*U*	*0.37*	*U*
SA-6 PCB/Pesticide/Herbicide	**SW8081**	TOXAPHENE	mg/kg	0.6	0.3			0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	0.015	U	0.017	U	0.016	U	0.016	U	0.016	U	0.018	U	0.017	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1016	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1221	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1232	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1242	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.0747		0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1248	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1254	mg/kg	NC	NC			0.0526		0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1260	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1262	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.0676		0.035	U	0.034	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1268	mg/kg	NC	NC			0.035	U	0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.033	U	0.031	U	0.031	U	0.035	U	0.034	U
		TOTAL PCBs		0.2	0.2			0.0526		0.034	U	0.035	U	0.034	U	0.034	U	0.031	U	0.034	U	0.0747		0.031	U	0.0676		0		0	

Notes:
NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
Q: Data qualifier assigned by laboratory or data validator
J: Estimated concentration
N: Negated by laboratory or data validator
U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 03/09/2017

TABLE 8D

Concrete Sample Results - Pesticides and PCBs

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

						Client Sample ID		087-WC-C21-021814		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
						Lab Sample ID		JB60011-3		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
						Date Sampled		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
						Sample Purpose		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**			**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDD	mg/kg	3	4			0.00073	U	0.001		0.0012		0.00078	U	0.00076	U	0.0011		0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDE	mg/kg	2	18			0.00073	U	0.0013		0.001		0.00078	U	0.001		0.0043		0.0063	
SA-6 PCB/Pesticide/Herbicide	**SW8081**	4,4'-DDT	mg/kg	2	11			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALDRIN	mg/kg	0.04	0.2			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALPHA-BHC	mg/kg	0.1	0.002			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ALPHA-CHLORDANE	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	BETA-BHC	mg/kg	0.4	0.002			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	BETA-CHLORDANE	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.001		0.0012	
SA-6 PCB/Pesticide/Herbicide	**SW8081**	CHLORDANE	mg/kg	0.2	0.05			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.001		0.0012	
SA-6 PCB/Pesticide/Herbicide	**SW8081**	DELTA-BHC	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	DIELDRIN	mg/kg	0.04	0.003			0.00073	U	0.00077	U	0.00088		0.00078	U	0.00076	U	0.0025		**0.0037**	
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN I	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN II	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDOSULFAN SULFATE	mg/kg	470	2			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN	mg/kg	23	1			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN ALDEHYDE	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	ENDRIN KETONE	mg/kg	NC	NC			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	GAMMA-BHC (LINDANE)	mg/kg	0.4	0.002			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	HEPTACHLOR	mg/kg	0.1	0.5			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00072	U	0.00077	U
SA-6 PCB/Pesticide/Herbicide	**SW8081**	HEPTACHLOR EPOXIDE	mg/kg	0.07	0.01			0.00073	U	0.00077	U	0.00075	U	0.00078	U	0.00076	U	0.00089		0.001	
SA-6 PCB/Pesticide/Herbicide	**SW8081**	METHOXYCHLOR	mg/kg	390	160			0.0015	U	0.0015	U	0.0015	U	0.0016	U	0.0015	U	0.0014	U	0.0015	U
SA-6 PCB/Pesticide/Herbicide	**SW8270**	PENTACHLOROPHENOL	mg/kg	3	0.3			*0.35*	*U*	*0.38*	*U*	*0.35*	*U*	*0.37*	*U*	*0.34*	*U*	*0.36*	*U*	*0.39*	*U*
SA-6 PCB/Pesticide/Herbicide	**SW8081**	TOXAPHENE	mg/kg	0.6	0.3			0.018	U	0.019	U	0.019	U	0.019	U	0.019	U	0.018	U	0.019	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1016	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1221	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1232	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1242	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1248	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1254	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1260	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1262	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
SA-6 PCB/Pesticide/Herbicide	**SW8082**	AROCLOR-1268	mg/kg	NC	NC			0.036	U	0.039	U	0.038	U	0.039	U	0.038	U	0.036	U	0.039	U
		TOTAL PCBs		0.2	0.2			0		0		0		0		0		0		0	

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

Q: Data qualifier assigned by laboratory or data validator

J: Estimated concentration

N: Negated by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 03/09/2017

TABLE 8E

Concrete Sample Results - EPH/Petroleum Hydrocarbons

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

		Client Sample ID			088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316	
		Lab Sample ID			JB94630-1		JB94630-2		JC9030-1		JC12656-1		JC12656-2		JC12656-3		JC12656-4		JC16819-1		JC16819-2		JC16819-3	
		Date Sampled			05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016	
		Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 Fractionated Extractable	**NJDEP EPH**	C10-C12 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	5.5	U	5.1	U	5.3	U	NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C12-C16 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	5.5	U	5.1	U	5.3	U	NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C12-C16 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	5.5	U	5.1	U	5.3	U	NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C16-C21 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	5.5	U	5.1	U	20.2		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C16-C21 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	5.5	U	5.1	U	5.3	U	NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C21-C36 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	5.5	U	5.1	U	36.5		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C21-C40 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	9.98		13.1		330		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	EPH (C9-C28)	mg/kg	NC	NC	NT		NT		NT		34.6		159		21.7		28.6		19		24.1		28	
SA-6 Fractionated Extractable	**NJDEP EPH**	EXTRACTABLE PETROLEUM HYDROCARBONS (>C28-C40)	mg/kg	NC	NC	NT		NT		NT		6.3	U	68		6.8	U	6.8	U	6.8	U	6.6	U	24.1	
SA-6 Fractionated Extractable	**NJDEP EPH**	PETROLEUM HYDROCARBONS	mg/kg	NC	NC	9.98		13.1		387		NT		NT		NT		NT		NT		NT		NT	
		Residual Range Organics C28-C40	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	Residual Range Organics, Aliphatic	mg/kg	NC	NC	9.98		13.1		350		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	Residual Range Organics, Aromatic	mg/kg	NC	NC	5.5	U	5.1	U	36.5		NT		NT		NT		NT		NT		NT		NT	
		Total EPH (C9-C40)	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	VOLATILE PETROLEUM HYDROCARBONS C9-C12 ALIPHATIC	mg/kg	NC	NC	5.5	U	5.1	U	5.3	U	NT		NT		NT		NT		NT		NT		NT	

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

Criterion for total petroleum hydrocarbons based on 10,000 mg/kg cap value for total organic contaminants in the Soil Cleanup Criteria Table; last amended 5/12/1999

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

NT: Not tested

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8E

Concrete Sample Results - EPH/Petroleum Hydrocarbons

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

		Client Sample ID			087-WC-C19-021814		087-WC-C20-021814		087-WC-C21-021814		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
		Lab Sample ID			JB60011-1		JB60011-2		JB60011-3		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
		Date Sampled			02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
		Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**NJ 2012 MOST STRINGENT SRS**	**NJ 2013 IGW SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 Fractionated Extractable	**NJDEP EPH**	C10-C12 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C12-C16 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C12-C16 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C16-C21 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C16-C21 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C21-C36 PETROLEUM HYDROCARBONS, AROMATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	C21-C40 PETROLEUM HYDROCARBONS, ALIPHATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	EPH (C9-C28)	mg/kg	NC	NC	758		757		1350		1080		860		953		1270		1140		1280	
SA-6 Fractionated Extractable	**NJDEP EPH**	EXTRACTABLE PETROLEUM HYDROCARBONS (>C28-C40)	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	PETROLEUM HYDROCARBONS	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
		Residual Range Organics C28-C40	mg/kg	NC	NC	20.2		24.3		48.9		152		54.7		109	E	321	E	310		441	
SA-6 Fractionated Extractable	**NJDEP EPH**	Residual Range Organics, Aliphatic	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
SA-6 Fractionated Extractable	**NJDEP EPH**	Residual Range Organics, Aromatic	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
		Total EPH (C9-C40)	mg/kg	NC	NC	778		781		1400		1240		915		1060		1590		1450		1720	
SA-6 Fractionated Extractable	**NJDEP EPH**	VOLATILE PETROLEUM HYDROCARBONS C9-C12 ALIPHATIC	mg/kg	NC	NC	NT		NT		NT		NT		NT		NT		NT		NT		NT	

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

Criterion for total petroleum hydrocarbons based on 10,000 mg/kg cap value for total organic contaminants in the Soil Cleanup Criteria Table; last amended 5/12/1999

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

NT: Not tested

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8F

Concrete Sample Results - General Chemistry

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

			Client Sample ID			088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316		087-WC-C19-021814		087-WC-C20-021814	
			Lab Sample ID			JB94630-1		JB94630-2		JC9030-1		JC12656-1		JC12656-2		JC12656-3		JC12656-4		JC16819-1R		JC16819-2R		JC16819-3R		JB60011-1		JB60011-2	
			Date Sampled			05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016		02/18/2014		02/18/2014	
			Sample Purpose	NJ 2012 MOST	NJ 2013 IGW	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Analytical Method**	**Parameter Name**	**Units**	**STRINGENT SRS**	**SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 General Chemistry	**SW7199**	HEXAVALENT CHROMIUM	mg/kg	20	NC	1.1		2.3		2.1	J	2.4		1.5		1.2		3.6		0.76	J	3	J	4.5	J	0.56		0.46	U

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8F

Concrete Sample Results - General Chemistry

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

			Client Sample ID			087-WC-C21-021814		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
			Lab Sample ID			JB60011-3		JB60011-4		JB60011-5		JB60011-6		JB60011-7		JB60011-8		JB60011-9	
			Date Sampled			02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
			Sample Purpose	NJ 2012 MOST	NJ 2013 IGW	REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Analytical Method	Parameter Name	Units	STRINGENT SRS	SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 General Chemistry	SW7199	HEXAVALENT CHROMIUM	mg/kg	20	NC	0.46	U	0.47	U	0.46	U	0.59		1.5		3.1		3.3	

Notes:

NJ 2012 MOST STRINGENT SRS – NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8G

Concrete Sample Results - TCLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

			Client Sample ID	088-WC-C01-051315		088-WC-C02-051315		088-WC-C03-112015		088-WC-C04-011416		088-WC-C05-011416		088-WC-C06-011416		088-WC-C07-011416		088-WC-C08-032316		088-WC-C09-032316		088-WC-C10-032316		087-WC-C19-021814		087-WC-C20-021814		087-WC-C21-021814	
			Lab Sample ID	JB94630-1A		JB94630-2A		JC9030-1A		JC12656-1A		JC12656-2A		JC12656-3A		JC12656-4A		JC16819-1A		JC16819-2A		JC16819-3A		JB60011-1A		JB60011-2A		JB60011-3A	
			Date Sampled	05/13/2015		05/13/2015		11/20/2015		01/14/2016		01/14/2016		01/14/2016		01/14/2016		03/23/2016		03/23/2016		03/23/2016		02/18/2014		02/18/2014		02/18/2014	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Parameter Name	Units	RCRA Toxicity Characteristics (40 CFR261.24)	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 TAL Metals	ARSENIC	mg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SA-6 TAL Metals	CADMIUM	mg/L	1	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.005	U	0.005	U	0.005	U
SA-6 TAL Metals	CHROMIUM	mg/L	5	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.095		0.030	U	0.030	U	0.030	U
SA-6 TAL Metals	LEAD	mg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
SA-6 TAL Metals	SELENIUM	mg/L	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	SILVER	mg/L	5	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.01	U	0.01	U	0.01	U

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

RCRA Toxicity Characteristics (40 CFR261.24)

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per liter (mg/L)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8G

Concrete Sample Results - TCLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

			Client Sample ID		087-WC-C22-021814		087-WC-C23-021814		087-WC-C24-021814		087-WC-C25-021814		087-WC-C26-021814		087-WC-C27-021814	
			Lab Sample ID		JB60011-4A		JB60011-5A		JB60011-6A		JB60011-7A		JB60011-8A		JB60011-9A	
			Date Sampled		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014		02/18/2014	
			Sample Purpose		REG		REG		REG		REG		REG		REG	
Parameter Group Name	Parameter Name	Units	RCRA Toxicity Characteristics (40 CFR261.24)		CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SA-6 TAL Metals	ARSENIC	mg/L	5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100		1	U	1	U	1	U	1	U	1	U	1	U
SA-6 TAL Metals	CADMIUM	mg/L	1		0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
SA-6 TAL Metals	CHROMIUM	mg/L	5		0.030	U	0.030	U	0.030	U	0.030	U	0.054		0.056	
SA-6 TAL Metals	LEAD	mg/L	5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2		0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
SA-6 TAL Metals	SELENIUM	mg/L	1		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SA-6 TAL Metals	SILVER	mg/L	5		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

RCRA Toxicity Characteristics (40 CFR261.24)

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per liter (mg/L)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8H

Concrete Sample Results - SPLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Client Sample ID				088-WC-C03a-120215		088-WC-C03b-120215		088-WC-C03c-120215		088-WC-C08A-041416		088-WC-C08B-041416		088-WC-C08C-041416		088-WC-C09A-041416		088-WC-C09B-041416		088-WC-C09C-041416		088-WC-C10A-041416		088-WC-C10B-041416		088-WC-C10C-041416		087-WC-C23A-022514	
Lab Sample ID				JC9659-1		JC9659-2		JC9659-3		JC18378-1		JC18378-2		JC18378-3		JC18378-4		JC18378-5		JC18378-6		JC18378-7		JC18378-8		JC18378-9		JB60525-1	
Date Sampled				12/02/2015		12/02/2015		12/02/2015		04/14/2016		04/14/2016		04/14/2016		04/14/2016		04/14/2016		04/14/2016		04/14/2016		04/14/2016		04/14/2016		02/25/2014	
Sample Purpose			NJ_Default Leachate	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Parameter Name**	**Units**	**Criteria for Class II GW**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 TAL Metals	MERCURY	µg/L	40	NT		NT		NT		NT		NT		NT		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
SA-6 TAL Metals	NICKEL	µg/L	2000	NT		NT		NT		NT		NT		NT		NT		NT		NT		10	U	10	U	10	U	NT	
SA-6 GC/MS Semi-Volatiles	ISOPHORONE	µg/L	800	2	U	2.1	U	2.2	U	2.2	U	2.5	U	2.1	U	2.1	U	2.5	U	2.4	U	NT		NT		NT		NT	
SA-6 PCB/Pesticide/Herbicide	DIELDRIN	µg/L	0.04	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

NJ_Default Leachate Criteria for Class II GW

Bold and underlined concentrations exceed the criteria

Depths reported in feet below ground surface

CONC: Concentration reported in micrograms per liter (µg/L)

NT: Not tested

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 8H

Concrete Sample Results - SPLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

Client Sample ID				087-WC-C23B-022514		087-WC-C23C-022514		087-WC-C27A-022514		087-WC-C27B-022514		087-WC-C27C-022514	
Lab Sample ID				JB60525-2		JB60525-3		JB60525-4		JB60525-5		JB60525-6	
Date Sampled				02/25/2014		02/25/2014		02/25/2014		02/25/2014		02/25/2014	
Sample Purpose				REG		REG		REG		REG		REG	
Parameter Group Name	**Parameter Name**	**Units**	**NJ_Default Leachate Criteria for Class II GW**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 TAL Metals	MERCURY	µg/L	40	0.2	U	0.2		NT		NT		NT	
SA-6 TAL Metals	NICKEL	µg/L	2000	NT		NT		NT		NT		NT	
SA-6 GC/MS Semi-Volatiles	ISOPHORONE	µg/L	800	NT		NT		NT		NT		NT	
SA-6 PCB/Pesticide/Herbicide	DIELDRIN	µg/L	0.04	NT		NT		0.01	U	0.01	U	0.01	U

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison (see Table 1 for full results)

NJ_Default Leachate Criteria for Class II GW

Bold and underlined concentrations exceed the criteria

Depths reported in feet below ground surface

CONC: Concentration reported in micrograms per liter (µg/L)

NT: Not tested

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

TABLE 9
Study Area 6 North Chromium Remedial Action Report (RAR)
Chromium Remedy Elements Referenced to Previous Relevant Documents

SA-6 N Chromium Remedy Element	Declaration No.	100% Design Report Location/ Section/Work Plan	100% Design Drawing	100% Design Specification	DCB	Section in SA-6 N Cr RAR
Mobilization and Site Prep	NA	100% DR, 3.2	GN-005, CN-105	01100	NA	2.1
Health & Safety	NA	100% DR, Appendix D - HASP	NA	01620	NA	2.2
Perimeter Air Monitoring	NA	100% DR, 3.3, Appendix E - PAMP	NA	01560	NA	2.3, 10
Site Security	NA	100% DR, 4.0	NA	01100	NA	2.4
Support Facilities	NA	100% DR, 4.3	CN-105	01100	NA	2.5
Temporary Site Utilities	NA	100% DR, 4.4	CN-105	01100	NA	2.5
Traffic Control	NA	100% DR, 4.5	CN-105	Summary of Work, 7.1.1.1 02332, Part 3	NA	2.6
Utility Abandonment	NA	100% DR, 5.3	NA	02216	NA	2.8
Utility Relocations along Route 440	NA	100% DR, 5.3	NA	02216	DC 2015-03-09	2.8
Erosion Controls	5	100% DR, 19.8	GN-005, CN-113 to CN-115; CN-125 and CN-127; CN-308	02370	DC September-16 (North)	2.1
Demolition of Existing Structures	NA	100% DR, 5.0	CN-104	02220	NA	2.7
Groundwater Testing for pH	NA	100% DR, 10.1.2	NA	02180.5	NA	2.9
Waste Classification	NA	100% DR, 4.7	NA	NA	NA	2.10
CWTP Construction	NA	100% DR, 6.3 and 6.4, Appendix I	NA	NA	NA	5.3
Monitoring Well Abandonment	5	100% DR, Appendix A-2	NA	NA	DC 2014-7-28	6.0
Monitoring Well/Piezometer Installation	4 / 5	100% DR, Appendix A-2	CN-201 to CN-203	06961, 02670	DC 2014-7-28	6.0
Dewatering/Pumping	NA	100% DR, 6.1 and 6.2	NA	02140	NA	5
GW Level Monitoring	NA	100% DR, 16.0, Appendix J	NA	06961	NA	5.4
Temporary Excavation Support	NA	100% DR, 11.0	CN-116 to CN-122; SN-501 to SN-505	02150, 02180.10	DC 2015-03-03	7.1
Excavation Extent Survey/Confirmation	3	100% DR, 11.0	NA	04160	NA	7.5

TABLE 9
Study Area 6 North Chromium Remedial Action Report (RAR)
Chromium Remedy Elements Referenced to Previous Relevant Documents

SA-6 N Chromium Remedy Element	Declaration No.	100% Design Report Location/ Section/Work Plan	100% Design Drawing	100% Design Specification	DCB	Section in SA-6 N Cr RAR
Excavation	3	100% DR, 11.0	GN-004, CN-103, CN-116 to CN-122	02135	DC 2015-9-04 DC 2015-11-18 DC 2015-11-30	7.0-7.7; 1.4,1.5, 4.1, 4.6
Excavation Material (Stockpile) Test/Soil Reuse	3	100% DR, 4.7, Appendix G	NA	NA	DC 2014-10-31 DC 2015-01-22 DC 2015-9-02	7.2, 7.4
Offsite Transportation & Disposal	3	100% DR, 12.1 to 12.5	CN-116 to CN-122	01600, 02332	NA	7.7
Backfill Source Testing	3	100% DR, 13.0	NA	02315	DC 2013-9-24	8.2
Concrete Testing	3	100% DR, 5.0, Appendix G	NA	02201	DC 2014-10-31	8.3
Backfilling and Compaction	3	100% DR, 13.0	NA	02315	NA	8.4
In-Place Compaction Testing	3	100% DR, 13.0 and 13.2	NA	02315	NA	8.5
Hydraulic Barrier Installation	3	100% DR, 10.0	SN-201 to SN-203; SN-301	02170, 02180	DC 2013-8-14 (HB Wall) DC 2014-8-13 DC 2014-9-2 DC 2015-03-30 DC 2015-04-30 DC 2015-07-31	9.1, 9.2
Vibration Monitoring	NA	100% DR, 10.1.5	NA	02150, 02180	NA	9.3
Sheet Pile Fab & Delivery	NA	100% DR, 10.1.2	NA	02180.3	NA	9.1
Epoxy Coating	NA	100% DR, 10.1.5	NA	02180.6	NA	9.1
Joint Grouting	NA	100% DR, 10.1.2 and 10.1.5	S-203	02180.5	NA	9.1
HB Wall Installation in / adjacent Trash Pit	NA	100% DR, 10.1.8	SN-302	NA	DC 2015-04-30	9.2
Stratum D Repair near Trash Pit	5	100% DR, 10.1.8	SN-302	02180.8	DC 2015-10-22	9.6, 9.7
Consolidation of Soils in Open Space Area	3 / 4	100% DR, 11.1, Appendix G	NA	01600	DC 2014-10-31 DC 2015-01-22 DC 2015-9-02	9.4
Surcharge & Surcharge Monitoring	4	100% DR, Appendix N	CN-108 to CN-112	Refer to Appendix N	DC 2013-7-29	9.5

TABLE 9
Study Area 6 North Chromium Remedial Action Report (RAR)
Chromium Remedy Elements Referenced to Previous Relevant Documents

SA-6 N Chromium Remedy Element	Declaration No.	100% Design Report Location/ Section/Work Plan	100% Design Drawing	100% Design Specification	DCB	Section in SA-6 N Cr RAR
				(North DR)		
Cap Construction	4	100% DR, 14.0	CN-123 and CN-124, CN-301, CN-309, CN-501 to CN-506	02372, 02373, 02374, 02375	DC 2015-08-19 DC 2015-08-21 DC 2015-10-02 DC 2015-12-14 DC 2016-02-02 DC 2016-02-22 DC 2016-02-25 DC 2016-5-11 DC 2016-7-12	9.8
Gas Venting System	5	100% DR, 14.2, Appendix M	CN-516	02380	NA	9.8
Spark Testing	4	NA	NA	NA	DC 2015-12-14	9.8
Utility Corridors	NA	100% DR, 14.3	CN-515	NA	DC 2015-10-02	9.8
Final Cap Cover Soils	5	100% DR, Appendix L OSDS	NA	02315, 02900	DC 2015-9-17 DC 2016-03-21 DC 2016-04-20	9.8
Final Cap Grading	5	100% DR, 14.4	CN-125 and CN-127	NA	DC 2016-5-20 DC 2016-7-14 September 2016-(North) DC 2016-05-03	9.8, App C
Contingent GW Extraction System Installation	4 / 5	100% DR, 10.2	CN-201 to CN-203, CN-305 to CN-307	NA	DC 2014-3-25 DC 2014-11-20 DC 2016-6-6 DC 2016-12-20 DC 2015-2-24 DC 2015-05-19	9.9
Contingent GW Extraction System Connection to GWTP	5	NA	NA	NA	DC 2016-6-6	9.9
Deferred Areas	5	100% DR, 11.0	GN-004 (Note EXC6), CN-104	NA	NA	2.8, 4.7, 17.2, 20
In-Situ Treatment	5	Work Plan for In-Situ	CN-103	NA	DC 2015-06-18	11

TABLE 9
Study Area 6 North Chromium Remedial Action Report (RAR)
Chromium Remedy Elements Referenced to Previous Relevant Documents

SA-6 N Chromium Remedy Element	Declaration No.	100% Design Report Location/ Section/Work Plan	100% Design Drawing	100% Design Specification	DCB	Section in SA-6 N Cr RAR
		Treatment of Chromium Impacted Soil, dated September 2012			(North)	
Site Restoration	5	100% DR, 17.0, Appendix L OSDS	CN-127	02900	September 2016- (North) DC 2016-11-09	13

FIGURES

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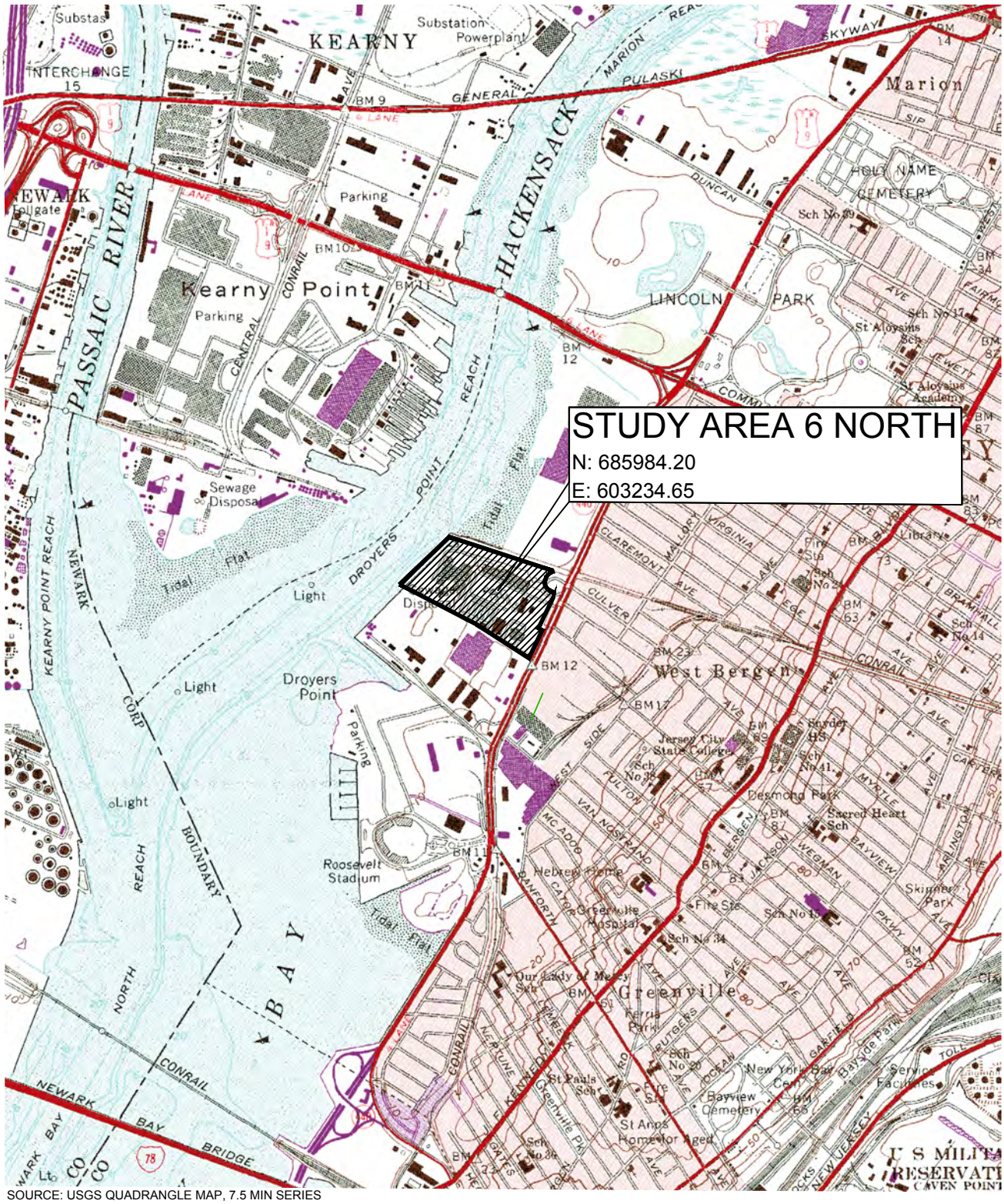
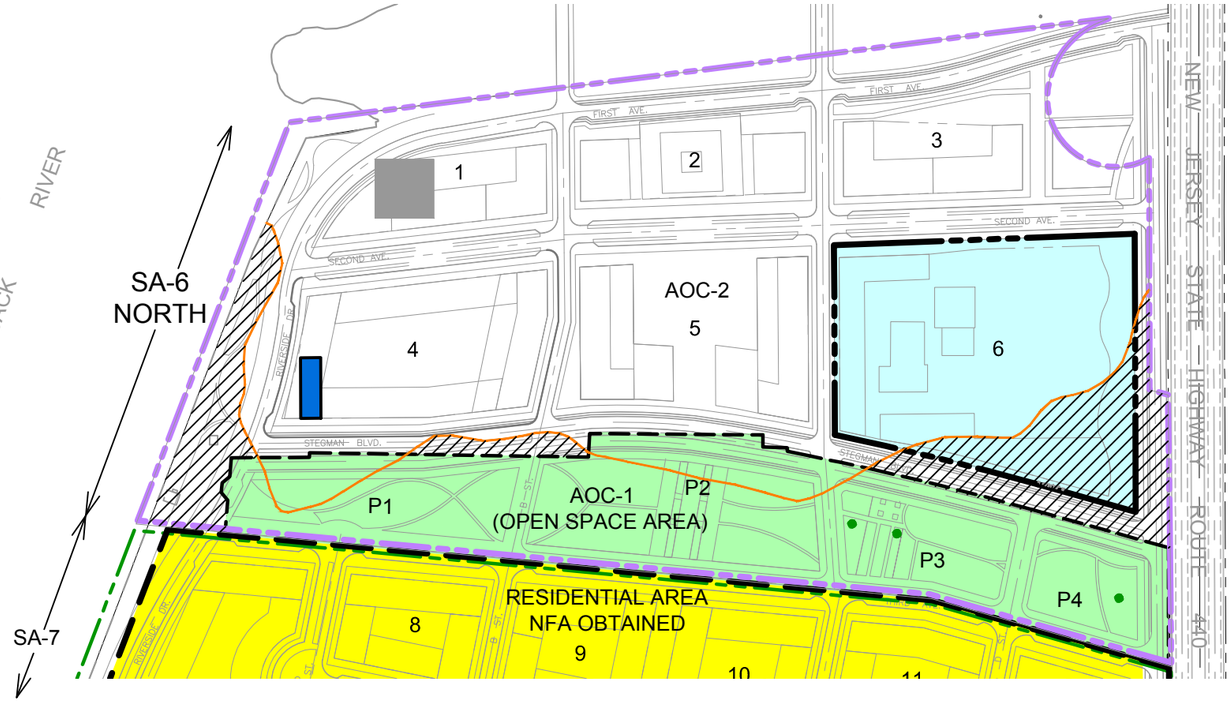


SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

0 1000 2000 4000
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480160492 *DRAWING:* FIGURE 1 SITE LOCATION MAP	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**FIGURE 1** SITE LOCATION MAP STUDY AREA 6 NORTH - SITES 087 & 088 JERSEY CITY, NEW JERSEY
PREPARED/DATE: STR 01/26/17 *CHECKED/DATE:* DN 01/26/17		

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\REPORT\FIGURE 1 SITE LOCATION MAP.dwg Wed, 22 Feb 2017 - 10:24am scott.rudkin



LEGEND

- SA-7 PROPERTY LINE
- AOC-1 - CHROMIUM IMPACTED SOIL AND GROUNDWATER
- AOC-2 HISTORIC FILL AREA
- SA-7 SOIL/CEMENT BENTONITE BARRIER
- AOC-1 OPEN SPACE AREA WITH DEED NOTICE AND CONSERVATION EASEMENT
- BLOCK 6: JCMUA PROPERTY
- BAYFRONT TRAILERS
- GROUNDWATER TREATMENT PLANT
- AOC-1 RESIDENTIAL DEVELOPMENT AREA

0 150 300 600
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-6100-DRA0-0001

PREPARED/DATE: STR 01/25/17
CHECKED/DATE: DEN 01/31/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE 2
SITE LAYOUT
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

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P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\3480150488-6100-DRA0-0001.dwg Mon, 06 Feb 2017 - 2:59pm scott.rudkin Layout: Layout1

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SA-6 Project Team Organizational Chart

Honeywell Remediation Management

William Hague
Director, Remediation Engineering & Construction

John Morris
Remediation Director

Honeywell Procurement

Raj Ghaisas
Sr. Commodity Manager Services & Suppliers

Honeywell Communications

Victoria Streitfeld
Director Communications HSE&S

Honeywell Construction Management

John Mojka
Engineering & Construction Manager

Honeywell Project Manager

Maria Kaouris
Remediation Manager

Amec Project Management

Principal Engineer - Joseph Clifford
Project Manager – Dennis Nagg

Field Support

Analytical Lab

Accutest

3rd Party Liner QA

Langan

Air Monitoring

Emilcott

Amec Construction Management

Construction Manager - Stuart Bills

Waste Coordination

Arecon
Dino Ciccone

Amec Field Staff

Asst CM/SSO – George Pfeiffer
CQA – Dave Ambrose
Project Controls – Eric Christodoulatos
Clerical – Diana Rocha
CQA Tech – Brian Shea, Michael Senna, Jenna Desiderio
Field Engineer – Arezou Eslaminejad

Excavation Subcontractor

Entact
Superintendant – Keith Goisse
Project Manager – Kurt Gimbel
H&S – Ross DeAmbrogio

Technical Support

AMEC
EOR – Geoff Shallard
Design Engineer – Anthony Donovan
Permitting – Bill Mikula
Water Treatment – Ralph Oulton

Mueser Rutledge
Sheetpile

Cornerstone
GW Modeling

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-5710-ORG0-F300

PREPARED/DATE: STR 01/11/17

CHECKED/DATE: DEN 01/31/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE 3
SA-6 PROJECT TEAM ORGANIZATION CHART
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

P:\2480\HONEWELL\JERSEY CITY\SA 6 NORTH\3480150488\5100\61000\1\EN MXN CIR\3480150488-5710-ORG0-F300.dwg Tue, 14 Feb 2017 - 3:36pm scott.radke Layout: Layout1

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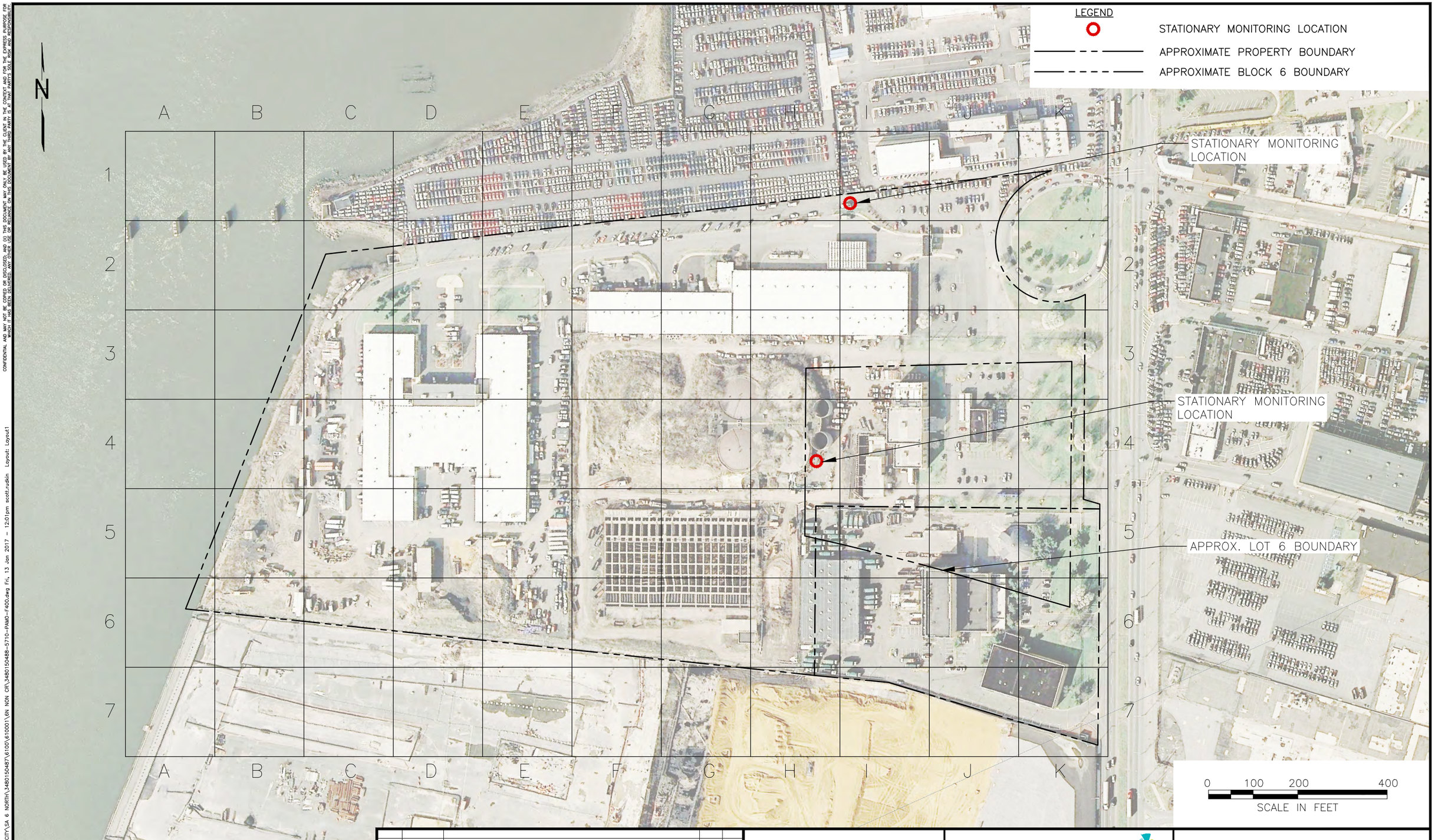
P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\GN NON GR\3480150488-5710-PAM0-F400.dwg Fri, 13 Jan 2017 - 12:01pm scott.rudkin Layout: Layout1



REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-5710-PAM0-F400

PREPARED/DATE: STR 01/11/17

CHECKED/DATE: DEN 01/13/17

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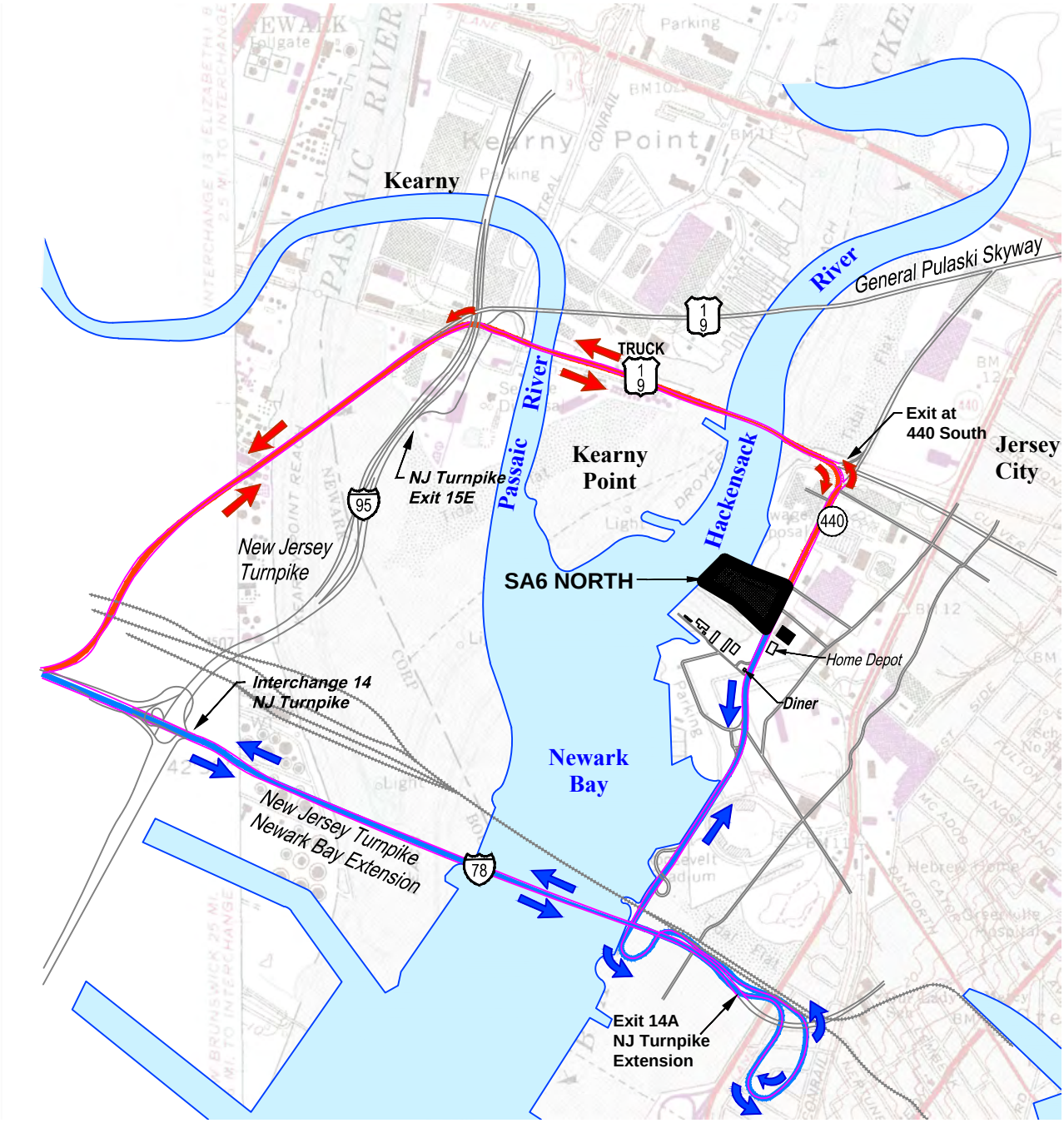
HAMILTON, NEW JERSEY 08619

FIGURE 4
SITE MAP
PERIMETER AIR MONITORING
STATION LOCATIONS
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

Honeywell Study Area 6
Transportation Local Routes



Primary Truck Route

Emergency/Backup Truck Route

0 50 100 200
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150488 DRAWING: 3480150488-5710-OTR0-F500	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	FIGURE 5 TRUCK ROUTE MAP STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY
PREPARED/DATE: STR 01/11/17 CHECKED/DATE: DEN 01/13/17		

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P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\6N NON CR\3480150488-5710-OTR0-F500.dwg Fri, 13 Jan 2017 - 11:59am scott.rudkin

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Legend

- Station Point
- Station Label
  - 0+00 - Station Location
  - 088-TWP-01 - Sample Name
  - 7.0 - pH Sample Result
- Proposed Hydraulic Barrier Wall (at the time of pH monitoring)
- Study Area Boundary

0 75 150 300
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY

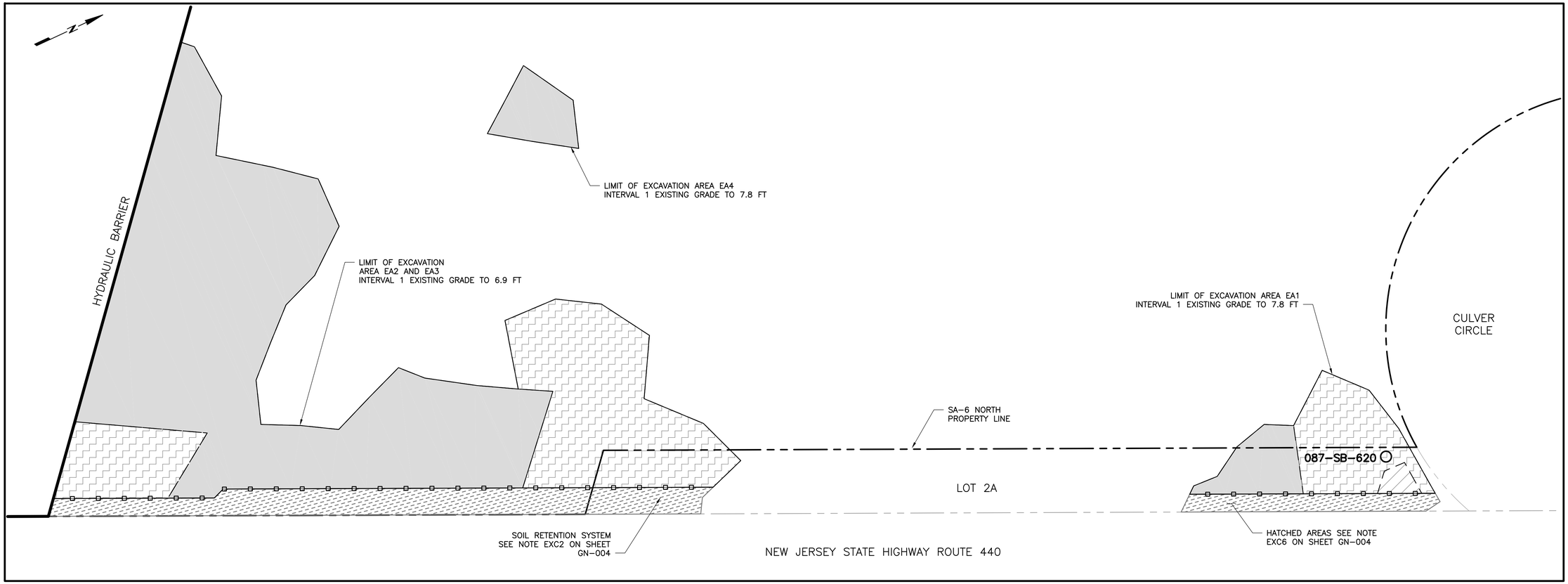
Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-5710-GWSR-F500

PREPARED/DATE: STR 03/11/16

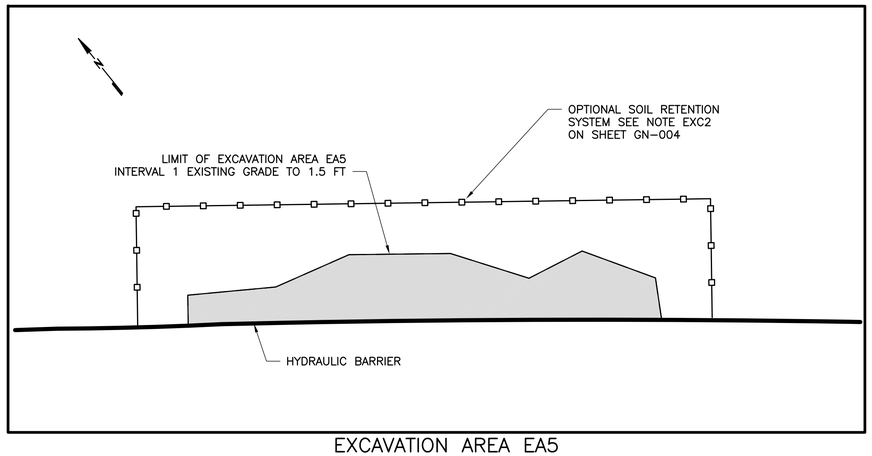
CHECKED/DATE: DEN 03/11/16

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

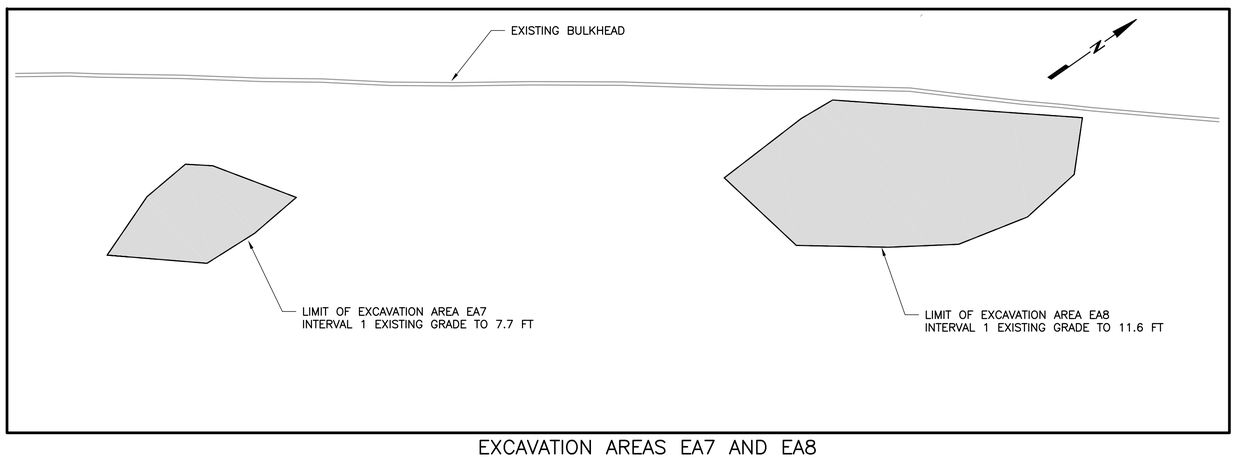
FIGURE 6
GROUNDWATER SAMPLE RESULTS (pH)
STUDY AREA SA-6 NORTH AND SOUTH
JERSEY CITY, NEW JERSEY



EXCAVATION AREAS EA1, EA2 3, AND EA4



EXCAVATION AREA EA5



EXCAVATION AREAS EA7 AND EA8

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20-240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- DISCRETE SAMPLE
- COMPOSITE SAMPLE

NOTES:

1. REFER TO SHEET GN-003 AND GN-004 FOR GENERAL NOTES.
2. REFER TO SHEET GN-002 FOR LEGEND AND ABBREVIATIONS.
3. IT HAS BEEN ASSUMED THAT 0-4 FOOT EXCAVATION CAN BE IMPLEMENTED WITH VERTICAL SIDE SLOPE SUBJECT TO ASSESSMENT OF SUPPORT OF UTILITIES AND ADJACENT STRUCTURES.

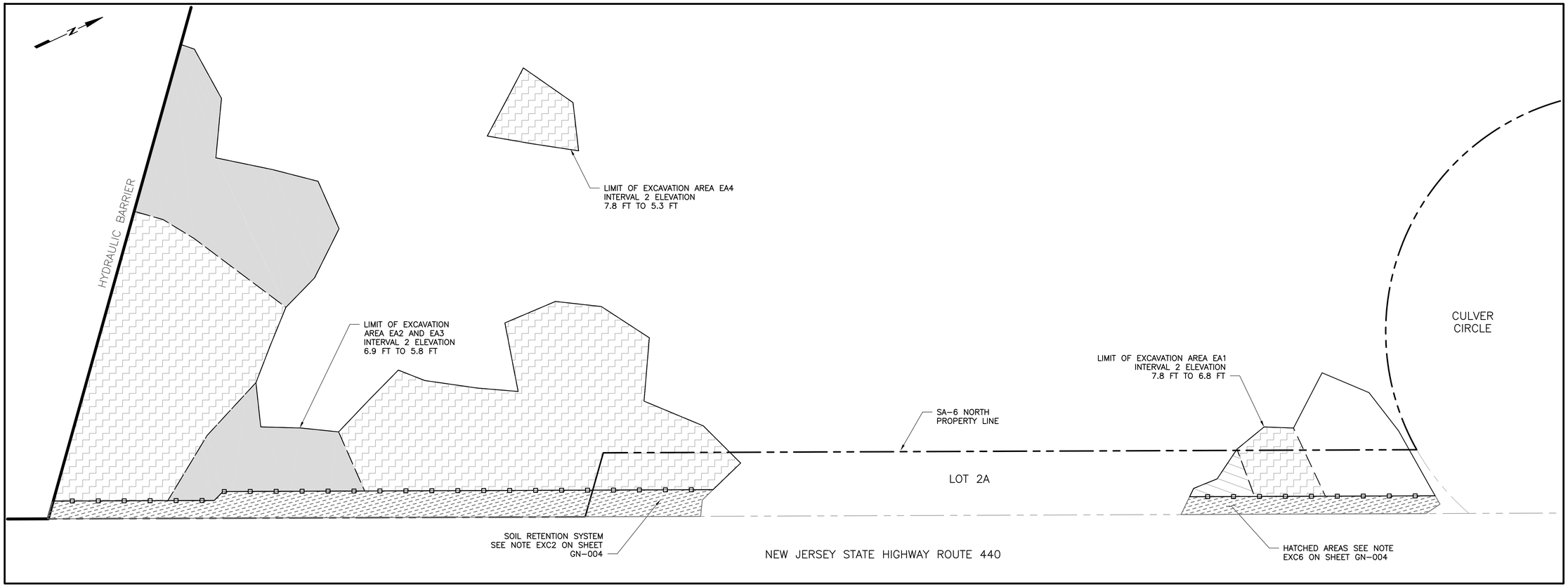
NOTE: EXCAVATION IS INTENDED TO TERMINATE AT TOP OF STRATUM D LAYER IF ENCOUNTERED. CONTRACTOR SHALL REVIEW PROJECT BORING LOGS TO VERIFY ANTICIPATED TOP OF STRATUM D ELEVATIONS. CONTRACTOR MAY BE REQUIRED TO REMOVE UP TO 6-INCHES OF STRATUM D BASED ON DIRECTION OF THE ENGINEER.

0 15 30 60
SCALE IN FEET

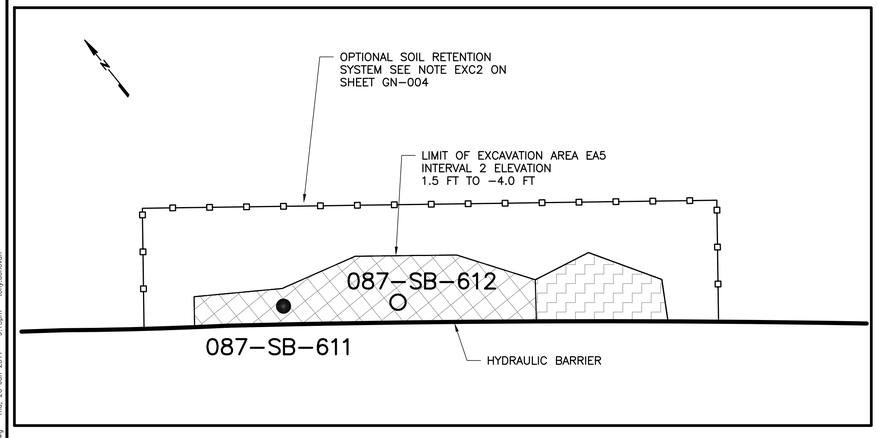
Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 35146	amec	WASTE CLASS SOIL SAMPLES SA-6 NORTH CHROMIUM REMEDY Project 3480-13-0354 FIGURE 7A

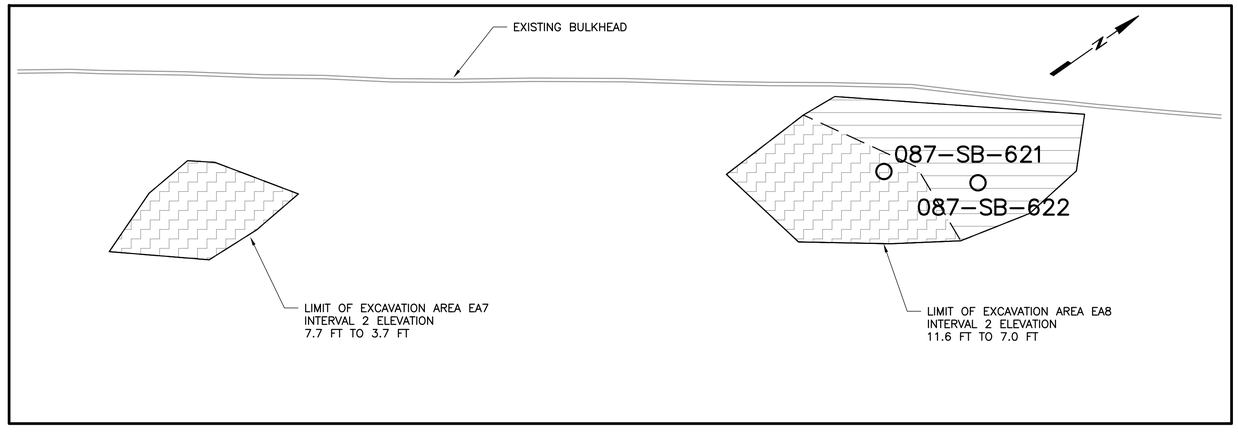
C:\Donovan\SA-6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 1.dwg Thu, 26 Jan 2017 - 8:47pm tony.donovan



EXCAVATION AREAS EA1, EA2 3, AND EA4



EXCAVATION AREA EA5



EXCAVATION AREAS EA7 AND EA8

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20–240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- DISCRETE SAMPLE
- COMPOSITE SAMPLE

NOTES:

1. REFER TO SHEET GN–003 AND GN–004 FOR GENERAL NOTES.
2. REFER TO SHEET GN–002 FOR LEGEND AND ABBREVIATIONS.
3. IT HAS BEEN ASSUMED THAT 0–4 FOOT EXCAVATION CAN BE IMPLEMENTED WITH VERTICAL SIDE SLOPE SUBJECT TO ASSESSMENT OF SUPPORT OF UTILITIES AND ADJACENT STRUCTURES.

NOTE: EXCAVATION IS INTENDED TO TERMINATE AT TOP OF STRATUM D LAYER IF ENCOUNTERED. CONTRACTOR SHALL REVIEW PROJECT BORING LOGS TO VERIFY ANTICIPATED TOP OF STRATUM D ELEVATIONS. CONTRACTOR MAY BE REQUIRED TO REMOVE UP TO 6–INCHES OF STRATUM D BASED ON DIRECTION OF THE ENGINEER.

0 15 30 60
SCALE IN FEET

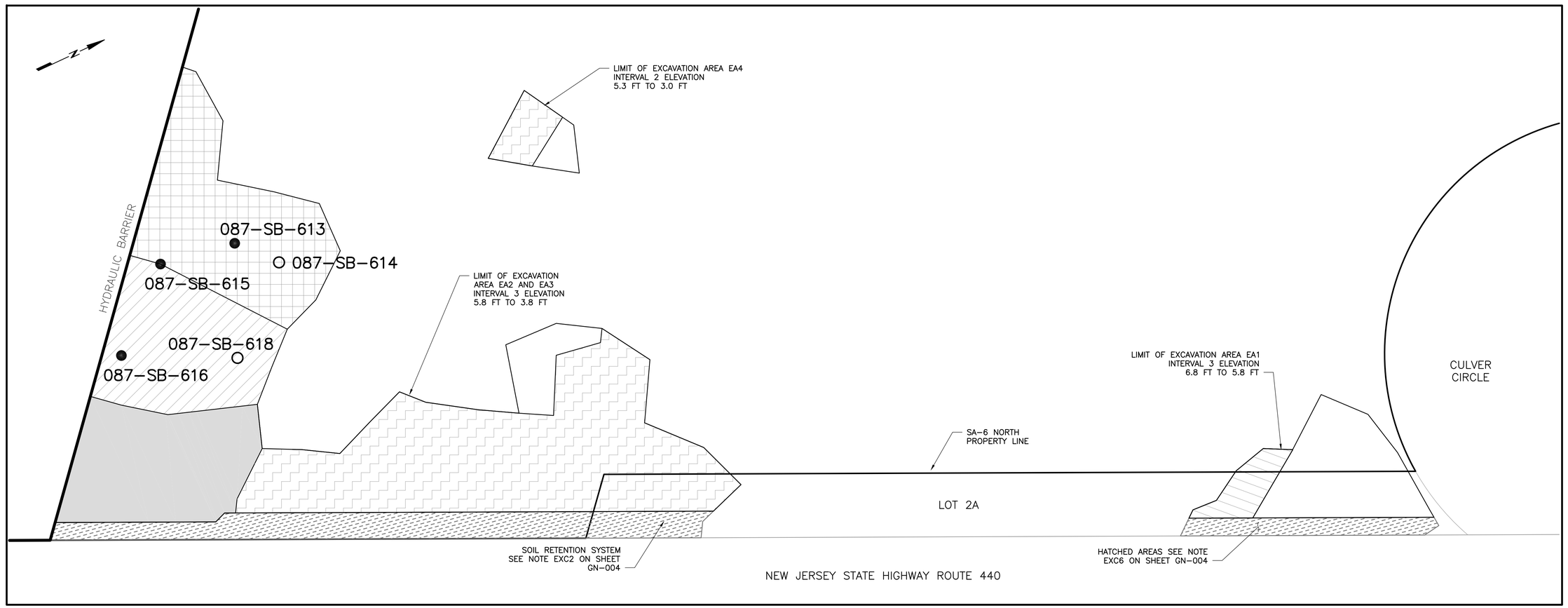
Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 35146

amec

WASTE CLASS SOIL SAMPLES
SA-6 NORTH CHROMIUM REMEDY
Project 3480-13-0354
FIGURE 7B

O:\Donovan\SA-6 North\2013 Excavation Surfaces\Diff SAMPLE FIG 2.dwg Thu, 26 Jan 2017 - 9:15pm tony.donovan



EXCAVATION AREAS EA1, EA2 3, AND EA4

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20–240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- ○ DISCRETE SAMPLE
- ● COMPOSITE SAMPLE

NOTES:

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3. IT HAS BEEN ASSUMED THAT 0–4 FOOT EXCAVATION CAN BE IMPLEMENTED WITH VERTICAL SIDE SLOPE SUBJECT TO ASSESSMENT OF SUPPORT OF UTILITIES AND ADJACENT STRUCTURES.

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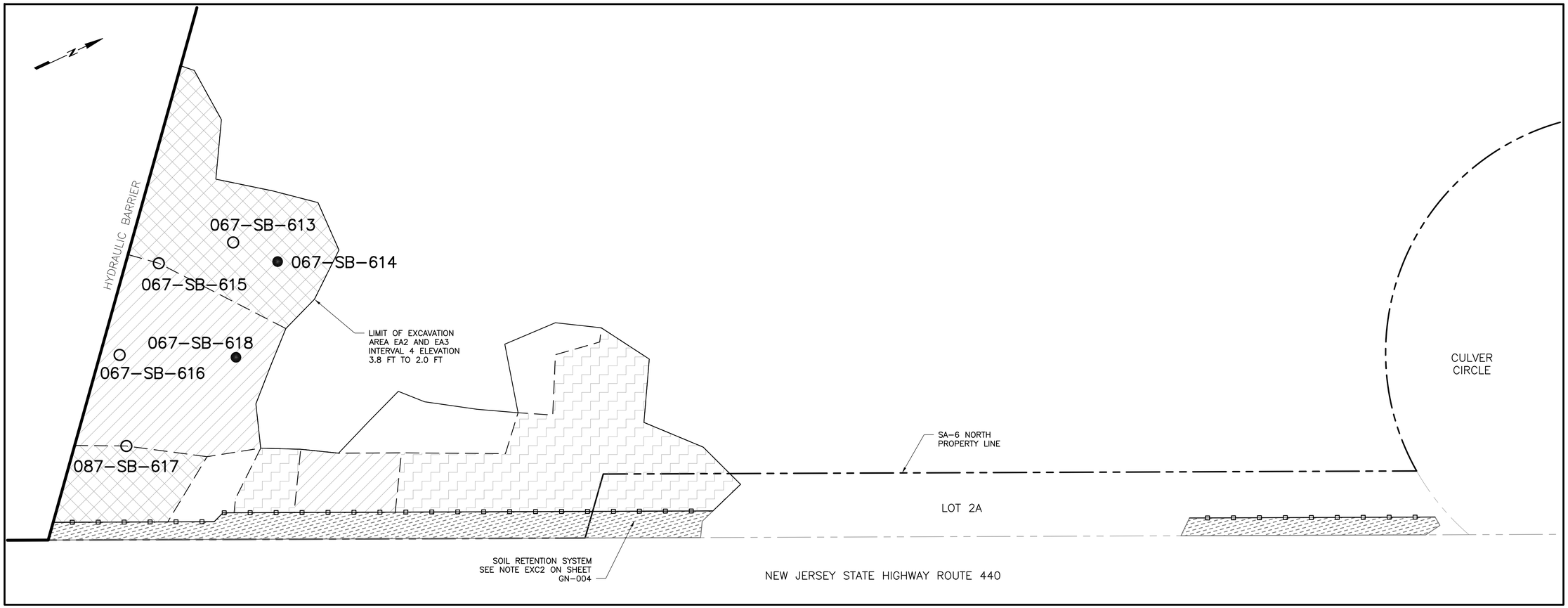
0 15 30 60
SCALE IN FEET

Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 35146	amec	WASTE CLASS SOIL SAMPLES SA-6 NORTH CHROMIUM REMEDY Project 3480-13-0354 FIGURE 7C

G:\Jacobs\SA-6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 3.dwg Thu, 26 Jan 2017 - 9:25pm tony.donovan



EXCAVATION AREA EA2 3

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20–240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- ○ DISCRETE SAMPLE
- ● COMPOSITE SAMPLE

NOTES:

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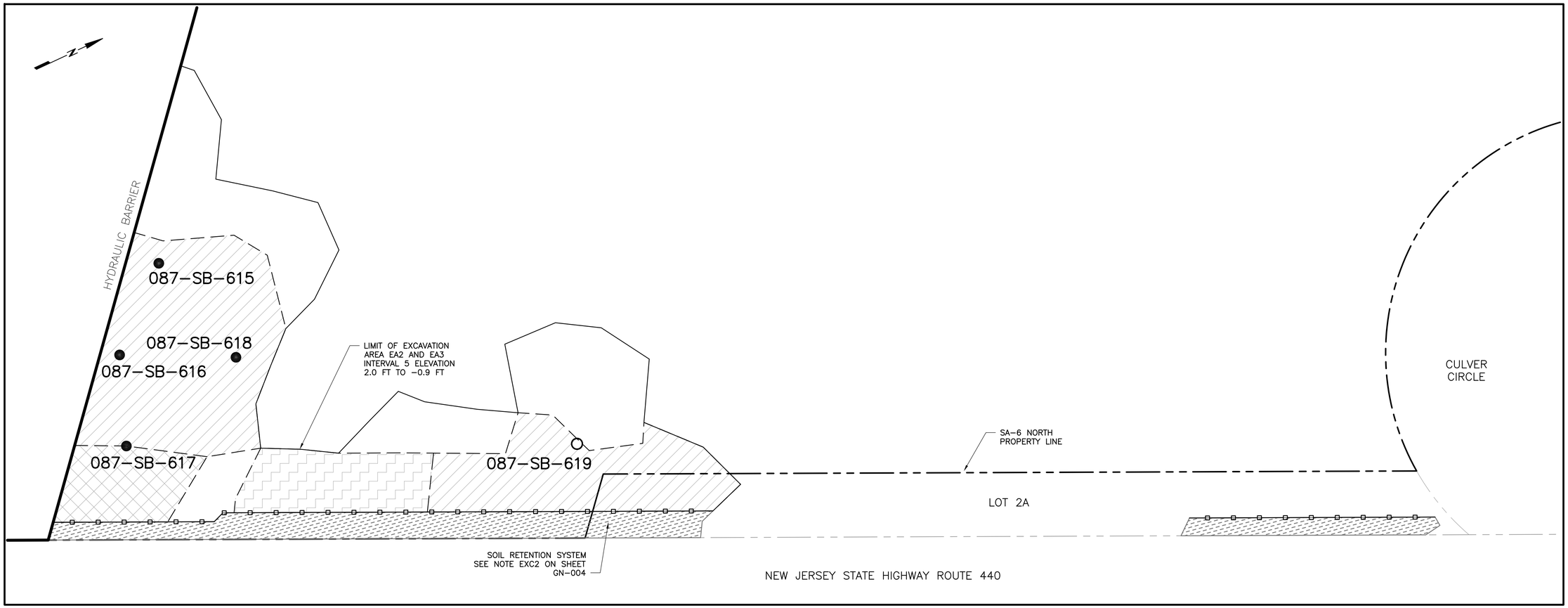
0 15 30 60
SCALE IN FEET

Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 35146	amec	WASTE CLASS SOIL SAMPLES SA-6 NORTH CHROMIUM REMEDY Project 3480-13-0354 FIGURE 7D

G:\Donovan\SA–6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 4.dwg Wed, 01 Feb 2017 – 4:33pm tony.donovan



EXCAVATION AREAS EA2 3

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20–240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- ○ DISCRETE SAMPLE
- ● COMPOSITE SAMPLE

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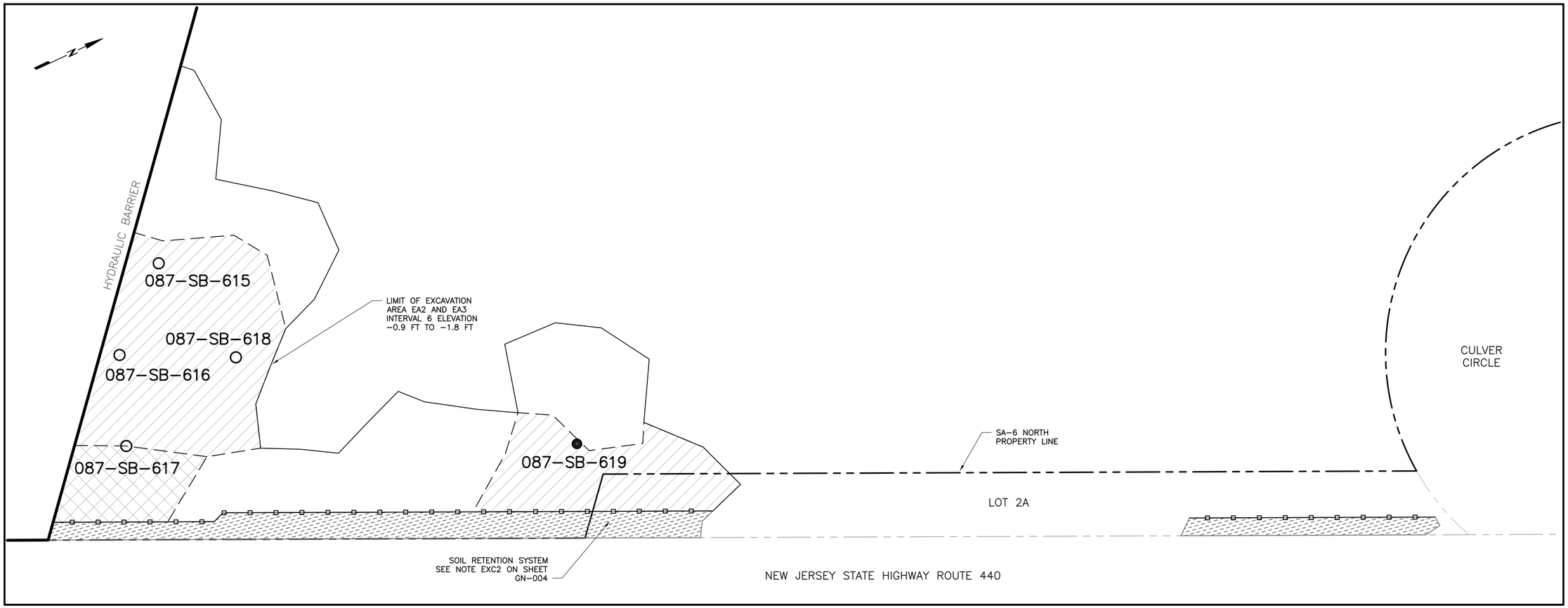
0 15 30 60
SCALE IN FEET

Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 35146	amec	WASTE CLASS SOIL SAMPLES SA-6 NORTH CHROMIUM REMEDY Project 3480-13-0354 FIGURE 7E

G:\Donovan\SA–6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 5.dwg Sat, 28 Jan 2017 – 12:34pm tony.donovan



EXCAVATION AREAS EA2 3

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20–240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
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- NO EXCAVATION REQUIRED
- DISCRETE SAMPLE
- COMPOSITE SAMPLE

NOTES:

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0 15 30 60
SCALE IN FEET

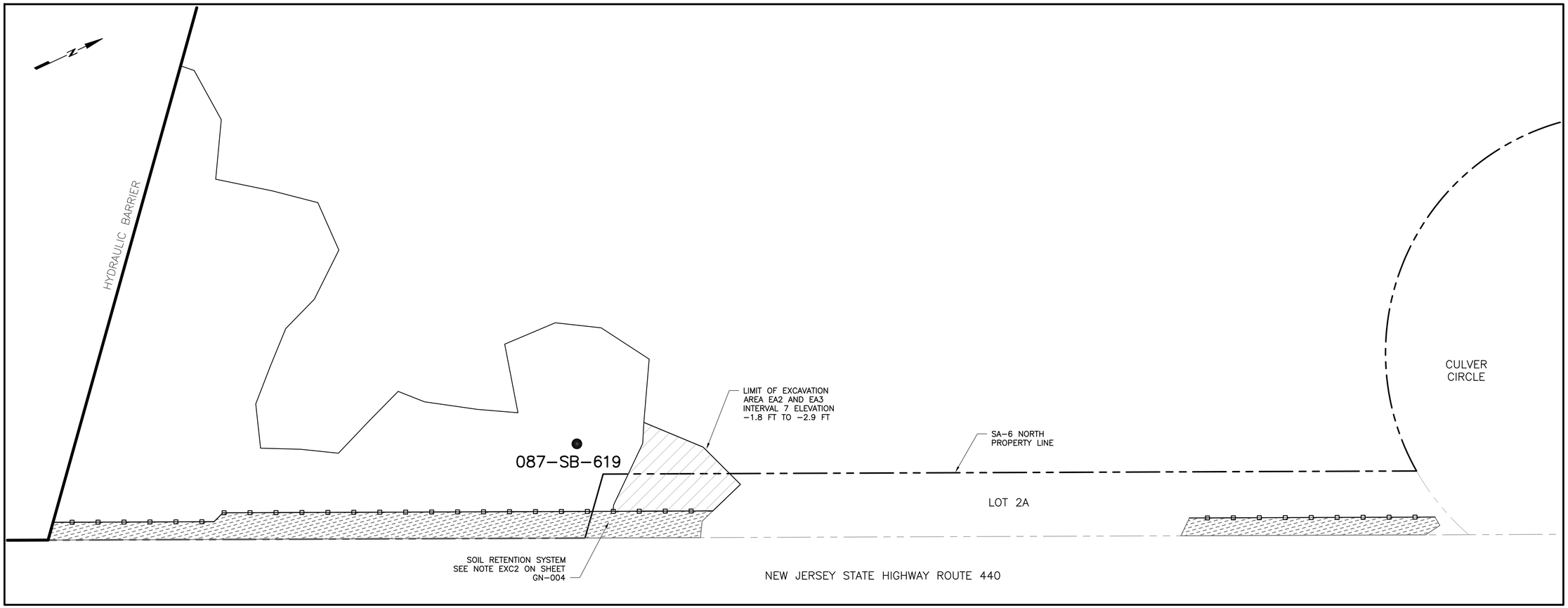
Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 35146

amec

WASTE CLASS SOIL SAMPLES
SA-6 NORTH CHROMIUM REMEDY
Project 3480-13-0354
FIGURE 7F

C:\Donovm\SA–6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 6.dwg Mon, 30 Jan 2017 - 2:48pm Mary.Donovm



EXCAVATION AREAS EA2 3

LEGEND

- HEXAVALENT CHROMIUM SOIL CONTAMINATION UNDER 20 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION BETWEEN 20-240 PPM
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (HAZARDOUS OFF SITE DIPSOSAL)
- HEXAVALENT CHROMIUM SOIL CONTAMINATION OVER 240 PPM (NON HAZARDOUS OFF SITE DIPSOSAL)
- NO EXCAVATION REQUIRED
- ○ DISCRETE SAMPLE
- ● COMPOSITE SAMPLE

NOTES:

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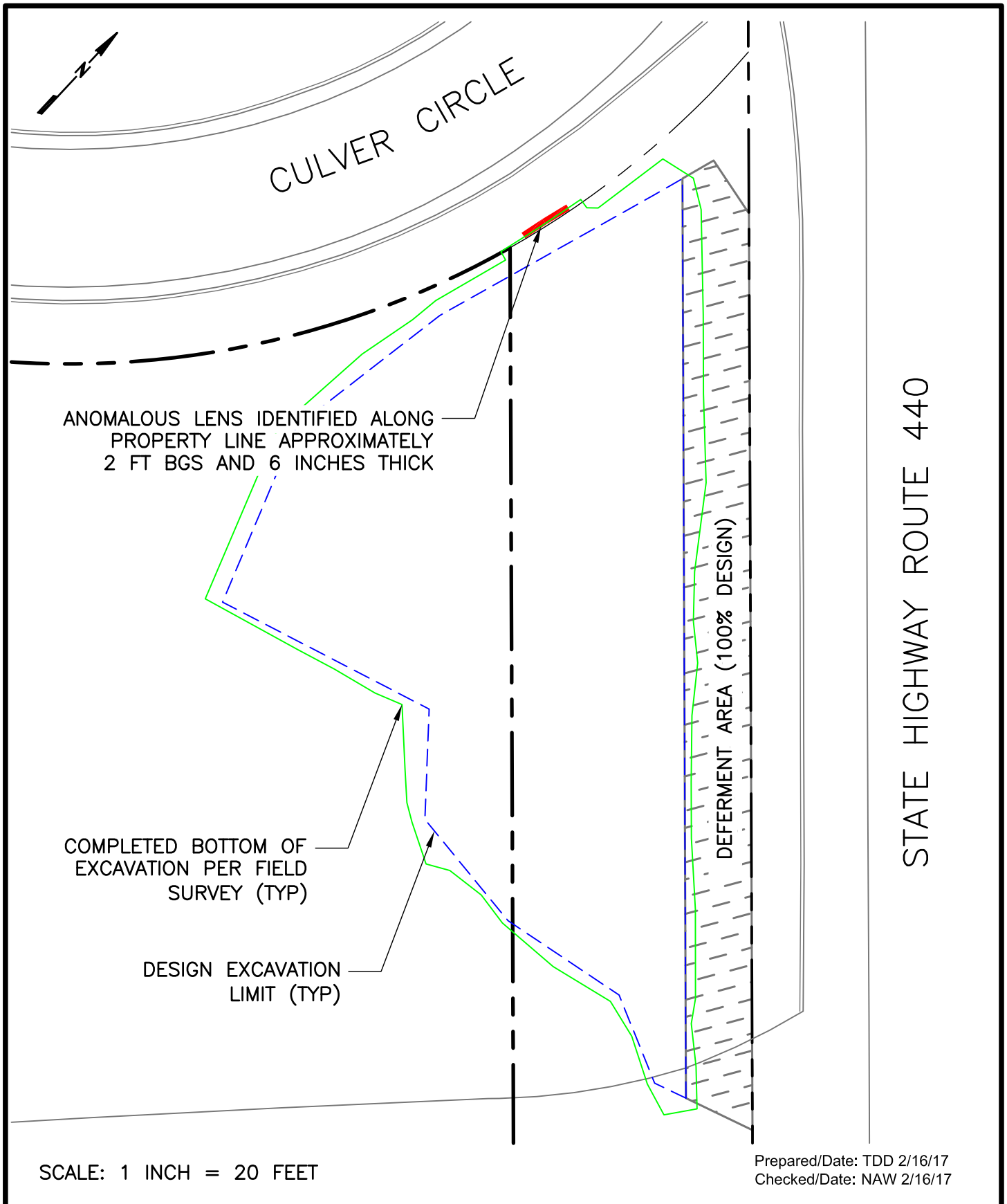
0 15 30 60
SCALE IN FEET

Prepared/Date: JVM 07/26/13
Checked/Date: TDD 07/29/13
Revised/Date: TDD 1/20/17

STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 35146	amec	WASTE CLASS SOIL SAMPLES SA-6 NORTH CHROMIUM REMEDY Project 3480-13-0354 FIGURE 7G

C:\Donovan\SA-6 North\2013 Excavation Surfaces\CHR SAMPLE FIG 7.dwg Wed, 01 Feb 2017 - 5:49pm tony.donovan

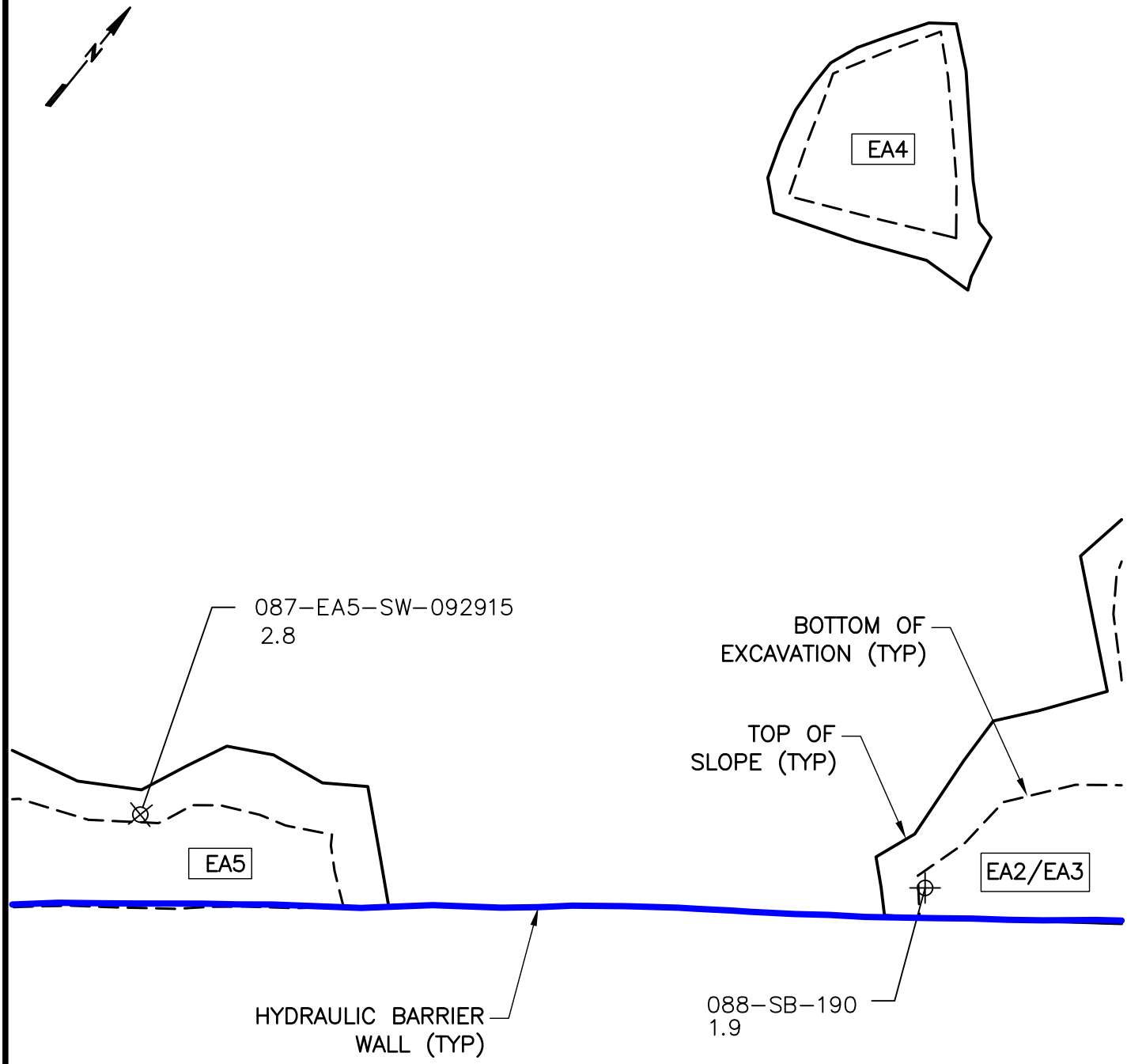


Prepared/Date: TDD 2/16/17
Checked/Date: NAW 2/16/17

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689-2829
NJ Certificate of Authorization Number 24GA28010900

SA-6 NORTH EA1
ANOMALOUS LENS LOCATION
Project 3480-10-0027
FIGURE 8A



SCALE: 1 INCH = 40 FEET

Prepared/Date: TDD 2/16/17
Checked/Date: NAW 2/16/17

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689–2829
NJ Certificate of Authorization Number 24GA28010900

SA-6 NORTH EA3 AND EA5
SUPPLEMENTAL SAMPLES
Project 3480-13-0354
FIGURE 8B

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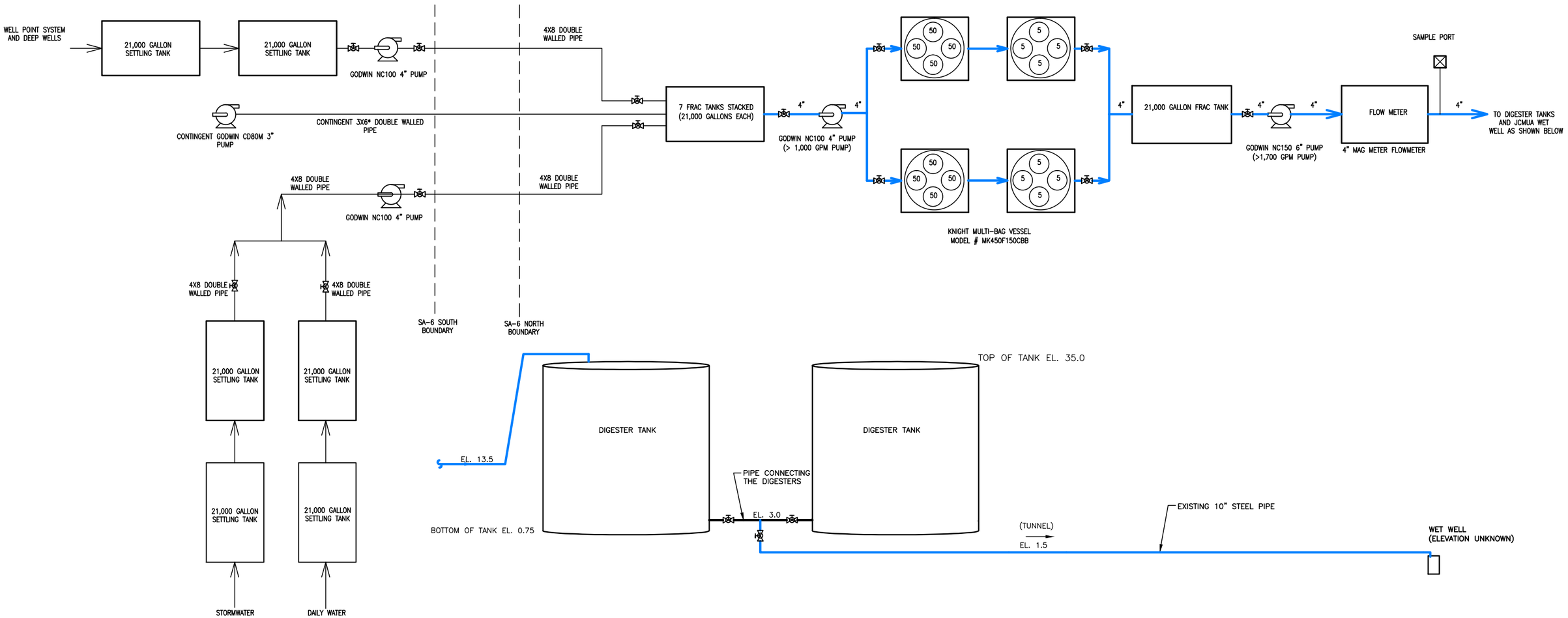

SOURCE REFERENCE:

DRAWING TITLE: "WASTEWATER MANAGEMENT PROCESS FLOW DIAGRAM" PREPARED BY ENTACT, 699 SOUTH FRIENDSWOOD DRIVE, FRIENDSWOOD, TEXAS 77546. SHEET 1 OF 1, DATED 03/15/13, REVISION A.

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-5710-CWTS-F100

PREPARED/DATE: STR 03/11/16

CHECKED/DATE: DEN 03/11/16

SEAL:
BRENT C. O'DELL

NJ PROFESSIONAL ENGINEER
LICENSE NUMBER 24GE3801700

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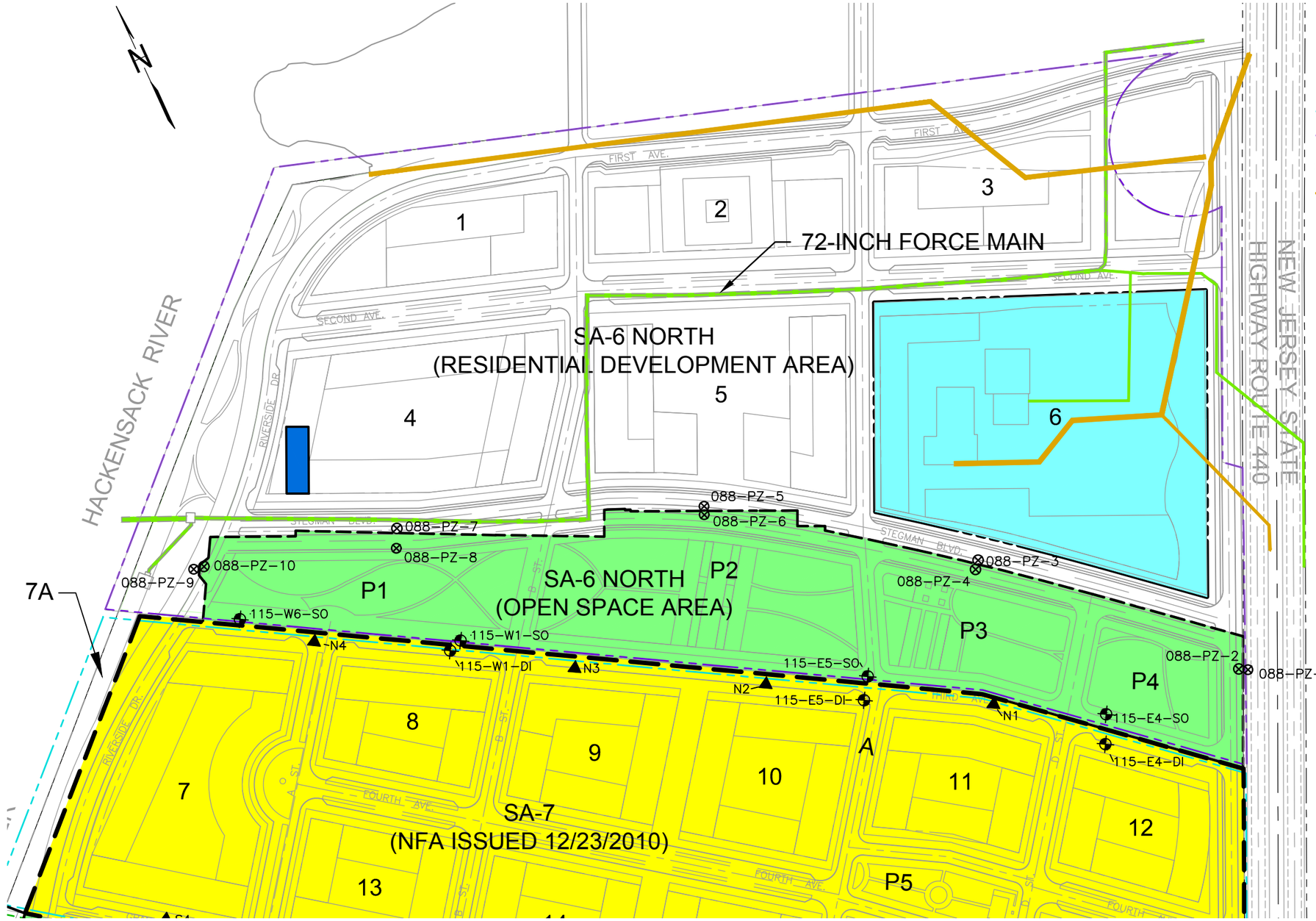
FIGURE 9
CONSTRUCTION WATER TREATMENT SYSTEM LAYOUT
STUDY AREA 6 NORTH & STUDY AREA 6 SOUTH
JERSEY CITY, NEW JERSEY

P:\CAD\HONEWELL\JERSEY CITY\SA 6 SOUTH\3480150488\5710\5710DA\CURRENT DRAWINGS\3480150488-5710-CWTS-F100.dwg Wed, 07 Dec 2016 - 2:36pm scott.rudkin Layout: LAYOUT



LEGEND

- EXISTING SHALLOW MONITORING WELL LOCATION
- PIEZOMETER
- SA-7 PERIMETER POOL STANDPIPES
- P1 FUTURE BLOCK / LOT DESIGNATION
- PROPERTY LINE SA-7
- PROPERTY LINE SA-6 NORTH
- 72-INCH FORCE MAIN
- STORMWATER / 96-INCH CSO
- SA-7 SOIL/CEMENT BENTONITE BARRIER
- SA-6 NORTH VERTICAL HYDRAULIC BARRIER (STEEL SHEETPILE) (CHROMIUM DEED NOTICE)
- BLOCK 6
- GROUNDWATER TREATMENT PLANT

NOTES:

1. NFA = NO FURTHER ACTION
2. SITE-WIDE SHALLOW GROUNDWATER WILL BE SUBJECT TO A CLASSIFICATION EXCEPTION AREA (CEA) FOR BOTH CHROMIUM & NON-CHROMIUM CONTAMINANTS

0 150 300 600
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: 3480150488-6100-BF6N-F400

PREPARED/DATE: STR 01/11/17
CHECKED/DATE: DEN 01/13/17

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200 AMERICAN METRO BLVD, SUITE 113
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FIGURE 10
SHALLOW GROUNDWATER MONITORING WELL LOCATION MAP FOR STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

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P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\6N NON CR\3480150488-6100-BF6N-F400.dwg Fri, 13 Jan 2017 - 12:03pm scott.rudkin Layout: Layout1

N

EXISTING BULKHEAD

087-SB-643
1.6

087-SB-640
4.5

087-SB-639
2.5

087-SB-630
7.7

BOE EL = 1.6 FT
(AREA 3)

087-SB-642
2.0

ELEVATION 7.0 FT

087-SB-631
4.5

BOE EL = 2.0 FT
(AREA 2)

087-SB-633
8.0

087-SB-641
7.5

(AREA 5)

087-SB-644
2.7

087-SB-637
4.5

087-SB-632
2.5

087-SB-634
6.5

087-SB-635
3.0

087-SB-102
7.4

087-SB-509
2.0

087-SB-638
6.5

087-SB-636
2.5

087-SB-148
3.8

087-SB-144
3.7

087-SB-645
2.7

087-SB-511
3.9

BOE EL = 7.0 FT

BOE EL = 1.6 FT
(AREA 4)

BOE EL = 3.7 FT
(AREA 1)

BOE EL = 7.0 FT

087-SB-149
8.5

087-SB-150
6.3

087-SB-103
8.4

087-SB-W25
7.5

087-SB-646
2.7

087-SB-145
3.9

087-SB-W25A
7.9

087-SB-512
8.5

FINAL FREQUENCY SUMMARY

SIDEWALL = 8/220 = 1:28

BOTTOM = 8/6,650 = 1:832

REFER TO ENTACT EXCAVATION BOTTOM ELEVATIONS EA8 DATED 12/17/15 FOR MASER SURVEYED BOE ELEVATIONS

LEGEND

- PDI BOTTOM SAMPLE LOCATION (<20 PPM HEX CR)
- PDI SIDEWALL SAMPLE LOCATION (<20 PPM HEX CR)
- PDI BOTTOM AND SIDEWALL SAMPLE LOCATION (<20 PPM HEX CR)
- POST EXCAVATION PERIMETER SIDEWALL SAMPLE (<20 PPM HEX CR)
- POST EXCAVATION BOTTOM SAMPLE (<20 PPM HEX CR)
- POST EXCAVATION INTERIOR SIDEWALL SAMPLE (<20 PPM HEX CR)
- POST EXCAVATION SAMPLE (>20 PPM HEX CR)
- BOE EL — DESIGN BOTTOM OF EXCAVATION ELEVATION
- 087-SB-511 / 3.9 — SAMPLE ID / SAMPLE ELEVATION (NGVD 1929 MSL)
- 100% DESIGN LIMITS
- FINAL DESIGN LIMITS
- EXCAVATION BEYOND FINAL DESIGN
- EXCAVATION PROGRESSION

NOTES

1. THE 100% DESIGN REQUIRED EXCAVATION IN EA8 TO ELEVATION 7.0 FT PRIOR TO OBTAINING SUPPLEMENTAL SAMPLES AND ESTABLISHING FINAL EXCAVATION LIMITS.
2. EXCAVATION AREA 1 AND 2 WERE ESTABLISHED BASED ON SUPPLEMENTAL EXCAVATION SAMPLE RESULTS AND PREVIOUSLY OBTAINED PDI DATA. SAMPLES WERE COLLECTED UPON REMOVAL OF EXISTING MATERIAL TO ELEVATION 7.0 FT.
3. AREA 3 WAS EXCAVATED BASED ON VISUAL IDENTIFICATION OF POTENTIALLY IMPACTED MATERIAL ALONG THE SIDEWALL OF AREA 1. THE SUSPECT MATERIAL EXTENDED IN TWO SMALL SEAMS AND PITCHED DOWN TO ELEVATIONS ABOVE 1.6 FT. UPON REMOVAL OF THE SUSPECT MATERIAL ADDITIONAL SAMPLES WERE COLLECTED (643, 644, AND 645).
4. ANALYTICAL RESULTS INDICATED SAMPLE 087-SB-645 EXCEEDED 20 PPM HEXAVALENT CHROMIUM. SEVERAL TEST TRENCHES WERE THEN EXCAVATED AND A SIDEWALL SAMPLE COLLECTED AT 087-SB-646. ANALYTICAL TESTING INDICATED <20 PPM HEXAVALENT CHROMIUM AND FINAL EXCAVATION OF AREA 4 WAS COMPLETED.
5. A SMALL POCKET OF ANOMALOUS MATERIAL WAS OBSERVED NEAR PDI BORING 087-SB-102. VISUALLY IMPACTED MATERIAL WAS REMOVED AND SIDEWALL SAMPLE (087-SB-630) WAS COLLECTED. ANALYTICAL RESULTS INDICATED THIS SAMPLE EXCEEDED 20 PPM HEXAVALENT CHROMIUM SO ADDITIONAL EXCAVATION WAS COMPLETED AND A NEW SIDEWALL SAMPLE COLLECTED AT 087-SB-641 WHICH TESTED <20 PPM HEXAVALENT CHROMIUM AND USED TO DEFINE THE FINAL LIMITS OF EXCAVATION AREA 5.

0 5 10
SCALE IN FEET

Prepared/Date: TDD 1/9/15
Checked/Date:
Revised/Date: TDD 1/5/17

Honeywell
101 COLUMBIA RD, BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Certificate of Authorization Number 24GA28019600

EXCAVATION AREA 8 (EA8)
FINAL SAMPLING AND EXCAVATION LIMITS
Project 3480-13-0377
FIGURE 11A

C:\Donovan\GA-6 North\2013 Excavation Surfaces\GA-6 North Excavation\Figure 1 EA8 Final Confirmation Points and Excavation Limits.dwg Wed, 01 Feb 2017 - 12:38pm tony.donovan

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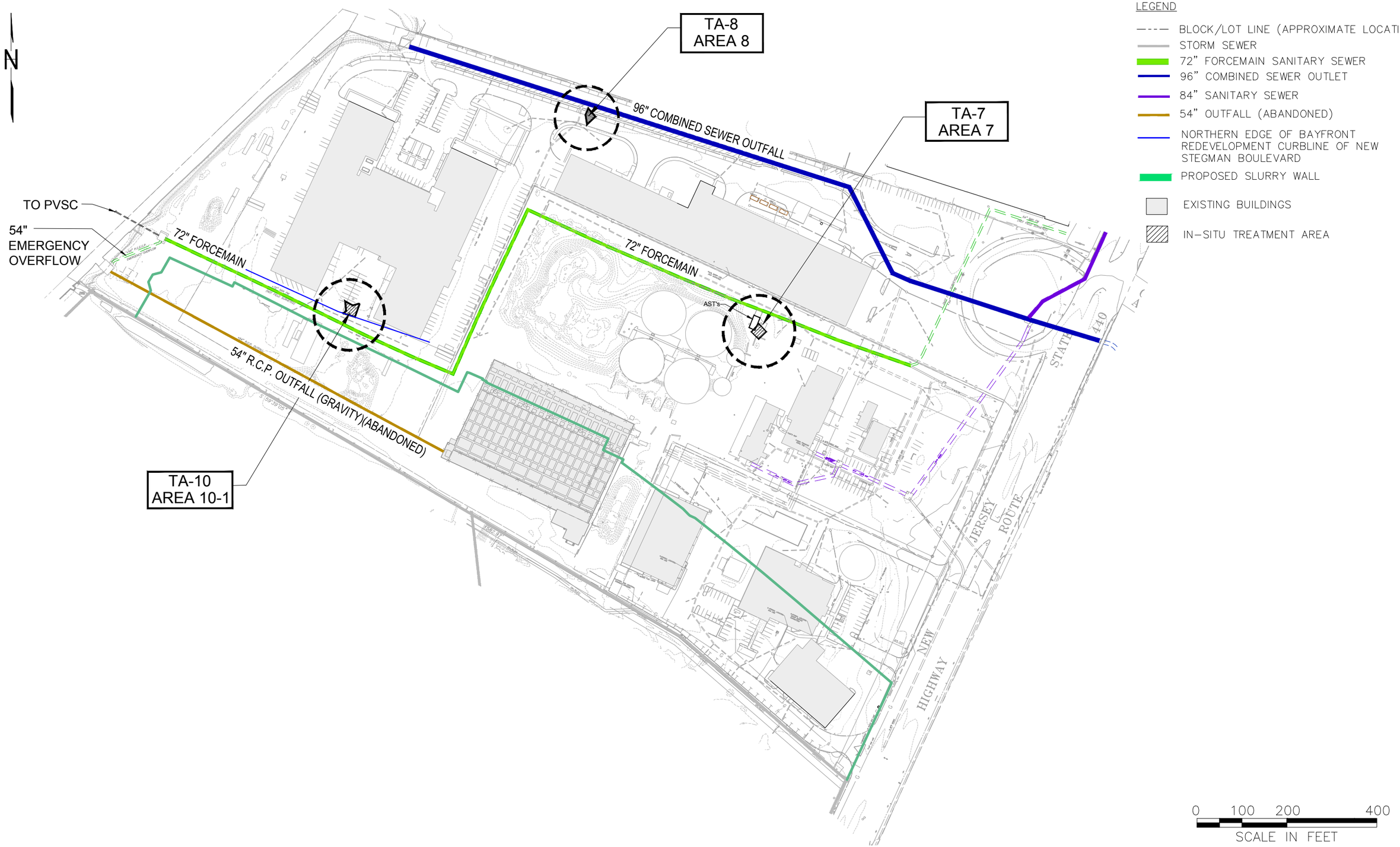

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: 3480150488-6100-TIA0-0000

PREPARED/DATE: STR 01/15/17

CHECKED/DATE: DEN 01/31/17

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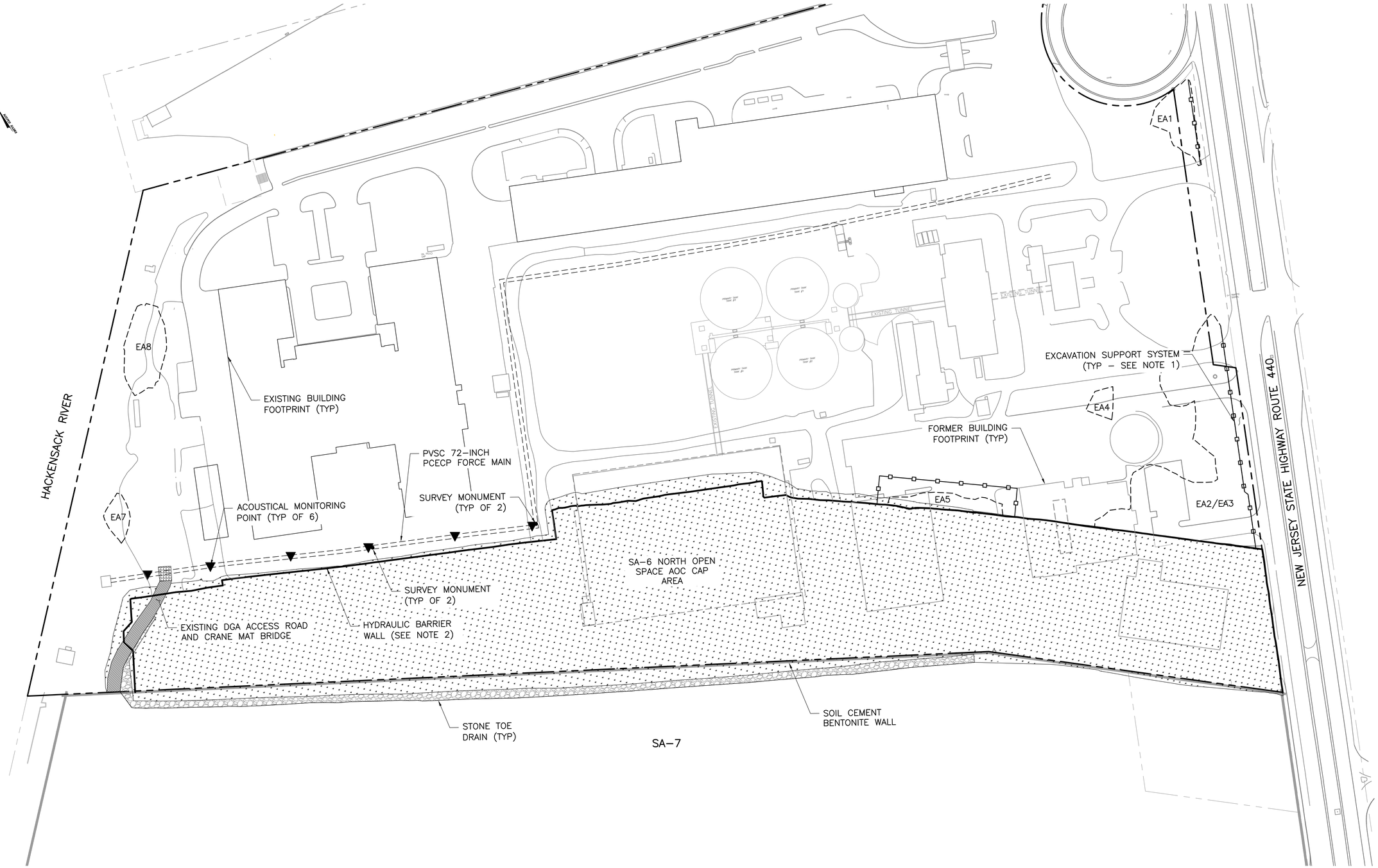
FIGURE 11B
TARGETED IN-SITU TREATMENT AREAS
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

P:\JOBS\WHEWELL\JERSEY CITY\SA 6 NORTH\3480150437\6100\61001\ON NON CAD\3480150488-6100-TIA0-0000.dwg Wed, 15 Feb 2017 - 3:39pm scottrudin Layout: Fig 2



NOTES:

1. VIBRATION MONITORING WAS CONDUCTED BY GEOCOMP DURING SHEET PILE DRIVING UTILIZING A MOBILE INSTANTEL MICROMATE WITH GEOPHONE PLACED ON THE GROUND SURFACE IN THE VICINITY OF ACTIVITIES. TRIGGER LEVELS WERE ESTABLISHED AT 0.5 IN/SEC AND ALERT LEVELS AT 2.0 IN/SEC.

2. ACOUSTICAL MONITORING AND SURVEY POINTS WERE INSTALLED ALONG THE SECTION OF 72-INCH FORCE MAIN THAT RUNS PARALLEL TO THE HYDRAULIC BARRIER WALL. THESE MONITORING POINTS WERE UTILIZED DURING THE SURCHARGE PROGRAM TO EVALUATE ANY UNANTICIPATED STRESS IMPACTS.

0 40 80 160
SCALE IN FEET

Prepared/Date; TDD 2/23/17
Checked/Date: NAW 2/24/17

Honeywell 101 COLUMBIA RD, BOX 2105 MORRISTOWN, NJ 07962	CHROMIUM REMEDY STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 37472	amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ. 08619. (609) 689 - 2829 NJ Certificate of Authorization Number 24GA28019500	72-INCH FORCE MAIN SURVEY AND ACOUSTICAL MONITORING Project 3480-13-0354 FIGURE 12

C:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North RAR\SA-6 North Vibration Monitoring.dwg Mon, 27 Feb 2017 - 4:35pm tony.donovan

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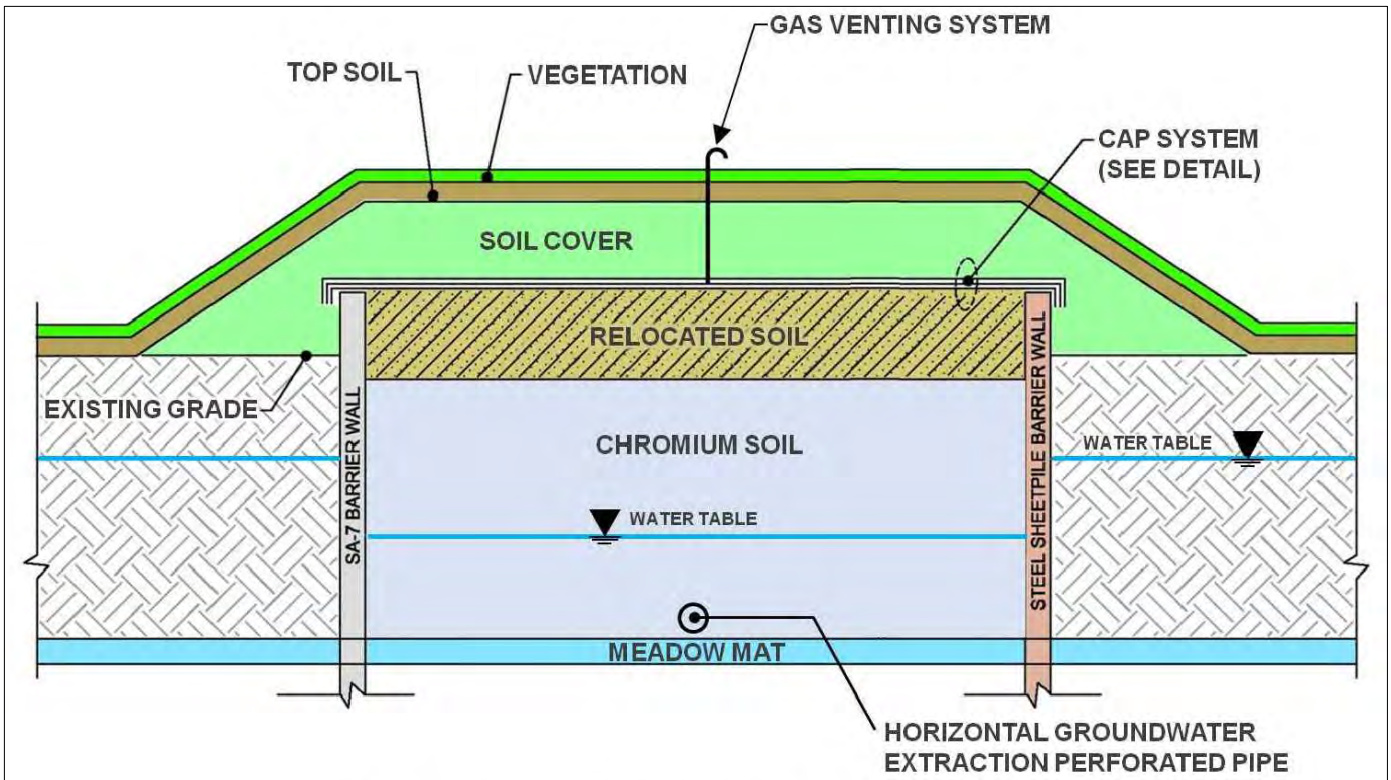

CHROMIUM REMEDY COMPONENTS

NTS

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Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150488-5710-CRC0-F140		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**FIGURE 13** CHROMIUM REMEDY COMPONENTS STUDY AREA SA-6 NORTH JERSEY CITY, NEW JERSEY
PREPARED/DATE: STR 01/11/17	*CHECKED/DATE:* DEN 01/13/17		

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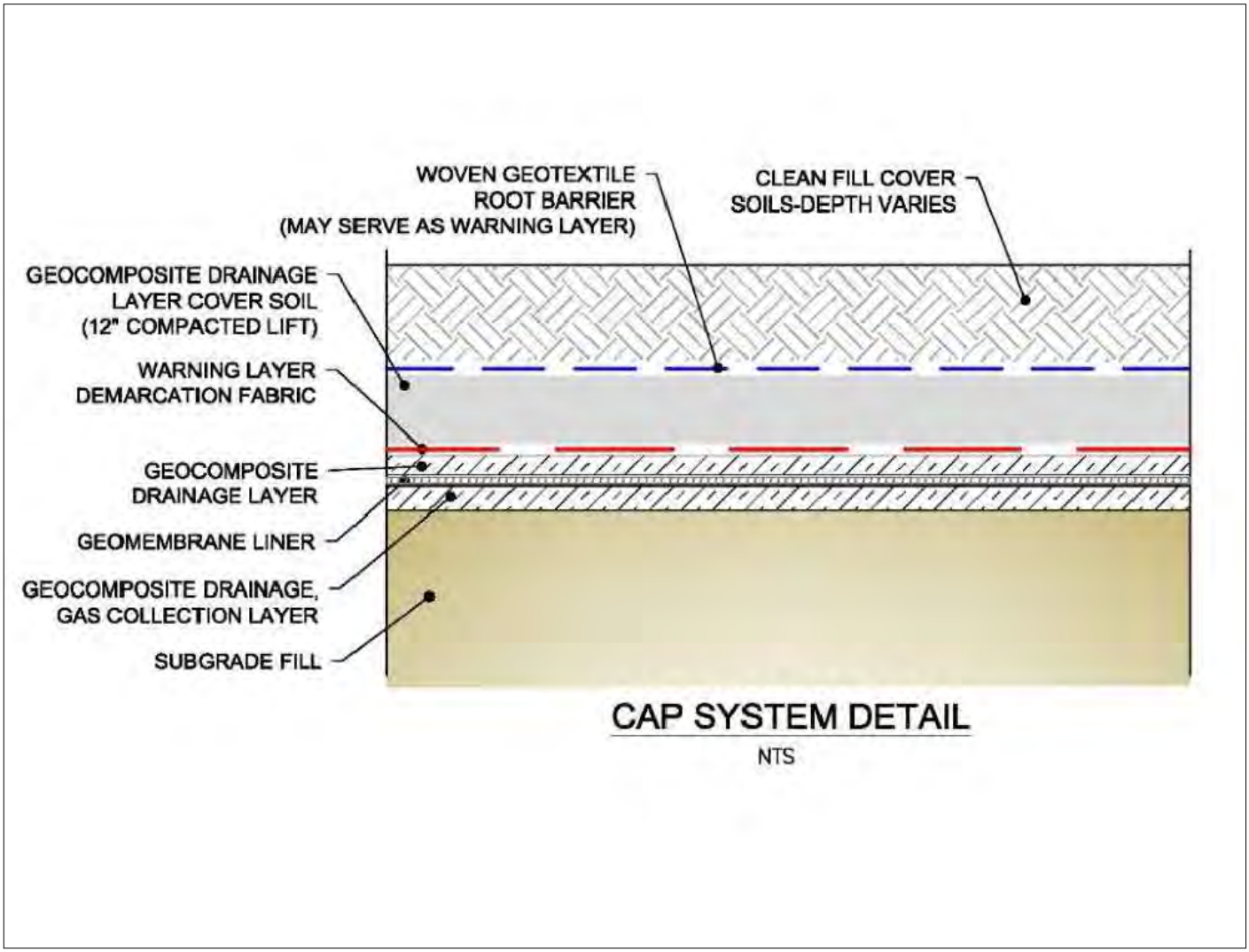

CAP SYSTEM DETAIL

NTS

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150488-5710-CAP0-F150	
PREPARED/DATE: STR 01/11/17	*CHECKED/DATE:* DEN 01/13/17

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FIGURE 14
CAP SYSTEM DETAIL
STUDY AREA SA-6 NORTH
JERSEY CITY, NEW JERSEY

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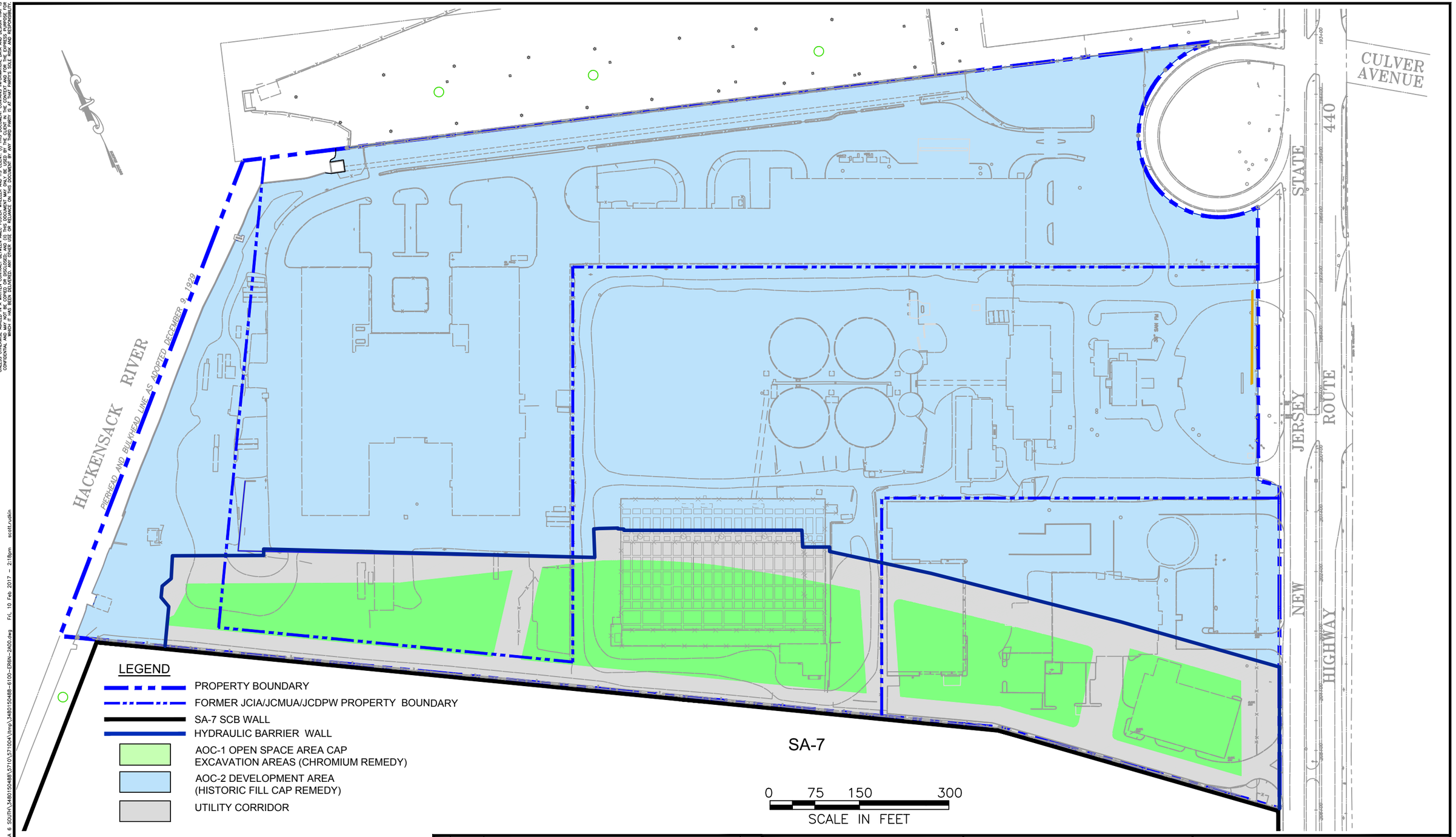

REV.	DATE	STATUS	BY

Amec Foster Wheeler PROJECT No. 3480150488
DRAWING: 3480150488-6100-ER6N-2A00

PREPARED/DATE: STR 01/25/17

CHECKED/DATE: DN 01/31/17

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FIGURE 15
UTILITY CORRIDORS
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

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FIGURE 17
SA-6 North/South Combined Chromium Remediation Schedule

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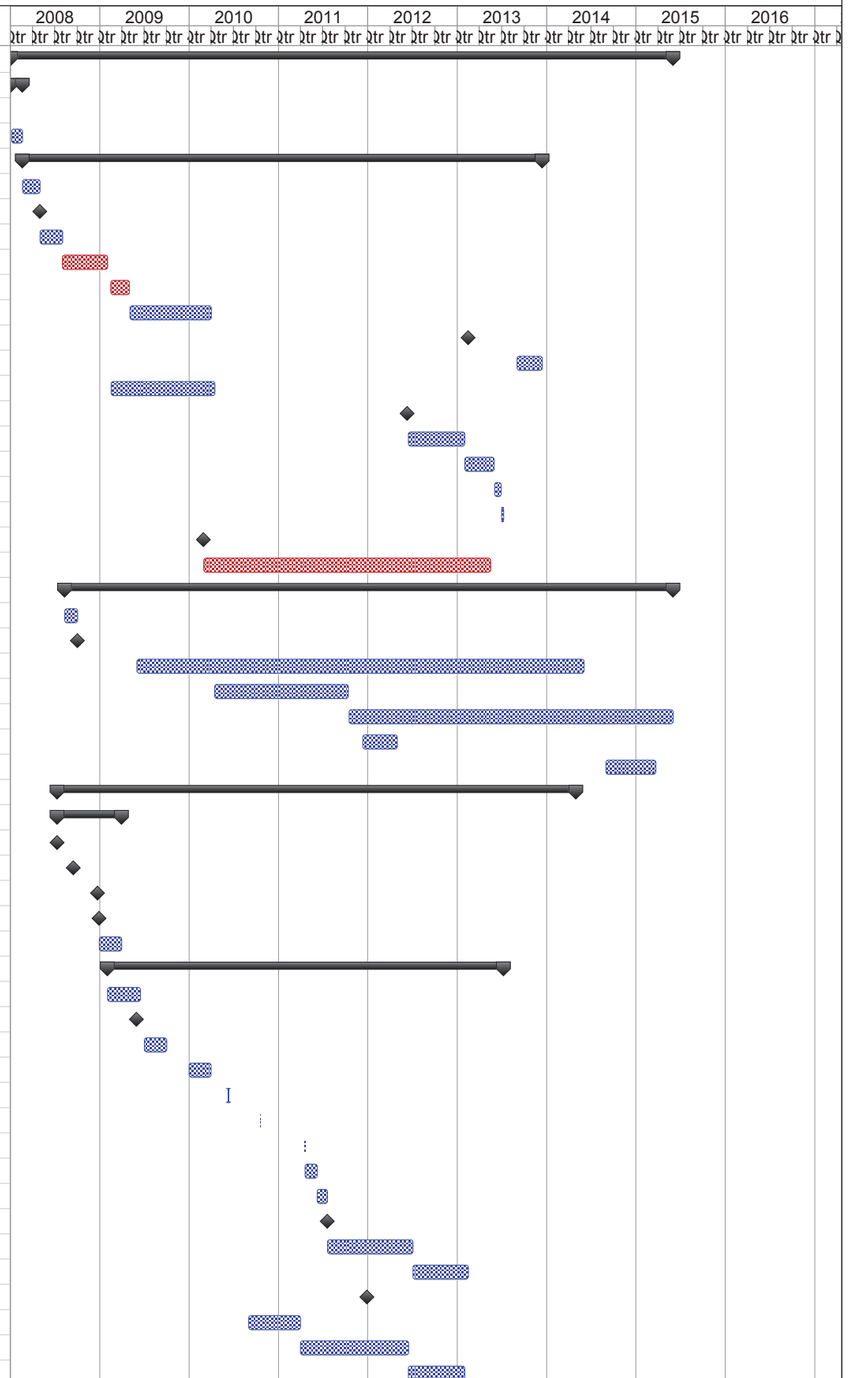
ID	Task Name	Duration	Start	Finish	Predecessors
1	**SA-6 North Chromium Remedy Preparation (Sites 087 and 088)**	**1936 days**	**Fri 1/4/08**	**Mon 6/1/15**	
2	**Remedial Action Work Plan**	**33 days**	**Fri 1/4/08**	**Tue 2/19/08**	
3	RAWP Submittal	1 day	Fri 1/4/08	Fri 1/4/08	
4	RAWP Approval by NJDEP	32 days	Mon 1/7/08	Tue 2/19/08	3
5	**Remedial Action Design**	**1522 days**	**Wed 2/20/08**	**Fri 12/13/13**	
6	PDI Work Plan Development	52 days	Wed 2/20/08	Thu 5/1/08	4
7	Finalize Access Agreements	0 days	Thu 5/1/08	Thu 5/1/08	6
8	Conduct PDI Field Activities	66 days	Fri 5/2/08	Fri 8/1/08	7
9	Prepare 50% Design Package	131 days	Fri 8/1/08	Sun 2/1/09	
10	Pipeline Area Treatability Analysis	55 days	Sun 2/15/09	Fri 5/1/09	
11	Finalization of In-Situ Treatment - Pipeline Areas	239 days	Mon 5/4/09	Thu 4/1/10	10
11a	Submittal of In-Situ Treatment Contractor Work Plans	0 days	Fri 2/15/13	Fri 2/15/13	
11b	Submittal of Revised In-Situ Treatment Work Plans - Force Main Area 10	75 days	Mon 9/2/13	Fri 12/13/13	
12	100% Design Submittal (See Note 1)	304 days	Mon 2/16/09	Thu 4/15/10	11FF
12a	Revised 100% Design Submittal	0 days	Mon 6/11/12	Mon 6/11/12	
13a	Contractor Bid & Selection	166 days	Fri 6/15/12	Thu 1/31/13	
13b	Contractor Adjustments to 100% Design	88 days	Fri 2/1/13	Fri 5/31/13	16
14	100% Design Final Submittal - Issued for Construction	20 days	Mon 6/3/13	Fri 6/28/13	17
15	Review and Approval of the 100% Design Final Submittal by Special Master, Riverkeeper, and Jersey City Entities (See No	7 days	Mon 7/1/13	Tue 7/9/13	18
16	Submit Permits to Regulatory Authorities	0 days	Mon 3/1/10	Mon 3/1/10	
17	Regulatory Permits and Local Approvals	842 days	Tue 3/2/10	Thu 5/16/13	20FS+1 day
18	**JCIA/JCDPW Relocation**	**1780 days**	**Mon 8/11/08**	**Mon 6/1/15**	
19	Develop Site Relocation Master Plan	38 days	Mon 8/11/08	Wed 10/1/08	8FS+5 days
20	Submit Site Relocation Master Plan	0 days	Wed 10/1/08	Wed 10/1/08	23
21	JC Construction of New Facilities	1309 days	Tue 6/2/09	Mon 6/2/14	
22	Relocation Contractor Procurement	392 days	Thu 4/15/10	Thu 10/13/11	14FS-1 day
23	JCIA and JCDPW Relocation	949 days	Mon 10/17/11	Mon 6/1/15	26FS+1 day
24	Demolition of Existing JCIA Facilities - Sedimentation Basin	101 days	Mon 12/12/11	Mon 4/30/12	
24a	Demolition of JCIA Structures	146 days	Mon 9/1/14	Mon 3/23/15	
25	**SA-6 South Chromium Remedy Preparation (Sites 073, 124, 125, 134, 140 and 163)**	**1518 days**	**Fri 7/11/08**	**Wed 4/30/14**	
26	**Remedial Action Work Plan**	**187 days**	**Fri 7/11/08**	**Mon 3/30/09**	
27	Submit Chromium Impacted Soils Pilot Test Work Plan to NJDEP	0 days	Fri 7/11/08	Fri 7/11/08	
28	Substantial Completion of Field Work per RIWP Addendum	0 days	Mon 9/15/08	Mon 9/15/08	
29	Submit Supplemental RIR/RASR/RAWP	0 days	Tue 12/23/08	Tue 12/23/08	
30	Submit Initial Treatment Study Report	0 days	Tue 12/30/08	Tue 12/30/08	
31	RAWP Review/Approval to NJDEP	65 days	Tue 12/30/08	Mon 3/30/09	35
32	**Remedial Action Design**	**1161 days**	**Mon 2/2/09**	**Tue 7/9/13**	
33	PDI Work Plan Development	96 days	Mon 2/2/09	Mon 6/15/09	35FS+23 days
34	Finalize Access Agreements	0 days	Sun 5/31/09	Sun 5/31/09	
35	Conduct PDI Activities	66 days	Thu 7/2/09	Thu 10/1/09	38
36	Off-site Shallow Groundwater Sampling Plan	64 days	Fri 1/1/10	Wed 3/31/10	40
37	Additional Well Installation	3 days	Wed 6/9/10	Fri 6/11/10	
38	Groundwater Sampling Event #1 (Coordinated with SA-5 Offsite Wells)	1 day	Tue 10/19/10	Tue 10/19/10	
39	Groundwater Sampling Event #2 (Coordinated with SA-5 Offsite Wells)	1 day	Tue 4/19/11	Tue 4/19/11	
40	Groundwater Sample Analysis and Validation	35 days	Wed 4/20/11	Tue 6/7/11	44
41	Prepare SA-6 South Shallow Off-Site Groundwater Delineation & Remedy Proposal Report	30 days	Wed 6/8/11	Tue 7/19/11	45
42	Submit SA-6 South Shallow Off-Site Groundwater Delineation & Remedy Proposal Report to NJDEP, Special Master, River	0 days	Tue 7/19/11	Tue 7/19/11	46
43	NJDEP Review Period	251 days	Wed 7/20/11	Tue 7/3/12	47
44	Special Master, Riverkeeper, and Jersey City Review Period (See Note 1A)	164 days	Wed 7/4/12	Thu 2/14/13	48
45	Submit Final Treatment Study Monitoring Report	0 days	Fri 12/30/11	Fri 12/30/11	
46	Prepare 50% Design Package	152 days	Wed 9/1/10	Thu 3/31/11	
47	Prepare 100% Design Package to NJDEP (See Note 6)	317 days	Fri 4/1/11	Fri 6/15/12	51
48a	Contractor Bid & Selection	166 days	Fri 6/15/12	Thu 1/31/13	16SS



Project: SA-6 Remediation Schedule
Revision 4
Date: 8/28/15

Task | Milestone | Summary | Critical

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FIGURE 17
SA-6 North/South Combined Chromium Remediation Schedule

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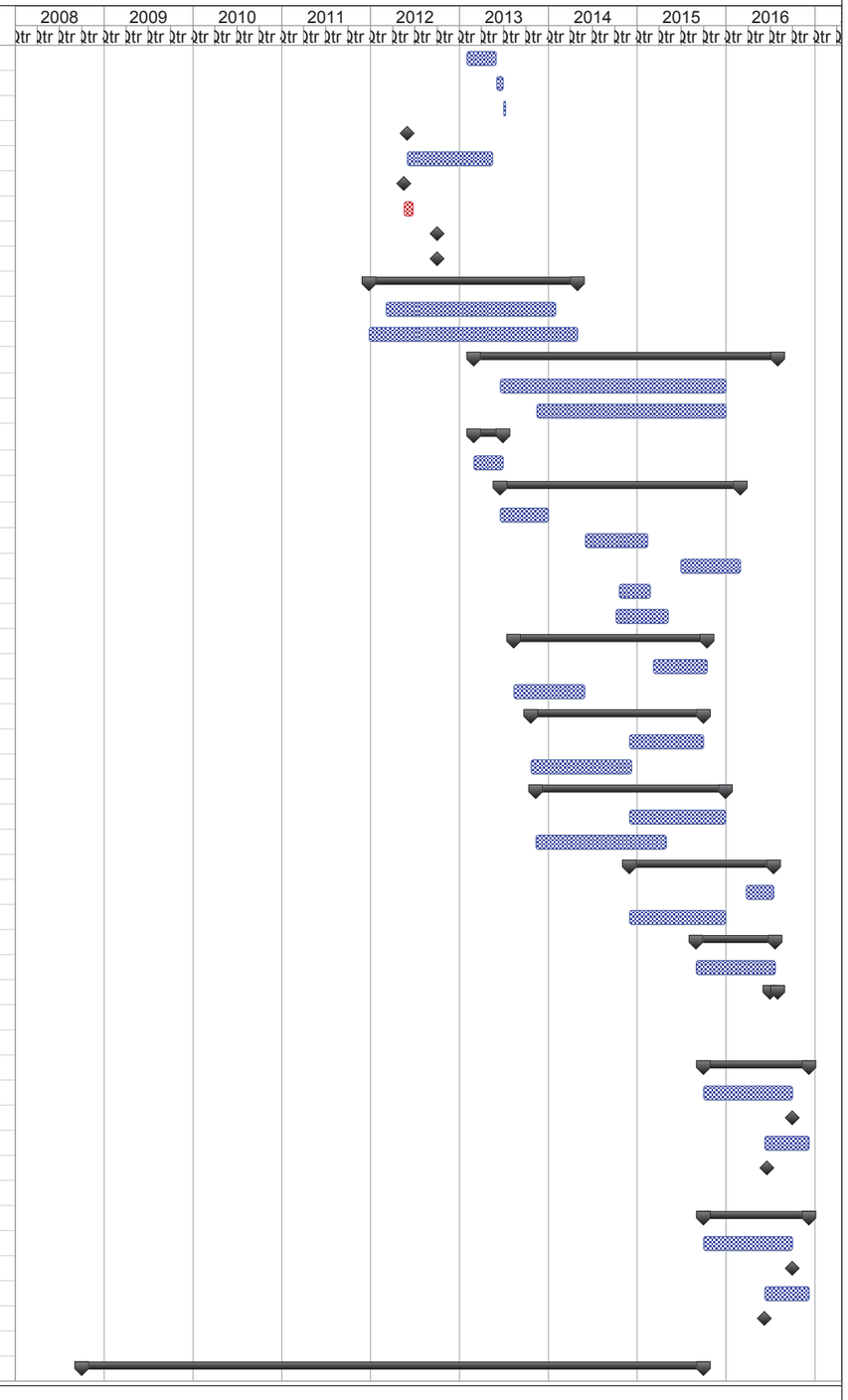
ID	Task Name	Duration	Start	Finish	Predecessors
48b	Contractor Adjustments to 100% Design	88 days	Fri 2/1/13	Fri 5/31/13	53
49	100% Design Final Submittal - Issued for Construction	20 days	Mon 6/3/13	Fri 6/28/13	54
50	Review and Approval of the 100% Design Final Submittal by Special Master, Riverkeeper, and Jersey City Entities	7 days	Mon 7/1/13	Tue 7/9/13	55
51	Submit Permitting Packages	0 days	Thu 5/31/12	Thu 5/31/12	
52	Regulatory Permits and Local Approvals	254 days	Thu 5/31/12	Thu 5/16/13	57SS
53	Prepare and Submit Site 163 Supplemental Investigation Data (RIR/RAWP)	0 days	Fri 5/18/12	Fri 5/18/12	
54	RAWP Review/Approval to NJDEP	25 days	Sat 5/19/12	Fri 6/22/12	59
55	Prepare and Submit In-Situ Treatment Work Plan Site 163	0 days	Mon 10/1/12	Mon 10/1/12	60
56	Submit Addendum to SA-6 South 100% Design for Site 163	0 days	Mon 10/1/12	Mon 10/1/12	61
57	**SA-6 South Relocation**	**616 days**	**Mon 12/26/11**	**Wed 4/30/14**	
58	New GWTP Construction Completion	502 days	Mon 3/5/12	Thu 1/30/14	
59	Demolition of 80 Kellogg	857 days	Mon 12/26/11	Wed 4/30/14	
60	**SA-6 North/South Field Implementation**	**894 days**	**Fri 3/1/13**	**Mon 8/1/16**	
60a	SA-6N In-Situ Treatment Areas 7, 8 and 10 (See Notes 13 and 20)	664 days	Mon 6/17/13	Thu 12/31/15	
60b	SA-6S (Site 163) In-Situ Treatment (See Notes 14 and 20)	555 days	Fri 11/15/13	Thu 12/31/15	
61	**Mobilization (Inclues new GWTP, In-situ Treatment & Main Remedy)**	**87 days**	**Fri 3/1/13**	**Fri 6/28/13**	
61a	Mobilization	87 days	Fri 3/1/13	Fri 6/28/13	
62	**Surcharge Install/Instrumentation**	**706 days**	**Mon 6/17/13**	**Mon 2/29/16**	
62a	Prepare Open Space Areas for Surcharge/Install Instumentation (See Note 15)	142 days	Mon 6/17/13	Tue 12/31/13	70SS+10 days
62b	Place Stockpile Surcharge SA6N Western Areas	185 days	Tue 4/8/14	Fri 2/13/15	72FS+108 days
62c	Place Stockpile Surcharge SA6N Eastern Areas	175 days	Tue 6/30/15	Mon 2/29/16	73FS+96 days
62d	Place Stockpile Surcharge SA6S Western Areas	91 days	Mon 6/16/14	Mon 2/23/15	72FS+208 days
62e	Place Stockpile Surcharge SA6S Eastern Areas	155 days	Mon 10/6/14	Fri 5/8/15	72FS+43 days
63	**Barrier Wall Install**	**569 days**	**Mon 8/12/13**	**Thu 10/15/15**	
63a	SA 6N Installation of Barrier Wall	159 days	Mon 3/9/15	Thu 10/15/15	70FS+110 days
63b	SA 6S Installation of Barrier Wall	210 days	Mon 8/12/13	Fri 5/30/14	70SS+77 days
64	**Excavation**	**507 days**	**Tue 10/22/13**	**Wed 9/30/15**	
64a	SA 6N Excavation	218 days	Mon 12/1/14	Wed 9/30/15	
64b	SA 6S Excavation	295 days	Tue 10/22/13	Mon 12/8/14	
65	**Backfill**	**558 days**	**Mon 11/11/13**	**Wed 12/30/15**	
65a	SA 6N Backfill	283 days	Mon 12/1/14	Wed 12/30/15	81SS
65b	SA 6S Backfill	384 days	Mon 11/11/13	Thu 4/30/15	82SS+14 days
66	**Capping and Cover Soil Placement**	**426 days**	**Mon 12/1/14**	**Fri 7/15/16**	
66a	SA 6N Capping and Cover Soil Placement	83 days	Thu 3/24/16	Fri 7/15/16	84FS+60 days
66b	SA 6S Capping and Cover Soil Placement	283 days	Mon 12/1/14	Wed 12/30/15	
67	**Restoration**	**234 days**	**Tue 9/1/15**	**Thu 7/21/16**	
67a	Restoration	234 days	Tue 9/1/15	Thu 7/21/16	
68	**Demobilization (See Note 16)**	**22 days**	**Fri 7/1/16**	**Mon 8/1/16**	
68a	Deferred Remediation of SA-6 South Along Bulkhead (See Note 11)	1 day	Fri 3/1/13	Fri 3/1/13	
68b	Deferred Remediation of SA-6 North/South Along PSEG Gas Line (See Note 12)	1 day	Fri 3/1/13	Fri 3/1/13	
69	**SA-6 North Project Closeout**	**311 days**	**Thu 10/1/15**	**Wed 12/7/16**	
70	RA Closure Report	263 days	Thu 10/1/15	Fri 9/30/16	
71	RAR Report Submittal	0 days	Fri 9/30/16	Fri 9/30/16	96
72	Prepare Groundwater Remedy Monitoring Report (See Note 17)	131 days	Thu 6/9/16	Wed 12/7/16	
73	Open Space As-Built Documentation	0 days	Sat 6/18/16	Sat 6/18/16	
74	NJDEP Acceptance Letter of Completion (See Note 3)	0 days	Sat 6/18/16	Sat 6/18/16	99
75	**SA-6 South Project Closeout (See Note 8)**	**311 days**	**Thu 10/1/15**	**Wed 12/7/16**	
76	RA Closure Report	263 days	Thu 10/1/15	Fri 9/30/16	
77	RAR Report Submittal	0 days	Fri 9/30/16	Fri 9/30/16	102
78	Prepare Groundwater Remedy Monitoring Report (See Note 17)	131 days	Thu 6/9/16	Wed 12/7/16	
79	Open Space As-Built Documentation	0 days	Wed 6/8/16	Wed 6/8/16	
80	NJDEP Acceptance Letter of Completion (See Note 3)	86 days	Thu 6/9/16	Wed 10/5/16	105SS+1 day
81	**SA-6 North Long Term Protections**	**1830 days**	**Wed 10/1/08**	**Thu 10/1/15**	



Project: SA-6 Remediation Schedule
Revision 4
Date: 8/28/15

Task | Milestone ◆ | Summary | Critical

Honeywell

FIGURE 17
SA-6 North/South Combined Chromium Remediation Schedule

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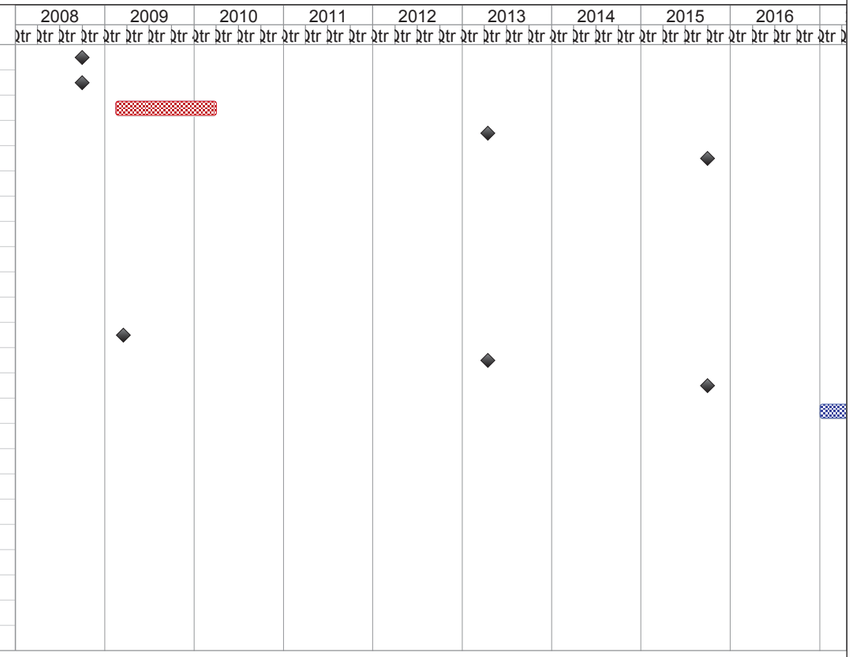
ID	Task Name	Duration	Start	Finish	Predecessors
82	Initial Conservation Restriction	0 days	Wed 10/1/08	Wed 10/1/08	
83	Option for JC to Purchase Property	0 days	Wed 10/1/08	Wed 10/1/08	
84	Submit Open Space Design Standards for Park Design	294 days	Sun 2/15/09	Thu 4/1/10	
85	Submit Revised Open Space Design Standards for Park Design	0 days	Tue 4/16/13	Tue 4/16/13	
86	Submit Long Term Monitoring Plan (See Note 19)	0 days	Thu 10/1/15	Thu 10/1/15	
87	Amended Conservation Restriction (See Note 2)	1 day	Wed 2/10/10	Wed 2/10/10	
88	Final Deed Notice for Open Space (See Note 3)	1 day	Wed 2/10/10	Wed 2/10/10	
89	Final Transfer of Open Space Title to JC (See Note 4)	1 day	Wed 2/10/10	Wed 2/10/10	
90	Placement of Open Space on Jersey City ROSI Inventory (See Note 4)	1 day	Wed 2/10/10	Wed 2/10/10	
91	Submit Open Space Development Plans (See Note 5)	1 day	Wed 2/10/10	Wed 2/10/10	
92	**SA-6 South Long Term Protections**	**2569 days**	**Thu 6/5/08**	**Sat 3/31/18**	
93	Initial Conservation Restriction	0 days	Thu 3/19/09	Thu 3/19/09	
94	Prepare Open Space Design Standards for Park Design (Combine with SA-6 North)	0 days	Tue 4/16/13	Tue 4/16/13	111FF
95	Submit Long Term Monitoring Plan (See Note 19)	0 days	Thu 10/1/15	Thu 10/1/15	
96	Development AOC Shallow GW Monitoring	261 days	Mon 1/2/17	Sun 12/31/17	
97	Submit Development AOC Shallow GW Remedy Report	0 days	Sat 3/31/18	Sat 3/31/18	
98	L-Well GW (One-Time) Monitoring Event (Inside Cap Area) (See Note 18)	3 days	Wed 6/3/15	Fri 6/5/15	
99	L-Well GW (One-Time) Monitoring Event (Outside Cap Area) (See Note 18)	1 day	Wed 2/10/10	Wed 2/10/10	
100	Submit L-Well GW Remedy Report	120 days	Mon 8/18/14	Fri 1/30/15	
101	Amended Conservation Restriction (See Note 7)	1845 days	Thu 6/5/08	Thu 6/25/15	
102	Final Deed Notice for Open Space (See Note 3)	0 days	Fri 1/30/15	Fri 1/30/15	126
103	Final Transfer of Open Space Title to JC (See Note 9)	0 days	Fri 1/30/15	Fri 1/30/15	126
104	Placement of Open Space on Jersey City ROSI Inventory (See Note 9)	0 days	Fri 1/30/15	Fri 1/30/15	126
105	Submit Open Space Development Plans (See Note 10)	0 days	Fri 1/30/15	Fri 1/30/15	126



Note 1: 100% Design Submittal includes Data Validation Plan and Health and Safety Plan.
Note 1A: The 30-day Special Master review period is provided as a placeholder. This 30-day period is not binding to the Special Master or Honeywell.
Note 2: The future event(s) that will trigger the deadline for the Amended Conservation Restriction, as set forth in Schedule A of the Conservation Restriction recorded on January 9, 2009, include: 1) upon completion of the construction of the hydraulic barrier walls the AOC 1 Open Space Area will be re-surveyed (the "As-Built Survey") and a metes and bounds description (the "As-Built Description") will be prepared based on the As-Built Survey; 2) following preparation of the As-Built Description Honeywell shall request that the Court amend the order entered on April 8, 2009, which, pursuant to paragraph 60(b)(i) of the Consent Decree, incorporates the Conservation Restriction ("the Conservation Restriction Order"), by substituting the As-Built Description for the metes and bounds description set forth in Exhibit A of the Conservation Restriction recorded on January 9, 2009, and thereby creating an amended Conservation Restriction; and 3) once the Conservation Restriction Order is amended by the Court, Honeywell shall record the Amended Conservation Restriction in the office of the Hudson County Register (TBD).
Note 3: Deed Notice is to be submitted 90 calendar days following completion of Chromium Remedy. The NJDEP will issue an Acceptance Letter of Completion after the final deed notice is recorded with the county clerk and submitted to the NJDEP for review (TBD).
Note 4: 120 calendar days following construction of adjacent roads and utility corridors within the AOC 1 Open Space Area (TBD).
Note 5: Open Space Development Plans to be submitted any time after approval of Open Space Design Standards (TBD).
Note 6: 100% Design includes:
* Data Validation Plan
* Health and Safety Plan
* Post-Treatment Monitoring Plan
* Post Remedial Treated Soil Monitoring Plan
* Plan for Investigative Measures for Cap Integrity
* L-Well Groundwater Monitoring Plan
* Groundwater Level Control Plan
* Development AOC Shallow Groundwater Monitoring Plan
Note 7: The future event(s) that will trigger the deadline for the Amended Conservation Restriction, as set forth in Schedule A of the Conservation Restriction recorded on March 25, 2010, include: 1) upon completion of the construction of the hydraulic barrier walls the Open Space AOC will be re-surveyed (the "As-Built Survey") and a metes and bounds description (the "As-Built Description") will be prepared based on the As-Built Survey; 2) following preparation of the As-Built Description Honeywell shall request that the Court amend the order, entered on March 21, 2011, which, pursuant to paragraph 74(b)(i) of the Consent Decree, incorporates the Conservation Restriction ("the Conservation Restriction Order"), by substituting the As-Built Description for the metes and bounds description set forth in Exhibit A of the Conservation Restriction recorded on March 25, 2010, and thereby creating an amended Conservation Restriction; and 3) once the Conservation Restriction Order is amended by the Court, Honeywell shall record the Amended Conservation Restriction in the office of the Hudson County Register (TBD).
Note 8: Honeywell reserves the right to combine project closeout activities.
Note 9: 120 calendar days following construction of adjacent roads and utility corridors within the Open Space AOC (TBD).
Note 10: Open Space Development Plans to be submitted any time after approval of Open Space Design Standards (TBD).
Note 11: The deferred remediation along the SA-6 South Bulkhead will be performed commensurate with the schedule for construction of the permanent Bayfront Bulkhead Project. This Bulkhead construction project is planned for the calendar year 2019 which results in the deferred remediation phase being implemented within approximately three years of completion of the main site remedy.
Note 12: The deferred remediation along the SA-6 North/South PSEG Gas Line will be performed commensurate with the schedule for construction of the Route 440 Road Widening Project. This Road Widening construction project is planned for calendar year 2019 which results in the deferred remedy phase being implemented within approximately three years of completion of the main site remedy.
Note 13: In-situ treatment was initiated in Areas 7 and 8 at SA-6 North. Additional time is allotted for the revised Area 10 footprint proximate to the 72-inch forcemain and for subsequent injection events if needed.
Note 14: In-situ treatment at SA-6 South was completed in Summer 2014. Additional time is allotted in the event that a subsequent injection event is needed.
Note 15: This activity includes all locations except the JCIA Facilities. The surcharge instrumentation will be installed at JCIA after relocation of the employees to the new municipal services complex.
Note 16: The chromium remedy contractor is planning demobilization as indicated. Depending on the weather, there may be some additional site restoration activities in the fall of 2016.

Project: SA-6 Remediation Schedule
Revision 4
Date: 8/28/15

Task | Milestone | Summary | Critical

FIGURE 17
SA-6 North/South Combined Chromium Remediation Schedule

ID	Task Name	Duration	Start	Finish	Predecessors	2008	2009	2010	2011	2012	2013	2014	2015	2016
						1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr	1qtr 2qtr 3qtr 4qtr

Note 17: Report prepared pursuant to Paragraph 72, (c)(viii) of SA-6 North Consent Decree and Paragraph 86, (c)(xix) of the SA-6 South Consent Decree. both of which state, "A report reviewing measured groundwater levels for the groundwater remedy."
Note 18: The L-well locations outside of the Open Space (Cap Area) will be sampled after one full year of seasonal hydrologic fluctuations following completion of the Chromium Remedy, currently anticipated to be in the latter half of March 2017.
Note 19: A combined LTMP addressing both SA-6 North and South will be prepared and submitted.
Note 20: Confirmation soil sampling at in-situ treatment areas have been / will be completed as follows:

SA-6 North TA-7 & TA-8:
- 6-month: June 2014 (Completed)
- 3-year: Approx. June 2016

SA-6 North TA-10-1:
- 6-month: Approx. March 2016 (weather permitting)
- 3-year: No later than approx. Sept 2018 (or sooner pending approval)

SA-6 South (Site 163)
- 6-month: April 2015 (Completed)
- 3-year: TBD (not needed if Site 163 re-injections not performed)

Project: SA-6 Remediation Schedule
Revision 4
Date: 8/28/15

Task | Milestone ◆ | Summary | Critical

APPENDIX A

REPRESENTATIVE PHOTOGRAPHS

SA-6 North Chromium Remedy

001. Excavation of EA-2 EA-3

002. Excavation of EA-2 EA-3

003. Excavation of EA-2 and EA-3

004. EA2 & EA3 Backfill

005. Driving sheet pile in the JCIA basement

006. Driving the first sheet pile east of the JCIA trash pit

007. Fine-grading the utility corridoor at Sta. (18+50)

008. Sheet pile delivery

009. Sheet pile staging

010. Southern slope of 1N

011. Loading EA8 Interval 2 soil into trucks for transfer to the Sedimentation Basin

012. Loading soil from EA8 Interval 1 into a truck

013. Trash pit area

014. Barrier for 440 work

015. HB wall section 54P-35 within EA5

016. EA5 with UST

017. Backfill rolling in EA-5

018. EA5 excavation

019. EA5 excavation

020. EA5 excavation

021. EA-5 Sidewall

022. EA5 excavation

023. Location of UST in EA5

024. EA-5 UST removal

025. EA-5 backfill

026. Spreading material in EA-5

027. Epoxy repair in EA-5

028. Began excavating the northern portion of EA7

029. Surcharge pile 2N

030. Compacting surcharge area 2N

031. JCIA Incinerator Demolition

032. Driving sheetpile along the west side of 1N

033. Fence Installation on 440

034. JCIA Buildings

035. JCIA Garage

036. JCIA Demo of waste management garage

037. Backfill trashpit area

038. 2 foot cut excavation

039. Loading material for offsite disposal

040. Driving sheetpile on 1N

041. North hydraulic barrier wall

042. North hydraulic barrier wall

043. Driving sheetpile in 1N

044. Sheetpile

045. Hydraulic barrier wall

046. Driving sheetpile

047. Hydraulic barrier wall with overlayed material

048. EA-8 protective backfill

049. Discharge line in EA-8

050. EA-8 - Backfill

051. EA7 excavation

052. Hydraulic barrier wall in sed basin

053. EA7 excavation

054. EA7 excavation

055. Rolling EA7 excavation

056. Backfilling EA7 excavation

057. Hydraulic barrier wall in sed basin

058. Hydraulic barrier wall in sed basin

059. Hydraulic barrier wall in sed basin

060. Installing HB wall

061. Installing HB wall

062. Hydraulic barrier wall in sed basin

063. Driving sheetpile in sed basin

064. Hydraulic barrier wall in sed basin

065. Excavating in JCIA area for hydraulic barrier wall

066. Hydraulic barrier wall in JCIA area

067. Timber piles in JCIA area

068. Driving sheetpile in SA6 North

069. Excavating in 1N for hydraulic barrier wall installation

070. 1N surcharge area

071. 1N surcharge pile

072. Driving sheetpile in 1N

073. Ultilty relocation on route 440

074. Cutting sidewalk on route 440

075. Cutting sidewalk on route 440

076. Removing concrete sidewalk on route 440

077. Hand digging material under sidewalk on route 440

078. EA-4 backfill

079. SA-6 North EA-4

080. SA-6 North EA-4

SA-6 North Chromium Remedy

081. TA-10 Storage Containment Area

082. TA-10 Injection

083. TA-10 Treatment Area

084. SA-6 North Cap Area Material Stockpiled

SA-6 North Chromium Remedy

085. SA6 North EA1

086. SA6 North EA1

087. SA-6 North EA1 Excavation

088. Backfilling EA1

089. Backfilling EA1

090. Compacting EA1

091. Contingent Groundwater System

092. Contingent Groundwater System

SA-6 North Chromium Remedy

093. EA2&EA3 Excavation

094. EA2&EA3 Excavation

095. Offloading historic fill material for approved backfill

096. Preparing backfill of trashpit area

SA-6 North Chromium Remedy

097. Preparing subgrade for liner Installation

098. Placing cover soils over the SA-6 North warning layer

099. SA-6 North Liner Installation and Cover soil placement

100. SA-6 North Liner Installation

SA-6 North Chromium Remedy

101. Rolling out Geotextile over cap subgrade, accounting for utility corridors

102. SA-6 North Warning Layer in the Open Space Area

103. SA-6 North Cap Area Erosion Mat Placement

104. SA-6 North Cap Area Preparing Subgrade

105. SA-6 North Cap subgrade grading

106. SA-6 North Cap Area Final Grade

107. SA-6 North Cap Area Final Grade

108. SA-6 North Cap Area Horizon Soils Placement

SA-6 North Chromium Remedy

109. SA-6 North Cover Soil Placement

110. SA-6 North Cover Soils in the Open Space Area

111. Protected Wells SA6 N

APPENDIX B

ELECTRONIC DATA DELIVERABLE SUBMITTAL CONFIRMATION

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Monday, January 23, 2017 2:36 PM
To: Patel, Dakshesh
Cc: hazsite@dep.nj.gov
Subject: G000008711, HCC88, HB202121 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC88_20160210_20160210.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 01/23/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: Site 088 - JCMUA: 6000008711, 66613, RPC050001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202121 Thank You

The following identifiers were in the DTST file:
Directory: 012017e
DESC: Honeywell SA-6 North
SRPID: HCC88
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Monday, January 23, 2017 2:36 PM
To: Patel, Dakshesh
Cc: hazsite@dep.nj.gov
Subject: G000008710, HCC87, HB202116 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC87_20160902_20161014.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 01/23/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: Site 087-JCIA: 6000008710, 64066, RPC940001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202116 Thank You

The following identifiers were in the DTST file:
Directory: PZ871016
DESC: Honeywell SA-6
SRPID: HCC87
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Monday, January 23, 2017 2:36 PM
To: Patel, Dakshesh
Cc: hazsite@dep.nj.gov
Subject: G000008710, HCC87, HB202118 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC87_20150812_20151021.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 01/23/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: Site 087-JCIA: 6000008710, 64066, RPC940001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202118 Thank You

The following identifiers were in the DTST file:
Directory: 012017c
DESC: Honeywell SA-6 North
SRPID: HCC87
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Monday, January 23, 2017 2:36 PM
To: Patel, Dakshesh
Cc: hazsite@dep.nj.gov
Subject: G000008710, HCC87, HB202119 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC87_20151112_20151112.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 01/23/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: Site 087-JCIA: 6000008710, 64066, RPC940001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202119 Thank You

The following identifiers were in the DTST file:
Directory: 012017d
DESC: Honeywell SA-6 North
SRPID: HCC87
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: Patel, Dakshesh
Sent: Monday, January 23, 2017 4:30 PM
To: Warner, Natalie A
Subject: SA-6N - NJDEP EDD Submissions
Attachments: G000008711, HCC88, HB202121 Passed; G000008710, HCC87, HB202118 Passed; G000008710, HCC87, HB202117 Passed; G000008710, HCC87, HB202120 Passed; G000008710, HCC87, HB202116 Passed; G000008710, HCC87, HB202119 Passed

Importance: High

Natalie – Henry @ DEP had to change the PI #'s and SRPIDs for the site we submitted. But here are the revised conformations. I had submitted 7 total, so waiting for 1 more. I have asked DEP as to when I might receive that.

Dak Patel
Sr. Database Analyst
Amec Foster Wheeler plc
Environment and Infrastructure
200 American Metro Blvd, Suite 113, Hamilton, NJ 08619, USA
Tel +1 (609) 689-2829 x2830, Direct +1 (609) 689-2830
fax +1 (609) 689-2838, mobile/cell +1 (484) 889-7125
VoIP #747-2830
Dakshesh.Patel@amec.com

Dak

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Monday, January 23, 2017 2:36 PM
To: Patel, Dakshesh
Cc: hazsite@dep.nj.gov
Subject: G000008710, HCC87, HB202120 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC87_20161205_20161205.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 01/23/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: Site 087-JCIA: 6000008710, 64066, RPC940001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202120 Thank You

The following identifiers were in the DTST file:
Directory: JC32905
DESC: Honeywell SA-6
SRPID: HCC87
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: Patel, Dakshesh
Sent: Tuesday, January 24, 2017 10:16 AM
To: Warner, Natalie A
Subject: FW: G000008710, HCC87, HB202154 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; HCC87_20150625_20150625.KML; HZRESULT.TXT; HZSAMPLE.TXT

Natalie - Here's a copy of the last one that passed.

Dak Patel
Sr. Database Analyst
Amec Foster Wheeler plc
Environment and Infrastructure
200 American Metro Blvd, Suite 113, Hamilton, NJ 08619, USA Tel +1 (609) 689-2829 x2830, Direct +1 (609) 689-2830 fax +1 (609) 689-2838, mobile/cell +1 (484) 889-7125 VoIP #747-2830 Dakshesh.Patel@amec.com

-----Original Message-----
From: srpedd@dep.nj.gov [mailto:srpedd@dep.nj.gov]
Sent: Tuesday, January 24, 2017 9:49 AM
To: Patel, Dakshesh <dakshesh.patel@amecfw.com>
Cc: hazsite@dep.nj.gov
Subject: G000008710, HCC87, HB202154 Passed

The EDD submission shown below was processed 01/24/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: Site 087-JCIA: 6000008710, 64066, RPC940001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB202154 Thank You

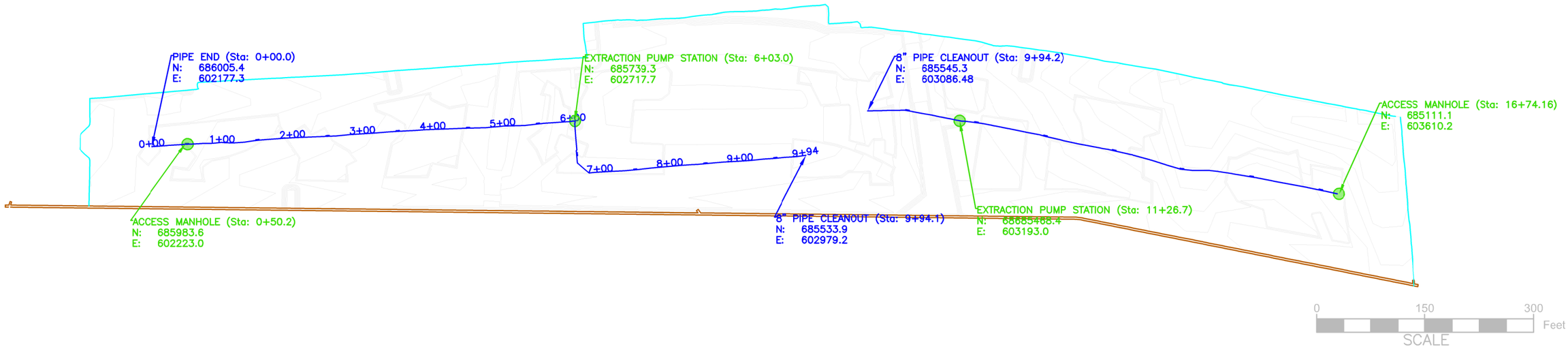
The following identifiers were in the DTST file:
Directory: 012017a
DESC: Honeywell SA-6 North
SRPID: HCC87
Submit Date: 1/20/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

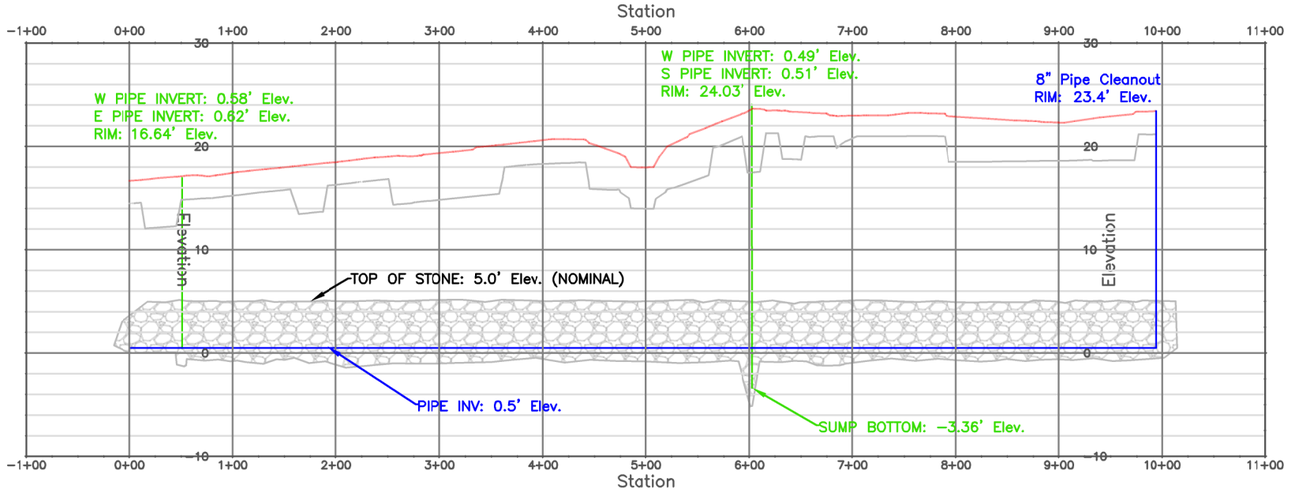
APPENDIX C

RECORD DRAWINGS
(CD ONLY)

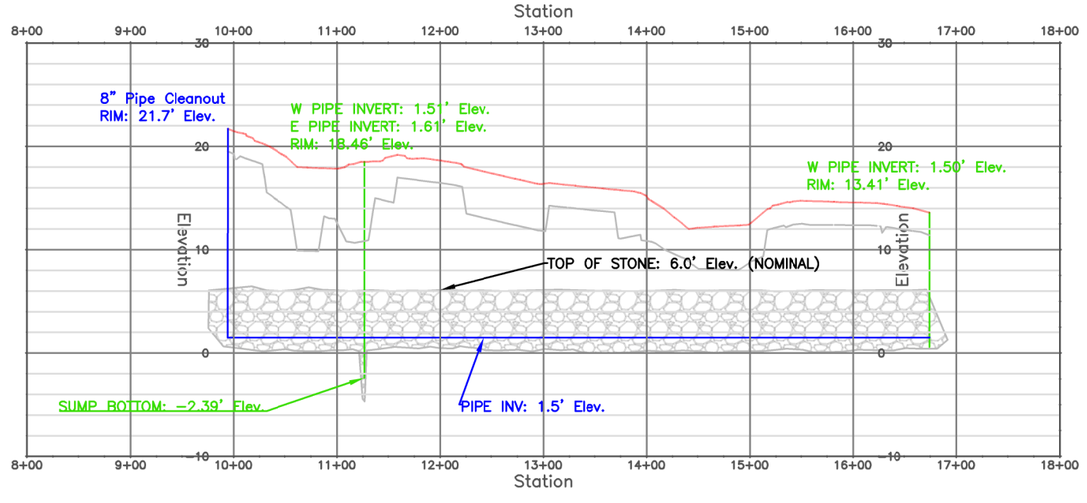
PLAN VIEW



PROFILE VIEW



PROFILE VIEW



LEGEND

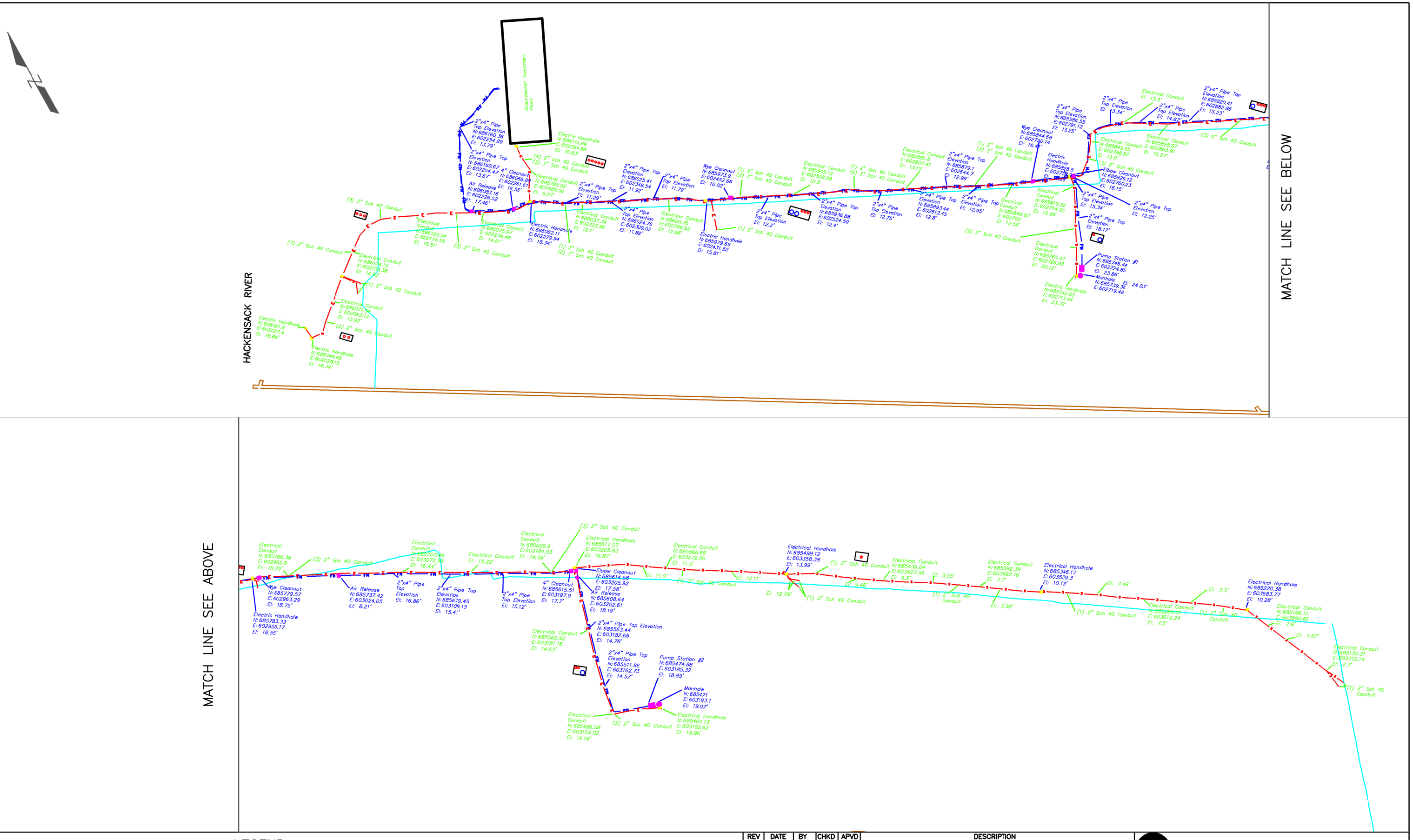
- 8" PERFORATED HDPE PIPE INVER (ELEV. TYPICAL)
- 4FT DIA. MANHOLE RISER PROFILE
- SCB WALL
- HYDRAULIC BARRIER WALL
- CAP SUBGRADE (DESIGN)
- CAP FINAL GRADE (DESIGN)
- 4FT DIA. MANHOLE
- 1.5" STONE TRENCH (WIDTH VARIES 3' MIN.)

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION
0	5/6/16	CDC	AE	AE	RECORD DRAWING
1	10/03/16	EJP	CP	CP	RECORD DRAWING
2	11/04/16	EJP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
SA6 NORTH CAP
CONTINGENT GROUNDWATER COLLECTION TRENCH
RECORD DRAWING 11/04/16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ



LEGEND

- FORCEMAIN STATIONS
- ELECTRIC HANDHOLE
- SCB WALL
- HB WALL (Inner Edge)
- ELECTRICAL CONDUIT
- FORCEMAIN
- TEXT — ELECTRICAL DESCRIPTION
- TEXT — FORCEMAIN DESCRIPTION

0 80 160 Feet

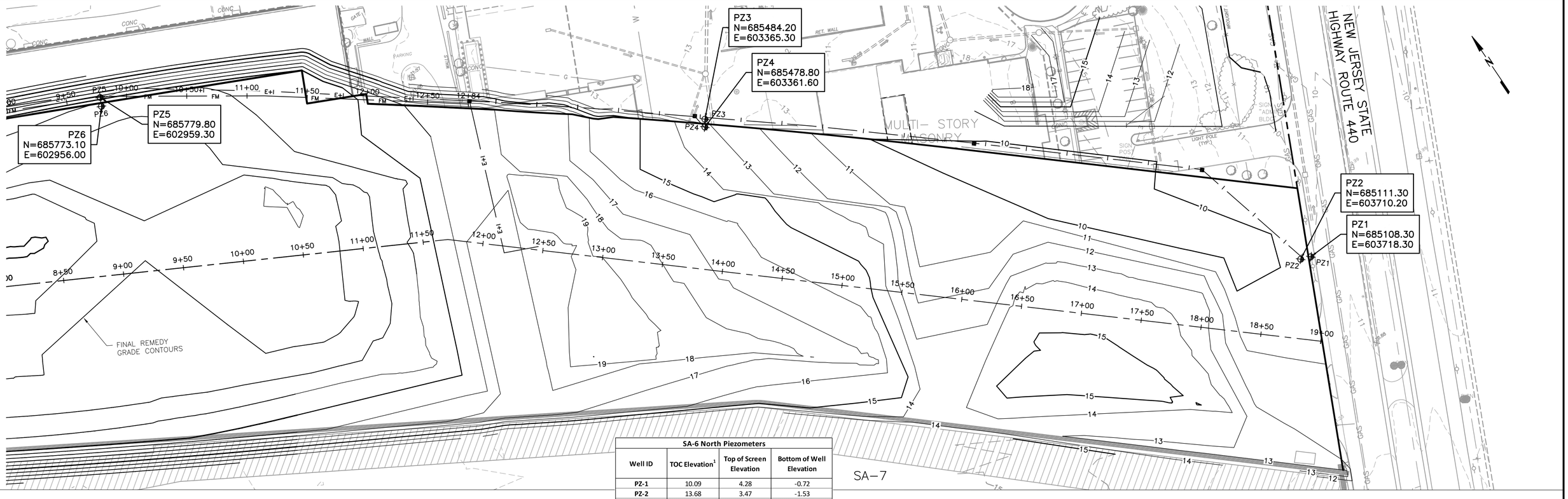
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	12/12/16	EJP	AE	AE	Contingent Groundwater Extraction System – NORTH CAP
1	01/06/17	EJP	AE	AE	ADDED FORCEMAIN AND CONDUIT CROSS SECTION

ENTACT 302 Unity Plaza Latrobe, PA 15650

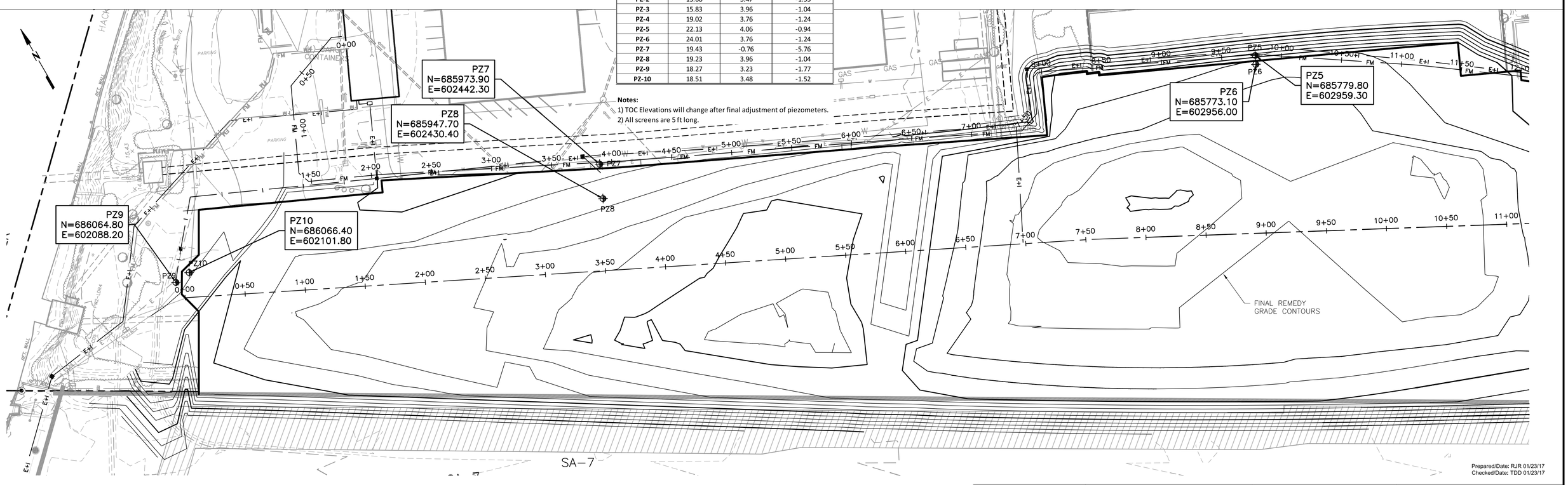
DRAWING NAME: Contingent Groundwater Extraction System NORTH CAP 01/06/17

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ



SA-6 North Piezometers			
Well ID	TOC Elevation[1]	Top of Screen Elevation	Bottom of Well Elevation
PZ-1	10.09	4.28	-0.72
PZ-2	13.68	3.47	-1.53
PZ-3	15.83	3.96	-1.04
PZ-4	19.02	3.76	-1.24
PZ-5	22.13	4.06	-0.94
PZ-6	24.01	3.76	-1.24
PZ-7	19.43	-0.76	-5.76
PZ-8	19.23	3.96	-1.04
PZ-9	18.27	3.23	-1.77
PZ-10	18.51	3.48	-1.52

Notes:
1) TOC Elevations will change after final adjustment of piezometers.
2) All screens are 5 ft long.



Prepared/Date: RJR 01/23/17
Checked/Date: TDD 01/23/17

0 20 40 80
SCALE IN FEET
HORIZONTAL SCALE

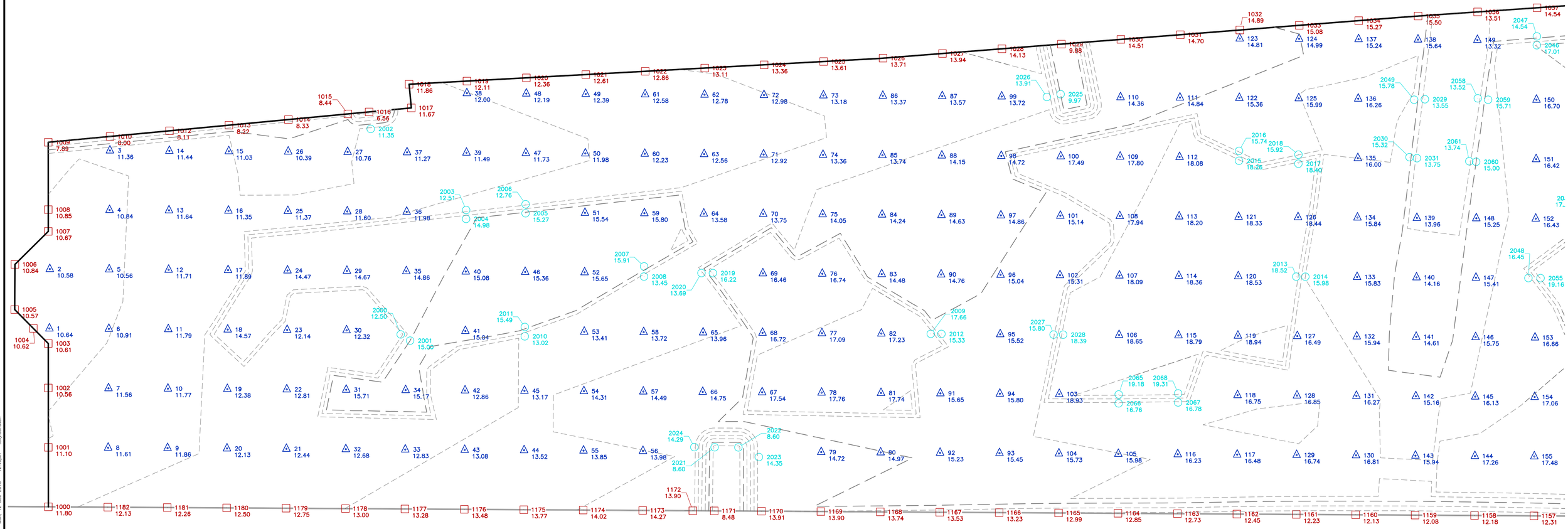
Honeywell
115 TARBOR ROAD MORRIS PLAINS, NJ 07950

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010000

Piezometer As Built Location
Project 3480-13-0377
Figure 1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C30\CAD\SA6-North-South-GW_Extraction_Trench\Figure - Piezometer Location.dwg Tue, 14 Feb 2017 - 2:19pm roger.riquier



153 16.66 GRID POINT

2054 17.00 BREAK POINT

1157 12.31 BOUND POINT

NOTE: REFER TO FIGURE 1.3 FOR REVISED GRID POINT ELEVATION SUMMARY TABLE.

0 10 20 40
SCALE IN FEET

DCB 054.5 – REVISED CONTROL GRID ELEVATIONS 12/12/16

Prepared/Date: RJR 05/12/16
Checked/Date: TDD 05/12/16

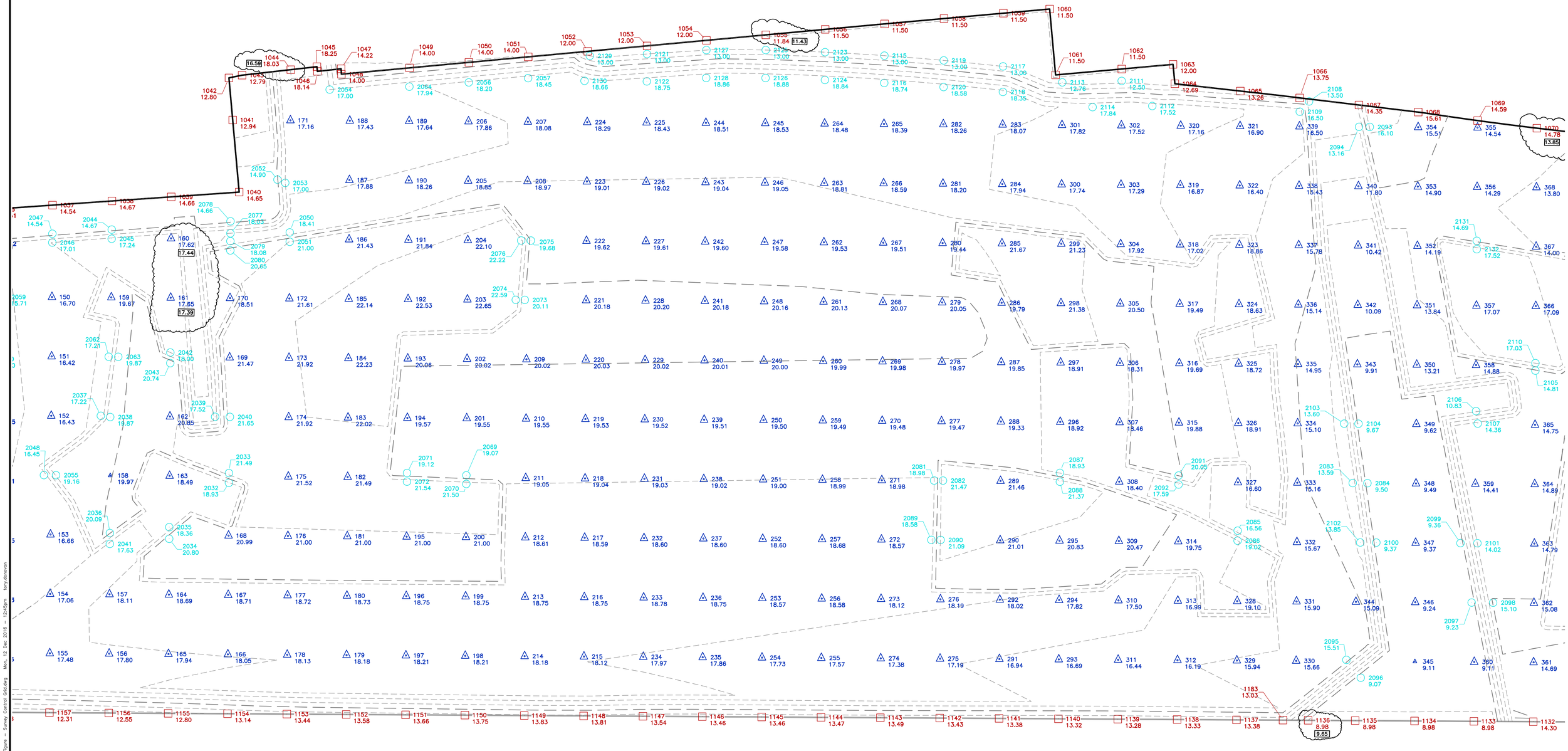
Honeywell
101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

SA-6 NORTH CONSTRUCTION CONTROL GRID
FIGURE 1 OF 3
Project 3480-13-0377
Figure 1.1

G:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North Cap Survey\Figure - Survey Control Grid.dwg Mon, 12 Dec 2016 - 12:45pm tony.donovan


1037 14.54
1038 14.67
1039 14.66
1040 14.65
1041 12.94
1042 12.80
1043 12.79
1044 18.03
16.59
1045 18.25
1046 18.14
1047 14.22
1048 14.00
1049 14.00
1050 14.00
1051 14.00
1052 12.00
1053 12.00
1054 12.00
1055 11.84
11.43
1056 11.50
1057 11.50
1058 11.50
1059 11.50
1060 11.50
1061 11.50
1062 11.50
1063 12.00
1064 12.69
1065 13.26
1066 13.75
1067 14.35
1068 15.61
1069 14.59
1070 14.78
13.85
2046 17.01
2047 14.54
2044 14.67
2045 17.24
2078 14.66
2077 18.03
2079 18.08
2080 20.65
2050 18.41
2051 21.00
2052 14.90
2053 17.00
2054 17.00
2055 19.16
2056 18.20
2057 18.45
2058 18.20
2059 15.71
2060 17.62
17.44
2061 17.85
17.39
2062 17.21
2063 19.87
2042 18.00
2043 20.74
2037 17.22
2038 19.87
2039 17.52
2040 21.65
2048 16.45
2033 21.49
2032 18.93
2036 20.09
2035 18.36
2034 20.80
2041 17.63
2071 19.12
2072 21.54
2069 19.07
2070 21.50
2073 20.11
2074 22.59
2075 19.68
2076 22.22
2081 18.98
2082 21.47
2087 18.93
2088 21.37
2089 18.58
2090 21.09
2091 20.05
2092 17.59
2085 16.56
2086 19.02
2183 13.03
2095 15.51
2096 9.07
2097 9.23
2098 15.10
2099 9.36
2100 9.37
2101 14.02
2102 13.85
2083 13.59
2084 9.50
2103 13.60
2104 9.67
2105 14.81
2106 10.83
2107 14.36
2110 17.03
2131 14.69
2132 17.52
2093 16.10
2094 13.16
2108 13.50
2109 16.50
2111 12.50
2112 17.52
2113 12.76
2114 17.84
2115 13.00
2116 18.74
2117 13.00
2118 18.35
2119 13.00
2120 18.58
2121 13.00
2122 18.75
2123 13.00
2124 18.84
2125 13.00
2126 18.88
2127 13.00
2128 18.86
2129 13.00
2130 18.66
1157 12.31
1156 12.55
1155 12.80
1154 13.14
1153 13.44
1152 13.58
1151 13.66
1150 13.75
1149 13.83
1148 13.81
1147 13.54
1146 13.46
1145 13.46
1144 13.47
1143 13.49
1142 13.43
1141 13.38
1140 13.32
1139 13.28
1138 13.33
1137 13.38
1136 8.98 9.65
1135 8.98
1134 8.98
1133 8.98
1132 14.30
171 17.16
188 17.43
189 17.64
206 17.86
207 18.08
224 18.29
225 18.43
244 18.51
245 18.53
264 18.48
265 18.39
282 18.26
283 18.07
301 17.82
302 17.52
320 17.16
321 16.90
339 16.50
340 11.80
353 14.90
356 14.29
368 13.80
187 17.88
190 18.26
205 18.85
208 18.97
223 19.01
226 19.02
243 19.04
246 19.05
263 18.81
266 18.59
281 18.20
284 17.94
300 17.74
303 17.29
319 16.87
322 16.40
338 15.43
354 15.51
355 14.54
186 21.43
191 21.84
204 22.10
222 19.62
227 19.61
242 19.60
247 19.58
262 19.53
267 19.51
280 19.44
285 21.67
299 21.23
304 17.92
318 17.02
323 16.86
337 15.78
341 10.42
352 14.19
367 14.00
150 16.70
159 19.67
161 17.65
17.39
170 18.51
172 21.61
185 22.14
192 22.53
203 22.65
221 20.18
228 20.20
241 20.18
248 20.16
261 20.13
268 20.07
279 20.05
286 19.79
298 21.38
305 20.50
317 19.49
324 18.63
336 15.14
342 10.09
351 13.84
357 17.07
366 17.09
151 16.42
169 21.47
173 21.92
184 22.23
193 20.06
202 20.02
209 20.02
220 20.03
229 20.02
240 20.01
249 20.00
260 19.99
269 19.98
278 19.97
287 19.85
297 18.91
306 18.31
316 19.69
325 18.72
335 14.95
343 9.91
350 13.21
358 14.88
152 16.43
162 20.85
174 21.92
183 22.02
194 19.57
201 19.55
210 19.55
219 19.53
230 19.52
239 19.51
250 19.50
259 19.49
270 19.48
277 19.47
288 19.33
296 18.92
307 18.46
315 19.88
326 18.91
334 15.10
349 9.62
365 14.75
158 19.97
163 18.49
175 21.52
182 21.49
211 19.05
218 19.04
231 19.03
238 19.02
251 19.00
258 18.99
271 18.98
289 21.46
308 18.40
327 16.60
333 15.16
348 9.49
359 14.41
364 14.89
153 16.66
168 20.99
176 21.00
181 21.00
195 21.00
200 21.00
212 18.61
217 18.59
232 18.60
237 18.60
252 18.60
257 18.68
272 18.57
290 21.01
295 20.83
309 20.47
314 19.75
332 15.67
347 9.37
363 14.79
154 17.06
157 18.11
164 18.69
167 18.71
177 18.72
180 18.73
196 18.75
199 18.75
213 18.75
216 18.75
233 18.78
236 18.75
253 18.57
256 18.58
273 18.12
276 18.19
292 18.02
294 17.82
310 17.50
313 16.99
328 19.10
331 15.90
344 15.09
346 9.24
362 15.08
155 17.48
156 17.80
165 17.94
166 18.05
178 18.13
179 18.18
197 18.21
198 18.21
214 18.18
215 18.12
234 17.97
235 17.86
254 17.73
255 17.57
274 17.38
275 17.19
291 16.94
293 16.69
311 16.44
312 16.19
329 15.94
330 15.66
345 9.11
360 9.11
361 14.69
153 16.66 GRID POINT
2054 17.00 BREAK POINT
1157 12.31 BOUND POINT
0 10 20 40
SCALE IN FEET
DCB 054.5 – REVISED CONTROL GRID ELEVATIONS 12/12/16
Prepared/Date: RJR 05/12/16
Checked/Date: TDD 05/12/16
Honeywell
101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962
CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472
amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900
SA-6 NORTH CONSTRUCTION CONTROL GRID
FIGURE 2 OF 3
Project 3480-13-0377
Figure 1.2
NOTE: REFER TO FIGURE 1.3 FOR REVISED GRID POINT ELEVATION SUMMARY TABLE.
G:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North Cap Surveys\Figure - Survey Control Grid.dwg Mon, 12 Dec 2016 - 12:45pm tony.donovan

DCB 054.5 - REVISED SUBGRADE ELEVATION SUMMARY

CONTROL GRID POINT ID	DESCRIPTION	SUBGRADE DESIGN ELEV (FT)	REVISED SUBGRADE DESIGN ELEV (FT)
160	GRID	17.62	17.44
161	GRID	17.65	17.39
533	GRID	10.17	10.88
1044	BNDY	18.03	16.59
1055	BNDY	11.84	11.43
1070	BNDY	14.78	13.85
1071	BNDY	14.27	14.01
1107	BNDY	8.55	10.75
1108	BNDY	8.50	10.75
1109	BNDY	8.86	10.75
1110	BNDY	9.63	10.75
1111	BNDY	9.76	10.75
1112	BNDY	9.94	10.75
1113	BNDY	10.18	10.75
1114	BNDY	10.43	10.75
1115	BNDY	10.68	10.75
1136	BNDY	8.98	9.65
1184	BNDY	8.50	10.75

153 16.66 GRID POINT

2054 17.00 BREAK POINT

1157 12.31 BOUND POINT

0 10 20 40
SCALE IN FEET

DCB 054.5 – REVISED CONTROL GRID ELEVATIONS 12/12/16

Prepared/Date: RJR 05/12/16
Checked/Date: TDD 05/12/16

Honeywell
101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

SA-6 NORTH CONSTRUCTION CONTROL GRID
FIGURE 3 OF 3
Project 3480-13-0377
Figure 1.3

O:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North Cap Surveys\Figure - Survey Control Grid.dwg Mon, 12 Dec 2016 - 12:43pm tony.donovan

MATCH LINE SHEET CN-124A

BARRIER WALL LIMIT (TYP.)

INSIDE SOUTHWEST EDGE OF SCB WALL LIMITS

ROUTE 440

LEGEND:

5 MAJOR CONTOUR
4 MINOR CONTOUR

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. *THE SOLE PURPOSE OF THIS PLAN IS TO SHOW AS–BUILT GDL COVER SOIL GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.*
2. *AS–BUILT GDL COVER SOIL GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM JULY 2016 THROUGH SEPT. 2016*
3. *HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.*

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

FILE NUMBER 12001511A

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP GDL COVER
SOIL GRADING PLAN

NO.	DATE	REVISION	CHK	APVD	BY	APVD
		DSGN	DR			

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ. 08619
(609) 585 - 2829

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	11/16/16
PROJ	3480-10-0027
DWG	CN-123A
SHEET	1 OF 2

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FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\NORTH CAP GDL COVER SOIL SURVEY-11-16-16.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 12:10 PM

LEGEND:

5 MAJOR CONTOUR
4 MINOR CONTOUR

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW AS-BUILT GDL COVER SOIL GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.
2. AS-BUILT GDL COVER SOIL GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM JULY 2016 THROUGH SEPT. 2016
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

NO.	DATE	REVISION	DR	CHK	APVD	BY	APVD
DSGN							

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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP GDL COVER
SOIL GRADING PLAN

FILE NUMBER
12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

amec foster wheeler
Environment & Infrastructure, Inc.
200 Horizon Center Blvd, Suite 113
Hamilton, NJ. 08619
(609) 689 - 2829

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	11/16/16
PROJ	3480-10-0027
DWG	CN-124A
SHEET	2 OF 2

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\NORTH CAP GDL COVER SOIL SURVEY-11-16-16.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 1:27 PM

HACKENSACK RIVER

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13 P-14 P-14A P-15 P-16 P-17 P-18 P-19 P-20 P-21 P-22 P-23 P-24 P-25 P-26 P-27 P-28 P-29 P-30 P-31 P-32 P-33 P-34 P-35 P-36 P-37 P-38 P-39 P-40 P-41 P-42 P-43 P-44 P-44A P-44B P-45 P-46 P-47 P-48 P-49 P-50 P-51 P-52 P-53

P-54 P-55 P-56 P-57 P-58 P-59 P-60 P-61 P-62 P-63 P-64 P-65 P-66 P-67 P-68 P-69 P-70 P-71 P-72 P-73 P-74 P-75 P-76 P-77 P-78 P-79 P-80 P-81 P-82 P-83 P-84 P-85 P-86 P-87 P-88 P-89 P-90 P-91 P-92 P-93 P-94 P-95 P-96 P-97 P-98 P-99 P-100 P-101 P-102 P-103 P-104 P-105 P-106 P-107 P-108 P-109 P-110 P-111 P-112 P-113 P-114 P-115 P-116 P-117 P-118 P-119

0 40 80 Feet

SCALE

LEGEND

R-1 (Repair Number)

LINER SEAM/EDGE

SCB WALL

HB WALL (Inner Edge)

R: Repair

DSX: Destructive Extrusion Weld Test

DS: Destructive Fusion Weld Test

P: Panel

NOTE: Drawing details are schematic in nature. Actual seam locations and repair dimensions may vary due to the geomembrane grading. Repair locations are recorded in the repair logs.

NOTE: Refer to ESI Repair Report for repair details

REV	DATE	BY	CHK'D	APPRV'D	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING
2	11/18/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME

SA6 NORTH CAP PANEL LAYOUT
60 mil Textured LLDPE Geomembrane
11/18/16

PROJECT NAME & LOCATION

HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

N

HACKENSACK RIVER

GAS VENT #6
N: 685983.7
E: 602246.3
EL: 17.07'

GAS VENT #5
N: 685862.9
E: 602483.9
EL: 19.87'

GAS VENT #4
N: 685785.2
E: 602766.1
EL: 24.22'

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

GAS VENT #3
N: 685570.8
E: 603027.7
EL: 23.63'

GAS VENT #2
N: 685366.8
E: 603295.2
EL: 17.31'

GAS VENT #1
N: 685187.5
E: 603530
EL: 14.49'

0 40 80 Feet

SCALE

LEGEND

- CLASS A/16 OZ GEOTEXTILE
- GEOCOMPOSITE GAS VENT LAYER (GVL)
- GEOSYNTHETIC CLAY LINER (GCL)
- GAS VENT (NOT TO SCALE)
- GAS VENT PIPE
- SCB WALL
- HB WALL (Inner Edge)

NOTE: Drawing is schematic in nature. Actual seam locations may vary due to the geomembrane grading.

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING
2	11/21/16	EP	CP	CP	RECORD DRAWING
3	11/29/16	EP	CP	CP	RECORD DRAWING
4	02/14/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
SA6 NORTH CAP GVL/GCL Layout
Class A Geotextile/Gas Vent Layer/Geosynthetic Clay Liner
02/14/16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

HACKENSACK RIVER

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

0 40 80 Feet

SCALE

LEGEND

- GEOCOMPOSITE DRAINAGE LAYER (GDL)
- CAP SUBGRADE CONTOUR
- SCB WALL
- HB WALL (Inner Edge)

NOTE: Drawing is schematic in nature. Actual seam locations may vary due to geomembrane grading.

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME

SA6 NORTH CAP PANEL LAYOUT
GEOCOMPOSITE DRAINAGE LAYER
11/04/16

PROJECT NAME & LOCATION

HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

N

STEGMAN BLVD.

B STREET

THIRD AVE.

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

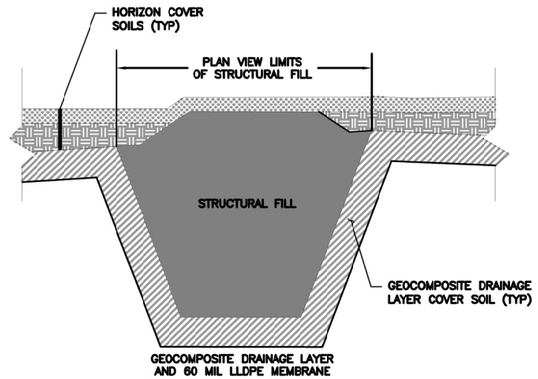
STEGMAN BLVD.

C STREET

D STREET

FRONTAGE STREET

THIRD AVE.



STRUCTURAL FILL CROSS SECTION
NTS

LEGEND

Structural Fill Under Roadways

SCB WALL

HB WALL (Inner Edge)

0 80 160 Feet

SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	12/7/16	EJP	AE	AE	STRUCTURAL FILL UNDER ROADWAYS – NORTH CAP
1	12/15/16	EJP	AE	AE	ADDED FUTURE DEVELOPMENT LAYOUT & STRUCTURAL FILL X-SECTION

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
Structural Fill Under Roadways
NORTH CAP
12/15/16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

MATCH LINE SHEET CN-124

BARRIER WALL LIMIT (TYP.)

INSIDE SOUTHWEST EDGE OF SCB WALL LIMITS

ROUTE 440

LEGEND:

5 MAJOR CONTOUR
4 MINOR CONTOUR

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. *THE SOLE PURPOSE OF THIS PLAN IS TO SHOW AS-BUILT GEOMEMBRANE GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.*
2. *AS-BUILT GEOMEMBRANE GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM JUNE 2016 THROUGH AUG. 2016. GEOMEMBRANE GRADING SURFACES AND CONTOURS WERE GENERATED BY ENTACT, CHECKED BY AMEC AND CONFIRMED BY MASER CONSULTING P.A.*
3. *HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.*

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36537
DATE 11/16/16

NO.	DATE	REVISION	BY	APVD
DSGN		DR CHK	APVD	

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

FILE NUMBER 12001511A

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

STUDY AREA 6 SOUTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP GEOMEMBRANE GRADING PLAN

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 689 - 2929

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	11/16/16
PROJ	3480-10-0027
DWG	CN-123
SHEET	1 OF 2

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FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\NORTH CAP GEOMEMBRANE GRADING PLAN 11-7-16.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 12:22 PM

LEGEND:

5 MAJOR CONTOUR
4 MINOR CONTOUR

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. *THE SOLE PURPOSE OF THIS PLAN IS TO SHOW AS-BUILT GEOMEMBRANE GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.*
2. *AS-BUILT GEOMEMBRANE GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM JUNE 2016 THROUGH AUG. 2016. GEOMEMBRANE GRADING SURFACES AND CONTOURS WERE GENERATED BY ENTACT, CHECKED BY AMEC AND CONFIRMED BY MASER CONSULTING P.A.*
3. *HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.*

R. THOMAS HUGG

NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

NO.	DATE	REVISION	BY
DSGN		DR	CHK
		APVD	APVD

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STUDY AREA 6 SOUTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP GEOMEMBRANE
GRADING PLAN

FILE NUMBER
12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 158 STAGECOACH ROAD - MARMORA, NJ 080223

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ. 08619
(609) 689-2929

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	11/16/16
PROJ	3480-10-0027
DWG	CN-124
SHEET	2 OF 2

1.0 Field Density Test Summary Log

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-01-1	7/13/2016	686056.7	602102.5	11.70	107.6	7.8	117	8.6	92.0	90	1	GDL Cover Soil		V5N
1	CS-02-1	7/13/2016	686078.8	602160.6	12.30	111.1	7.5	117	8.6	95.0	90	1	GDL Cover Soil		V5N
1	CS-03-1	7/13/2016	686035.6	602132.4	12.50	107.5	7.8	117	8.6	92.0	90	1	GDL Cover Soil		V5N
1	CS-04-1	7/13/2016	685983.2	602018.1	12.90	111.1	7.5	117	8.6	95.0	90	1	GDL Cover Soil		V5N
1	CS-05-1	7/13/2016	685959.4	602142.7	13.50	110	7.5	117	8.6	94.0	90	1	GDL Cover Soil		V5N
1	CS-06-1	7/13/2016	685999.9	602165.7	15.70	112.15	7	117	8.6	96.0	90	1	GDL Cover Soil		V5N
1	CS-07-1	7/13/2016	686052.5	602190.6	12.30	110	8.4	117	8.6	94.0	90	1	GDL Cover Soil		V5N
1	CS-08-1	7/13/2016	685932.8	602188.2	14.00	107.5	7.8	117	8.6	91.9	90	2	GDL Cover Soil		V5N
1	CS-09-1	7/13/2016	685996.5	602222	15.90	108.16	8.3	117	8.6	93.0	90	2	GDL Cover Soil		V5N
1	CS-10-1	7/13/2016	686031.2	602252.7	12.40	111.1	7.2	117	8.6	95.0	90	2	GDL Cover Soil		V5N
1	CS-11-1	7/18/2016	686019.3	602311.2	13.10	121.1	5.2	117	8.6	103.5	90	3	GDL Cover Soil		V5N
1	CS-12-1	7/18/2016	686002.8	602277.9	13.00	116.6	5.3	117	8.6	99.7	90	3	GDL Cover Soil		V5N
1	CS-13-1	7/18/2016	685956.2	602253.6	16.30	115.9	5.1	117	8.6	99.1	90	3	GDL Cover Soil		V5N
1	CS-14-1	7/18/2016	685902.6	602234.8	14.50	117.2	7.9	117	8.6	100.2	90	3	GDL Cover Soil		V5N
1	SF-01-1	7/18/2016	686054.2	602111.9	13.40	117.5	3.9	112.2	9.7	104.7	95	1	Structural Fill	Final Elevation	V5N
1	SF-02-1	7/18/2016	686072.1	602155.3	13.41	118.1	1.8	112.2	9.7	105.3	95	1	Structural Fill		V5N
2	SF-02-2	7/18/2016	686067.9	602166.2	13.80	113.1	2.5	112.2	9.7	100.8	95	1	Structural Fill	Final Elevation	V5N
1	SF-03-1	7/18/2016	686058.0	602202.1	13.40	114.9	1.6	112.2	9.7	102.4	95	1	Structural Fill		V5N
1	SF-04-1	7/18/2016	686035.3	602247.1	13.30	115.0	2.2	112.2	9.7	102.5	95	2	Structural Fill		V5N
1	HC-24-1	8/29/2016	685713.6	602653.3	21.60	115.4	8.5	126	9.5	91.6	90	6	Horizon C	Back Scatter	V5N
1	HC-25-1	8/29/2016	685766.9	602684.5	18.80	116.7	8.8	126	9.5	92.6	90	6	Horizon C	Back Scatter	V5N
1	HC-26-1	8/29/2016	685809.6	602705.3	18.70	118.9	8.4	126	9.5	94.4	90	6	Horizon C	Back Scatter	V5N
1	HC-92-1	9/16/2016	685103.9	603560.3	13.90	105.7	7.5	126	9.5	83.9	90	12	Horizon C	Back Scatter; back blade	V5N
1	HC-01-1	7/20/2016	686011.1	602089.8	12.90	120.5	5.2	126	9.5	95.6	90	1	Horizon C	Back Scatter	V5N
1	SF-12-1	7/20/2016	685987.4	602075.7	13.50	107.0	3.8	112.2	9.7	95.4	95	1	Structural Fill		V5N
1	SF-13-1	7/20/2016	685963.8	602121.8	14.20	107.6	3.7	112.2	9.7	95.9	95	1	Structural Fill		V5N
1	SF-14-1	7/20/2016	685931.2	602176.8	14.90	108.5	3.5	112.2	9.7	96.7	95	2	Structural Fill		V5N
1	CS-15-1	7/22/2016	685859.2	602274.7	15.30	113.6	5.3	117	8.6	97.1	90	3	GDL Cover Soil		V5N
1	CS-16-1	7/22/2016	685889.8	602275.9	15.50	115.1	7.5	117	8.6	98.4	90	3	GDL Cover Soil		V5N
1	CS-17-1	7/22/2016	685930.0	602308.4	16.90	114.7	5.2	117	8.6	98.0	90	3	GDL Cover Soil		V5N
1	CS-18-1	7/22/2016	685978.5	602322.4	13.70	115.2	6.3	117	8.6	98.5	90	3	GDL Cover Soil		V5N
1	CS-19-1	7/22/2016	685995.4	602358.6	13.60	112.3	7.3	117	8.6	96.0	90	3	GDL Cover Soil		V5N
1	CS-20-1	7/22/2016	685974.2	602407.6	14.20	110.5	8.5	117	8.6	94.4	90	3	GDL Cover Soil		V5N
1	CS-21-1	7/22/2016	685955.3	602367.3	14.20	115.2	4.6	117	8.6	98.5	90	3	GDL Cover Soil		V5N
1	CS-22-1	7/22/2016	685908.8	602343.5	15.00	121.8	9.2	117	8.6	104.1	90	3	GDL Cover Soil		V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-23-1	7/22/2016	685867.1	602319.4	16.10	113.1	5.3	117	8.6	96.7	90	3	GDL Cover Soil		V5N
1	HC-02-1	7/20/2016	685997.1	602121.8	13.40	120.0	5.0	126	9.5	95.2	90	1	Horizon C	Back Scatter	V5N
1	HC-03-1	7/20/2016	686032.1	602156.7	12.40	119.3	5.6	126	9.5	94.7	90	1	Horizon C	Back Scatter	V5N
2	SF-03-2	7/22/2016	686050.7	602208.4	14.20	114.8	1.7	112.2	9.7	102.3	95	1	Structural Fill	Final Elevation	V5N
2	SF-04-2	7/22/2016	686035.2	602238.3	14.20	115.6	1.4	112.2	9.7	103.0	95	1	Structural Fill	Final Elevation	V5N
1	HC-04-1	7/20/2016	686008.8	602201.9	16.20	122.0	5.4	126	9.5	96.8	90	1	Horizon C	Back Scatter	V5N
1	HC-05-1	7/20/2016	685970.9	602168.3	14.40	119.5	5.6	126	9.5	94.8	90	1	Horizon C	Back Scatter	V5N
1	SF-05-1	7/28/2016	686021.4	602296.2	14.40	107.5	8.2	112.2	9.7	95.8	95	3	Structural Fill	Final Elevation	V5N
2	SF-12-2	7/28/2016	685986.7	602075.0	14.00	108.8	7.5	112.2	9.7	97.0	95	1	Structural Fill	Final Elevation	V5N
2	SF-13-2	7/28/2016	685958.4	602125.9	15.00	107.6	8.0	112.2	9.7	95.9	95	1	Structural Fill	Final Elevation	V5N
1	SF-15-1	7/28/2016	685894.5	602235.3	15.80	106.7	8.3	112.2	9.7	95.1	95	3	Structural Fill		V5N
1	CS-24-1	8/3/2016	685812.8	602367.6	16.10	108.1	8.3	117	8.6	92.4	90	4	GDL Cover Soil		V5N
1	CS-25-1	8/3/2016	685841.8	602355.4	16.40	107.6	8.9	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-26-1	8/3/2016	685887.8	602387.1	18.10	108.9	8.8	117	8.6	93.1	90	4	GDL Cover Soil		V5N
1	CS-27-1	8/3/2016	685931.8	602410.4	15.10	107.6	9.5	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-28-1	8/3/2016	685951.7	602456.4	14.70	108.9	8.5	117	8.6	93.1	90	4	GDL Cover Soil		V5N
1	CS-29-1	8/3/2016	685908.7	602454.7	15.80	110.0	6.5	117	8.6	94.0	90	4	GDL Cover Soil		V5N
1	CS-30-1	8/3/2016	685864.2	602431.3	16.00	107.6	8.8	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-31-1	8/3/2016	685820.3	602408.9	16.90	110.0	6.1	117	8.6	94.0	90	4	GDL Cover Soil		V5N
1	HC-06-1	7/22/2016	685943.5	602217.1	16.60	121.2	8.2	126	9.5	96.2	90	1	Horizon C	Back Scatter	V5N
1	HC-07-1	7/22/2016	685985.9	602241.3	16.50	123.9	10.2	126	9.5	98.3	90	1	Horizon C	Back Scatter	V5N
1	HC-08-1	7/28/2016	685953.9	602285.9	17.12	114.2	8.9	126	9.5	90.6	90	2	Horizon C	Back Scatter	V5N
1	HC-09-1	7/28/2016	685921.7	602262.1	15.00	113.5	9.2	126	9.5	90.1	90	2	Horizon C	Back Scatter	V5N
1	HC-10-1	8/5/2016	685897.1	602316.3	15.80	117.5	8.2	126	9.5	93.3	90	2	Horizon C	Back Scatter	V5N
1	HC-11-1	8/5/2016	685939.6	602343.2	17.70	119.5	7.1	126	9.5	94.8	90	3	Horizon C	Back Scatter	V5N
1	SF-06-1	8/5/2016	686001.6	602337.9	14.70	110.0	2.3	112.2	9.7	98.0	95	3	Structural Fill	Final Elevation	V5N
1	SF-07-1	8/5/2016	685981.7	602383.3	15.20	111.0	1.1	112.2	9.7	98.9	95	3	Structural Fill	Final Elevation	V5N
2	SF-14-2	8/5/2016	685921.2	602172.6	15.20	110.0	1.8	112.2	9.7	98.0	95	2	Structural Fill	Final Elevation	V5N
2	SF-15-2	8/5/2016	685896.6	602231.8	16.40	110.0	1.8	112.2	9.7	98.0	95	3	Structural Fill	Final Elevation	V5N
1	SF-16-1	8/5/2016	685843.1	602309.5	16.40	111.0	1.1	112.2	9.7	98.9	95	3	Structural Fill	Final Elevation	V5N
1	CS-32-1	8/10/2016	685796.3	602441.1	17.30	106.1	8.8	117	8.6	90.7	90	4	GDL Cover Soil		V5N
1	CS-33-1	8/10/2016	685845.9	602479.3	16.50	105.6	10.0	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-34-1	8/10/2016	685890.1	602491.3	18.50	105.9	7.2	117	8.6	90.5	90	5	GDL Cover Soil		V5N
1	CS-35-1	8/10/2016	685926.5	602522.2	11.00	108.3	9.6	117	8.6	92.6	90	5	GDL Cover Soil		V5N
1	CS-36-1	8/10/2016	685910.8	602551.9	15.70	105.9	9.8	117	8.6	90.5	90	5	GDL Cover Soil		V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-37-1	8/10/2016	685859.0	602544.1	19.20	110.0	7.8	117	8.6	94.0	90	5	GDL Cover Soil		V5N
1	CS-38-1	8/10/2016	685818.5	602520.0	19.60	106.0	10.2	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-39-1	8/10/2016	685771.2	602499.5	17.90	106.0	10.2	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-40-1	8/10/2016	685761.7	602455.7	17.10	112.2	7.8	117	8.6	95.9	90	5	GDL Cover Soil		V5N
1	CS-41-1	8/10/2016	685727.7	602509.9	17.80	105.6	9.2	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-42-1	8/10/2016	685750.8	602543.2	17.90	105.6	8.9	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-43-1	8/10/2016	685790.6	602568.0	17.10	106.0	8.9	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-44-1	8/10/2016	685829.9	602580.0	19.50	112.5	7.8	117	8.6	96.2	90	5	GDL Cover Soil		V5N
1	CS-45-1	8/10/2016	685883.5	602613.3	16.10	105.5	9.2	117	8.6	90.2	90	5	GDL Cover Soil		V5N
1	SF-08-1	8/10/2016	685947.6	602444.5	15.50	107.6	5.6	112.2	9.7	95.9	95	4	Structural Fill	Final Elevation	V5N
1	HC-12-1	8/5/2016	685923.2	602385.8	15.60	118.5	9.6	126	9.5	94.0	90	3	Horizon C	Back Scatter	V5N
1	HC-13-1	8/5/2016	685878.4	602355.3	18.70	116.5	11.6	126	9.5	92.5	90	3	Horizon C	Back Scatter	V5N
1	HC-14-1	8/5/2016	685857.5	602397.8	19.00	116.5	10.6	126	9.5	92.5	90	3	Horizon C	Back Scatter	V5N
1	HC-15-1	8/5/2016	685901.5	602426.6	16.00	117.5	8.9	126	9.5	93.3	90	3	Horizon C	Back Scatter	V5N
1	HC-16-1	8/11/2016	685877.5	602467.2	16.50	119.8	4.5	126	9.5	95.1	90	3	Horizon C	Back Scatter	V5N
1	SF-09-1	8/11/2016	685919.3	602481.2	16.30	107.8	5.2	112.2	9.7	96.1	95	4	Structural Fill	Final Elevation	V5N
1	SF-18-1	8/11/2016	685796.5	602421.3	18.00	107.8	5.0	112.2	9.7	96.1	95	4	Structural Fill		V5N
1	SF-19-1	8/11/2016	685765.4	602477.7	18.70	108.5	5.2	112.2	9.7	96.7	95	5	Structural Fill		V5N
1	CS-46-1	8/16/2016	685858.5	602654.7	16.70	106.7	5.4	117	8.6	91.2	90	6	GDL Cover Soil		V5N
1	CS-47-1	8/16/2016	685816.0	602640.9	14.90	117.6	6.3	117	8.6	100.5	90	6	GDL Cover Soil	Start Reduced Frequency	V5N
1	CS-48-1	8/16/2016	685772.5	602607.5	15.30	118.0	7.6	117	8.6	100.9	90	6	GDL Cover Soil		V5N
1	CS-49-1	8/16/2016	685725.8	602586.9	16.30	115.6	7.1	117	8.6	98.8	90	6	GDL Cover Soil		V5N
1	CS-50-1	8/16/2016	685696.7	602558.7	17.20	116.2	5.8	117	8.6	99.3	90	6	GDL Cover Soil		V5N
1	CS-51-1	8/16/2016	685666.9	602613.2	18.90	112.5	4.4	117	8.6	96.2	90	6	GDL Cover Soil		V5N
1	CS-52-1	8/16/2016	685706.9	602626.6	18.00	118.2	5.7	117	8.6	101.0	90	6	GDL Cover Soil		V5N
1	CS-53-1	8/16/2016	685738.4	602639.4	17.60	114.5	6.7	117	8.6	97.9	90	6	GDL Cover Soil		V5N
1	CS-54-1	8/16/2016	685793.1	602675.7	17.50	113.7	6.0	117	8.6	97.2	90	6	GDL Cover Soil		V5N
1	CS-55-1	8/16/2016	685830.0	602699.4	15.70	113.0	8.9	117	8.6	96.6	90	6	GDL Cover Soil		V5N
1	CS-94-1	8/19/2016	685064.3	603656.9	7.50	109.8	5.4	117	8.6	93.8	90	7	GDL Cover Soil		V5N
1	CS-95-1	8/19/2016	685177.8	603698.4	6.20	113.7	7.9	117	8.6	97.2	90	7	GDL Cover Soil		V5N
1	HC-17-1	8/11/2016	685824.6	602442.2	17.50	122.7	6.4	126	9.5	97.4	90	3	Horizon C	Back Scatter	V5N
1	HC-18-1	8/11/2016	685791.3	602476.8	20.80	118.5	5.8	126	9.5	94.0	90	3	Horizon C	Back Scatter	V5N
1	HC-19-1	8/11/2016	685833.9	602502.6	19.80	124.1	5.3	126	9.5	98.5	90	3	Horizon C	Back Scatter	V5N
1	SF-10-1	8/19/2016	685907.4	602542.6	16.80	120.0	2.4	112.2	9.7	107.0	95	5	Structural Fill		V5N
1	SF-17-1	8/19/2016	685816.7	602355.7	17.40	119.0	1.2	112.2	9.7	106.1	95	4	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
1	SF-20-1	8/19/2016	685723.9	602524.1	19.30	115.8	2.8	112.2	9.7	103.2	95	5	Structural Fill	Final Elevation	V5N
1	CS-57-1	8/24/2016	685725.4	602744.3	23.00	119.0	6.2	117	8.6	101.7	90	8	GDL Cover Soil		V5N
1	CS-58-1	8/24/2016	685648.5	602672.7	19.40	114.0	7.6	117	8.6	97.4	90	8	GDL Cover Soil		V5N
1	CS-59-1	8/24/2016	685678.3	602742.7	22.60	120.3	5.3	117	8.6	102.8	90	9	GDL Cover Soil		V5N
1	CS-60-1	8/24/2016	685783.3	602811.9	19.60	114.3	8.3	117	8.6	97.7	90	9	GDL Cover Soil		V5N
1	CS-61-1	8/24/2016	685983.1	602881.8	19.10	118.6	6.6	117	8.6	101.4	90	9	GDL Cover Soil		V5N
1	CS-62-1	8/24/2016	685690.9	602859.0	21.30	115.6	4.5	117	8.6	98.8	90	9	GDL Cover Soil		V5N
1	CS-63-1	8/24/2016	685600.9	602803.9	19.90	116.4	6.2	117	8.6	99.5	90	9	GDL Cover Soil		V5N
1	CS-64-1	8/24/2016	685711.9	602937.4	20.40	108.3	3.9	117	8.6	92.6	90	9	GDL Cover Soil		V5N
1	CS-65-1	8/24/2016	685611.8	602885.6	20.30	110.2	4.8	117	8.6	94.2	90	9	GDL Cover Soil		V5N
1	CS-66-1	8/24/2016	685705.6	603007.6	19.70	117.8	7.7	117	8.6	100.7	90	9	GDL Cover Soil		V5N
1	CS-67-1	8/24/2016	685615.9	602991.2	21.40	113.1	6.6	117	8.6	96.7	90	9	GDL Cover Soil		V5N
1	CS-68-1`	8/24/2016	685536.6	602916.2	19.40	112.3	6.2	117	8.6	96.0	90	9	GDL Cover Soil		V5N
1	SF-11-1	8/24/2016	685873.3	602605.8	17.50	115.1	2.4	112.2	9.7	103.7	95	5	Structural Fill		V5N
1	SF-24-1	8/24/2016	685854.9	602653.8	17.90	112.2	1.9	112.2	9.7	100.0	95	5	Structural Fill	Final Elevation	V5N
1	CS-56-1	8/29/2016	685809.2	602783.8	15.90	111.2	6.3	117	8.6	95.0	90	9	GDL Cover Soil	Moved point to Area 9	V5N
1	CS-69-1	8/29/2016	685642.2	603080.6	18.90	110.3	3.9	117	8.6	94.3	90	10W	GDL Cover Soil		V5N
1	CS-73-1	8/29/2016	685596.9	603156.9	17.20	113.3	5.7	117	8.6	96.8	90	10W	GDL Cover Soil		V5N
1	CS-75-1	8/29/2016	685451.4	603140.5	10.70	119.1	5.6	117	8.6	101.8	90	10	GDL Cover Soil	Corridor	V5N
1	DGA-1-1	8/29/2016	685498.1	603803.2	9.10	129.1	1.7	135.9	9.5	95.0	95	MUA	DGA	Driveway	V5N
1	DGA-2-1	8/29/2016	685479.7	603838.2	8.70	129.4	1.6	135.9	9.5	95.2	95	MUA	DGA	Driveway	V5N
1	DGA-3-1	8/29/2016	685462.6	603871.9	8.40	131.0	1.5	135.9	9.5	96.4	95	MUA	DGA	Driveway	V5N
1	HC-23-1	8/19/2016	685768.3	602522.6	18.50	116.8	9.7	126	9.5	92.7	90	5	Horizon C	Back Scatter	V5N
1	HC-28-1	8/31/2016	685753.3	602747.5	23.20	115.2	8.3	126	9.5	91.4	90	8	Horizon C	Back Scatter	V5N
1	HC-29-1	8/31/2016	685711.3	602718.5	23.00	113.4	10.9	126	9.5	90.0	90	8	Horizon C	Back Scatter	V5N
2	SF-10-2	8/29/2016	685907.0	602542.6	16.90	115.8	0.9	112.2	9.7	103.2	95	5	Structural Fill	Final Elevation	V5N
2	SF-11-2	8/29/2016	685878.3	602607.5	17.60	116.2	1.1	112.2	9.7	103.6	95	5	Structural Fill	Final Elevation	V5N
2	SF-18-2	8/29/2016	685782.4	602413.8	18.10	119.7	0.9	112.2	9.7	106.7	95	4	Structural Fill	Final Elevation	V5N
2	SF-19-2	8/29/2016	685755.2	602456.9	18.80	118.4	0.7	112.2	9.7	105.5	95	5	Structural Fill	Final Elevation	V5N
1	SF-21-1	8/29/2016	685788.0	602599.6	17.50	112.7	1.2	112.2	9.7	100.4	95	6	Structural Fill		V5N
2	SF-21-2	8/29/2016	685735.3	602583.2	18.40	117.9	1.0	112.2	9.7	105.1	95	6	Structural Fill	Final Elevation	V5N
1	SF-22-1	8/29/2016	685788.0	602599.6	16.40	115.8	1.3	112.2	9.7	103.2	95	6	Structural Fill		V5N
2	SF-22-2	8/29/2016	685777.9	602614.3	17.40	113.0	1.0	112.2	9.7	100.7	95	6	Structural Fill	Final Elevation	V5N
1	SF-23-1	8/29/2016	685822.7	602629.9	16.50	111.7	1.4	112.2	9.7	99.6	95	6	Structural Fill		V5N
2	SF-23-2	8/29/2016	685825.2	602646.2	17.50	121.4	1.0	112.2	9.7	108.2	95	6	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
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LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	SF-35-1	8/29/2016	685689.1	602585.9	19.30	117.3	0.9	112.2	9.7	104.5	95	6	Structural Fill		V5N
1	SF-36-1	8/29/2016	685656.5	602646.9	20.20	117.3	1.6	112.2	9.7	104.5	95	8	Structural Fill	Final Elevation	V5N
1	SF-37-1	8/29/2016	685618.4	602697.5	20.70	108.6	2.7	112.2	9.7	96.8	95	9	Structural Fill	Final Elevation	V5N
1	HC-30-1	8/31/2016	686686.8	602719.5	22.90	125.9	8.7	126	9.5	99.9	90	8	Horizon C	Back Scatter	V5N
1	HC-31-1	8/31/2016	685632.8	602740.5	20.40	123.4	10.8	126	9.5	97.9	90	9	Horizon C	Back Scatter	V5N
1	HC-32-1	8/31/2016	685685.6	602764.1	23.40	113.4	7.4	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-33-1	8/31/2016	685727.2	602785.9	24.00	113.4	7.8	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-34-1	8/31/2016	685766.6	602816.6	23.10	114.4	6.6	126	9.5	90.8	90	9	Horizon C	Back Scatter	V5N
1	HC-35-1	8/31/2016	685741.4	602861.8	23.70	115.8	6.9	126	9.5	91.9	90	9	Horizon C	Back Scatter	V5N
1	HC-36-1	8/31/2016	685690.7	602833.7	21.70	117.7	7.6	126	9.5	93.4	90	9	Horizon C	Back Scatter	V5N
1	HC-37-1	8/31/2016	685656.1	602815.9	20.80	113.4	8.1	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-38-1	8/31/2016	685609.9	602779.5	20.40	115.1	9.2	126	9.5	91.3	90	9	Horizon C	Back Scatter	V5N
1	HC-39-1	8/31/2016	685592.8	602825.4	20.30	118.1	10.2	126	9.5	93.7	90	9	Horizon C	Back Scatter	V5N
1	HC-40-1	8/31/2016	685635.7	602852.3	20.90	116.1	9.9	126	9.5	92.1	90	9	Horizon C	Back Scatter	V5N
1	HC-41-1	8/31/2016	685681.5	602878.3	21.90	121.1	8.2	126	9.5	96.1	90	9	Horizon C	Back Scatter	V5N
1	HC-42-1	8/31/2016	685732.8	602895.5	20.90	117.1	7.8	126	9.5	92.9	90	9	Horizon C	Back Scatter	V5N
1	HC-27-1	9/1/2016	685785.7	602767.0	22.40	115.4	8.6	126	9.5	91.6	90	8	Horizon C	Back Scatter	V5N
1	HC-43-1	9/2/2016	685692.1	602950.2	21.10	127.0	9.9	126	9.5	100.8	90	9	Horizon C	Back Scatter	V5N
2	SF-35-2	8/31/2016	685677.8	602581.4	19.50	110.5	0.9	112.2	9.7	98.5	95	6	Structural Fill	Final Elevation	V5N
1	SF-38-1	8/31/2016	685584.9	602752.8	20.80	110.9	1.7	112.2	9.7	98.8	95	9	Structural Fill	Final Elevation	V5N
1	SF-39-1	8/31/2016	685552.4	602813.4	20.90	109.0	1.4	112.2	9.7	97.1	95	9	Structural Fill	Final Elevation	V5N
1	SF-44-1	8/31/2016	685384.5	603107.9	11.70	109.1	1.7	112.2	9.7	97.2	95	10	Structural Fill	Corridor	V5N
1	SF-45-1	8/31/2016	685416.7	603122.6	11.40	114.9	2.3	112.2	9.7	102.4	95	10	Structural Fill	Corridor	V5N
1	SF-46-1	8/31/2016	685463.1	603138.2	11.50	117.0	2.6	112.2	9.7	104.3	95	10	Structural Fill	Corridor	V5N
1	SF-47-1	8/31/2016	685499.8	603155.4	11.80	113.5	1.5	112.2	9.7	101.2	95	10	Structural Fill	Corridor	V5N
1	SF-48-1	8/31/2016	685543.0	603169.7	12.40	122.2	1.8	112.2	9.7	108.9	95	10	Structural Fill	Corridor	V5N
1	SF-49-1	8/31/2016	685580.7	603190.4	14.10	114.0	2.4	112.2	9.7	101.6	95	10	Structural Fill	Corridor	V5N
1	CS-70-1	9/1/2016	685518.2	603005.1	22.20	107.7	3.9	117	8.6	92.1	90	10W	GDL Cover Soil		V5N
1	CS-71-1	9/1/2016	685425.6	603080.3	17.00	112.9	6.5	117	8.6	96.5	90	10W	GDL Cover Soil		V5N
1	CS-72-1	9/1/2016	685558.2	603808.0	21.10	106.3	4.7	117	8.6	91.3	90	10W	GDL Cover Soil		V5N
1	CS-74-1	9/1/2016	685553.7	603203.7	15.60	111.6	4.5	117	8.6	95.4	90	11	GDL Cover Soil		V5N
1	CS-76-1	9/1/2016	685407.5	603198.1	18.50	119.5	5.3	117	8.6	102.1	90	11	GDL Cover Soil		V5N
1	CS-77-1	9/1/2016	685455.1	603251.1	15.10	113.9	4.3	117	8.6	97.3	90	11	GDL Cover Soil		V5N
1	CS-78-1	9/1/2016	685525.3	603246.0	14.70	117.4	6.8	117	8.6	100.3	90	11	GDL Cover Soil		V5N
1	HC-44-1	9/2/2016	685685.5	602922.7	22.00	114.5	11.1	126	9.5	90.9	90	9	Horizon C	Back Scatter	V5N

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LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
2	SF-44-2	9/1/2016	685376.0	603128.1	12.90	113.7	2.3	112.2	9.7	101.3	95	10	Structural Fill	Corridor	V5N
2	SF-45-2	9/1/2016	685427.3	603121.1	12.40	111.6	0.7	112.2	9.7	99.5	95	10	Structural Fill	Corridor	V5N
2	SF-46-2	9/1/2016	685470.5	603140.4	12.50	112.4	2.3	112.2	9.7	100.2	95	10	Structural Fill	Corridor	V5N
2	SF-47-2	9/1/2016	685511.7	603155.8	12.90	109.0	2.8	112.2	9.7	97.1	95	10	Structural Fill	Corridor	V5N
3	SF-47-3	9/1/2016	685497.9	603142.1	13.70	106.8	1.9	112.2	9.7	95.2	95	10	Structural Fill	Corridor	V5N
2	SF-48-2	9/1/2016	685556.8	603171.4	13.80	115.0	2.6	112.2	9.7	102.5	95	10	Structural Fill	Corridor	V5N
3	SF-48-3	9/1/2016	685539.6	603160.2	14.50	110.6	1.7	112.2	9.7	98.6	95	10	Structural Fill	Corridor	V5N
2	SF-49-2	9/1/2016	685586.0	603189.3	15.50	113.9	2.1	112.2	9.7	101.5	95	10	Structural Fill	Corridor	V5N
3	SF-49-3	9/1/2016	685587.9	603182.3	16.70	110.4	2.3	112.2	9.7	98.4	95	10	Structural Fill	Corridor	V5N
1	HC-45-1	9/2/2016	685613.1	602897.6	20.90	120.4	11.2	126	9.5	95.6	90	9	Horizon C	Back Scatter	V5N
1	HC-46-1	9/2/2016	685561.8	602872.7	20.30	121.0	9.3	126	9.5	96.0	90	9	Horizon C	Back Scatter	V5N
1	HC-47-1	9/9/2016	685537.9	602916.9	20.00	118.8	8.4	126	9.5	94.3	90	9	Horizon C	Back Scatter	V5N
1	HC-48-1	9/9/2016	685583.8	602941.4	20.80	113.6	7.6	126	9.5	90.2	90	9	Horizon C	Back Scatter	V5N
3	SF-44-3	9/2/2016	685386.8	603098.2	13.50	114.6	1.5	112.2	9.7	102.1	95	10	Structural Fill	Corridor	V5N
4	SF-44-4	9/2/2016	685379.0	603091.5	14.30	112.2	1.4	112.2	9.7	100.0	95	10	Structural Fill	Corridor	V5N
3	SF-45-3	9/2/2016	685416.0	603110.5	13.40	112.0	1.4	112.2	9.7	99.8	95	10	Structural Fill	Corridor	V5N
4	SF-45-4	9/2/2016	685414.5	603134.8	14.60	117.7	2.4	112.2	9.7	104.9	95	10	Structural Fill	Corridor	V5N
3	SF-46-3	9/2/2016	685468.8	603132.3	13.60	109.4	2.3	112.2	9.7	97.5	95	10	Structural Fill	Corridor	V5N
4	SF-46-4	9/2/2016	685459.8	603149.2	14.20	115.6	4.5	112.2	9.7	103.0	95	10	Structural Fill	Corridor	V5N
4	SF-47-4	9/2/2016	685504.7	603162.0	15.00	111.7	1.9	112.2	9.7	99.6	95	10	Structural Fill	Corridor	V5N
4	SF-48-4	9/2/2016	685553.1	603160.5	15.90	115.6	1.9	112.2	9.7	103.0	95	10	Structural Fill	Corridor	V5N
4	SF-49-4	9/2/2016	685598.7	603192.5	17.10	115.0	1.5	112.2	9.7	102.5	95	10	Structural Fill	Corridor	V5N
5	SF-44-5	9/6/2016	685384.8	603100.8	15.70	112.6	1.3	112.2	9.7	100.4	95	10	Structural Fill	Corridor	V5N
5	SF-45-5	9/6/2016	685421.0	603123.8	15.50	111.2	0.6	112.2	9.7	99.1	95	10	Structural Fill	Corridor	V5N
5	SF-46-5	9/6/2016	685468.8	603153.0	15.50	114.8	1.6	112.2	9.7	102.3	95	10	Structural Fill	Corridor	V5N
5	SF-47-5	9/6/2016	685504.2	603163.1	16.00	112.2	2.0	112.2	9.7	100.0	95	10	Structural Fill	Corridor	V5N
5	SF-48-5	9/6/2016	685545.7	603167.0	17.00	114.0	1.0	112.2	9.7	101.6	95	10	Structural Fill	Corridor	V5N
5	SF-49-5	9/6/2016	685589.2	603187.0	17.70	115.4	0.7	112.2	9.7	102.9	95	10	Structural Fill	Corridor	V5N
1	SF-74-1	9/6/2016	684991.4	603626.7	10.00	110.1	2.2	112.2	9.7	98.1	95	7	Structural Fill		V5N
1	SF-75-1	9/6/2016	685034.3	603648.9	9.00	115.2	1.3	112.2	9.7	102.7	95	7	Structural Fill		V5N
1	SF-76-1	9/6/2016	685079.9	603671.0	8.10	116.6	1.1	112.2	9.7	103.9	95	7	Structural Fill		V5N
1	SF-77-1	9/6/2016	685125.3	603689.7	7.30	112.0	1.5	112.2	9.7	99.8	95	7	Structural Fill		V5N
1	SF-78-1	9/6/2016	685172.3	603710.2	7.70	108.3	1.5	112.2	9.7	96.5	95	7	Structural Fill		V5N
1	CS-88-1	9/9/2016	685132.1	603471.8	12.00	112.8	12.6	117	8.6	96.4	90	12	GDL Cover Soil		V5N
1	CS-89-1	9/9/2016	685169.3	603521.9	13.90	110.0	12.5	117	8.6	94.0	90	12	GDL Cover Soil		V5N

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LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-90-1	9/9/2016	685268.8	603557.9	7.20	125.5	5.3	117	8.6	107.3	90	12	GDL Cover Soil		V5N
1	CS-91-1	9/9/2016	685224.0	603612.4	6.10	123.9	4.4	117	8.6	105.9	90	12	GDL Cover Soil		V5N
1	CS-92-1	9/9/2016	685120.8	603577.5	13.30	117.7	12.5	117	8.6	100.6	90	12	GDL Cover Soil		V5N
1	CS-93-1	9/9/2016	685042.5	603563.7	10.70	112.8	12.6	117	8.6	96.4	90	12	GDL Cover Soil		V5N
1	HC-49-1	9/9/2016	685632.4	602967.4	22.10	120.9	8.3	126	9.5	96.0	90	9	Horizon C	Back Scatter	V5N
1	HC-50-1	9/9/2016	685653.4	602989.2	21.40	114.6	7.8	126	9.5	91.0	90	9	Horizon C	Back Scatter	V5N
1	HC-51-1	9/12/2016	685642.6	603022.5	21.10	117.7	7.3	126	9.5	93.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-52-1	9/12/2016	685608.9	603003.9	21.90	114.8	7.7	126	9.5	91.1	90	10W	Horizon C	Back Scatter	V5N
1	SF-25-1	9/9/2016	685816.9	602808.8	19.70	107.9	0.7	112.2	9.7	96.2	95	9	Structural Fill		V5N
1	SF-26-1	9/9/2016	685807.0	602858.9	19.90	107.2	0.9	112.2	9.7	95.5	95	9	Structural Fill		V5N
1	SF-27-1	9/9/2016	685764.8	602882.0	20.30	112.2	1.0	112.2	9.7	100.0	95	9	Structural Fill		V5N
1	SF-28-1	9/9/2016	685759.8	602946.2	20.90	107.7	1.0	112.2	9.7	96.0	95	9	Structural Fill		V5N
1	SF-29-1	9/9/2016	685724.7	602967.2	20.90	109.8	0.7	112.2	9.7	97.9	95	9	Structural Fill		V5N
1	SF-34-1	9/9/2016	685609.4	603156.3	18.80	107.3	1.4	112.2	9.7	95.6	95	10	Structural Fill	Final Elevation	V5N
1	SF-40-1	9/9/2016	685511.6	602875.5	20.20	116.1	1.3	112.2	9.7	103.5	95	9	Structural Fill	Final Elevation	V5N
6	SF-44-6	9/9/2016	685379.5	603113.0	16.70	119.9	1.2	112.2	9.7	106.9	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-45-6	9/9/2016	685417.8	603125.7	17.70	111.4	1.3	112.2	9.7	99.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-46-6	9/9/2016	685459.9	603141.3	17.20	118.2	1.2	112.2	9.7	105.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-47-6	9/9/2016	685503.4	603156.5	17.40	111.4	1.3	112.2	9.7	99.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-48-6	9/9/2016	685542.9	603167.8	18.00	109.7	0.5	112.2	9.7	97.8	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-49-6	9/9/2016	685585.9	603190.5	18.10	117.2	1.1	112.2	9.7	104.5	95	10	Structural Fill	Corridor - Final Elevation	V5N
1	HC-53-1	9/12/2016	685562.7	602969.1	20.70	113.7	5.2	126	9.5	90.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-54-1	9/12/2016	685924.9	602941.0	20.00	118.7	7.4	126	9.5	94.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-55-1	9/12/2016	685496.4	603002.0	22.20	121.1	7.0	126	9.5	96.1	90	10W	Horizon C	Back Scatter	V5N
1	HC-56-1	9/12/2016	685541.3	603022.2	20.60	117.7	6.4	126	9.5	93.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-57-1	9/12/2016	685582.8	603050.8	23.00	117.1	7.1	126	9.5	92.9	90	10W	Horizon C	Back Scatter	V5N
1	HC-58-1	9/12/2016	685623.4	603079.4	19.70	118.5	7.6	126	9.5	94.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-59-1	9/12/2016	685595.3	603109.6	18.70	113.4	7.2	126	9.5	90.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-60-1	9/12/2016	685558.4	603089.5	21.30	114.9	10.0	126	9.5	91.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-61-1	9/12/2016	685513.2	603080.7	21.00	120.7	9.0	126	9.5	95.8	90	10W	Horizon C	Back Scatter	V5N
1	HC-62-1	9/12/2016	685479.1	603082.3	20.10	115.2	9.0	126	9.5	91.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-63-1	9/12/2016	685464.5	603107.4	16.30	127.2	8.2	126	9.5	101.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-64-1	9/12/2016	685549.8	603137.7	17.10	119.2	9.1	126	9.5	94.6	90	10W	Horizon C	Back Scatter	V5N
1	HC-84-1	9/16/2016	685149.3	603473.7	12.90	140.0	6.5	126	9.5	111.1	90	12	Horizon C	Back Scatter	V5N
1	HC-85-1	9/16/2016	685181.9	603500.3	14.50	132.8	7.4	126	9.5	105.4	90	12	Horizon C	Back Scatter	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
1	SF-31-1	9/12/2016	685698.8	603047.0	20.60	104.8	2.1	112.2	9.7	93.4	95	10W	Structural Fill	Area to be re-rolled	V5N
1	SF-32-1	9/12/2016	685674.9	603084.1	20.10	114.3	2.2	112.2	9.7	101.9	95	10W	Structural Fill	Final Elevation	V5N
1	SF-33-1	9/12/2016	685636.1	603109.1	19.80	116.7	1.4	112.2	9.7	104.0	95	10W	Structural Fill	Final Elevation	V5N
1	SF-41-1	9/12/2016	685488.9	602934.6	20.10	117.4	1.3	112.2	9.7	104.6	95	10W	Structural Fill	Final Elevation	V5N
1	SF-42-1	9/12/2016	685453.4	602993.1	18.80	113.6	1.3	112.2	9.7	101.2	95	10W	Structural Fill		V5N
1	SF-43-1	9/12/2016	685417.9	603050.3	18.00	120.5	1.6	112.2	9.7	107.4	95	10W	Structural Fill		V5N
2	SF-74-2	9/12/2016	685922.0	603639.7	11.10	107.4	1.4	112.2	9.7	95.7	95	7	Structural Fill	Final Elevation	V5N
2	SF-75-2	9/12/2016	685032.9	603647.8	10.20	111.3	1.9	112.2	9.7	99.2	95	7	Structural Fill		V5N
2	SF-76-2	9/12/2016	685078.6	603666.6	9.40	107.8	1.0	112.2	9.7	96.1	95	7	Structural Fill		V5N
2	SF-77-2	9/12/2016	685124.8	603686.5	8.30	122.6	0.4	112.2	9.7	109.3	95	7	Structural Fill		V5N
2	SF-78-2	9/12/2016	685171.5	603702.0	8.50	120.9	1.0	112.2	9.7	107.8	95	7	Structural Fill		V5N
1	CS-79-1	9/14/2016	685460.8	603320.9	12.30	108.4	4.4	117	8.6	92.6	90	13	GDL Cover Soil		V5N
1	CS-80-1	9/14/2016	685363.7	603260.3	14.80	112.2	4.0	117	8.6	95.9	90	13	GDL Cover Soil		V5N
1	CS-81-1	9/14/2016	685314.2	603305.3	16.60	111.4	2.4	117	8.6	95.2	90	13	GDL Cover Soil		V5N
1	CS-82-1	9/14/2016	685340.0	603361.1	14.60	109.4	3.6	117	8.6	93.5	90	13	GDL Cover Soil		V5N
1	CS-83-1	9/14/2016	685428.3	603400.0	10.40	105.4	3.7	117	8.6	90.1	90	13	GDL Cover Soil		V5N
1	CS-84-1	9/14/2016	685372.9	603440.9	8.70	112.6	4.6	117	8.6	96.2	90	13	GDL Cover Soil		V5N
1	CS-85-1	9/14/2016	685225.6	603341.5	13.50	107.2	4.5	117	8.6	91.6	90	13	GDL Cover Soil		V5N
1	CS-86-1	9/14/2016	685194.1	603420.0	11.10	108.7	4.3	117	8.6	92.9	90	13	GDL Cover Soil		V5N
1	CS-87-1	9/14/2016	685379.7	603494.2	7.80	114.4	4.7	117	8.6	97.8	90	13	GDL Cover Soil		V5N
1	SF-30-1	9/14/2016	685715.6	603030.6	20.40	109.0	2.5	112.2	9.7	97.1	95	9	Structural Fill		V5N
1	HC-86-1	9/16/2016	685218.9	603514.8	13.40	125.6	6.5	126	9.5	99.7	90	12	Horizon C	Back Scatter	V5N
1	HC-87-1	9/16/2016	685257.0	603523.4	9.70	137.8	8.5	126	9.5	109.4	90	12	Horizon C	Back Scatter	V5N
1	HC-88-1	9/16/2016	685222.5	603581.8	8.20	135.3	8.3	126	9.5	107.4	90	12	Horizon C	Back Scatter	V5N
1	HC-89-1	9/16/2016	685193.5	603514.6	12.40	121.4	7.5	126	9.5	96.3	90	12	Horizon C	Back Scatter	V5N
1	HC-90-1	9/16/2016	685154.9	603541.7	14.40	130.7	8.2	126	9.5	103.7	90	12	Horizon C	Back Scatter	V5N
1	HC-91-1	9/16/2016	685130.5	603507.9	15.30	126.3	6.2	126	9.5	100.2	90	12	Horizon C	Back Scatter	V5N
1	HC-92-1R	9/16/2016	685103.9	603560.3	13.90	131.2	7.8	126	9.5	104.1	90	12	Horizon C	Back Scatter; re-test	V5N
1	HC-93-1	9/16/2016	685158.5	603571.5	13.70	129.0	7.8	126	9.5	102.4	90	12	Horizon C	Back Scatter	V5N
1	HC-94-1	9/16/2016	685188.9	603612.2	8.60	135.5	7.0	126	9.5	107.5	90	12	Horizon C	Back Scatter	V5N
1	HC-95-1	9/16/2016	685154.8	603655.0	7.80	117.6	9.6	126	9.5	93.3	90	12	Horizon C	Back Scatter	V5N
1	HC-96-1	9/16/2016	685118.9	603631.3	9.50	113.4	9.5	126	9.5	90.0	90	12	Horizon C	Back Scatter	V5N
1	HC-97-1	9/16/2016	685068.2	603614.3	10.00	115.0	6.3	126	9.5	91.3	90	12	Horizon C	Back Scatter	V5N
1	HC-65-1	9/21/2016	685396.8	603159.5	16.50	122.8	12.4	126	9.5	97.5	90	13	Horizon C	Back Scatter	V5N
1	HC-66-1	9/21/2016	685443.4	603171.9	15.90	124.1	12.2	126	9.5	98.5	90	13	Horizon C	Back Scatter	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	HC-67-1	9/21/2016	685504.6	603210.9	18.70	130.8	13.2	126	9.5	103.8	90	13	Horizon C	Back Scatter	V5N
1	SF-61-1	9/16/2016	685187.4	603409.9	12.30	115.1	1.1	112.2	9.7	102.6	95	12	Structural Fill		V5N
1	SF-62-1	9/16/2016	685220.9	603427.0	11.50	114.8	1.8	112.2	9.7	102.3	95	12	Structural Fill		V5N
1	SF-63-1	9/16/2016	685258.9	603458.9	9.70	116.0	1.8	112.2	9.7	103.4	95	12	Structural Fill		V5N
1	SF-64-1	9/16/2016	685298.0	603490.9	9.00	117.8	1.0	112.2	9.7	105.0	95	12	Structural Fill		V5N
1	SF-65-1	9/16/2016	685327.5	603571.4	8.70	118.9	1.4	112.2	9.7	106.0	95	12	Structural Fill		V5N
1	SF-66-1	9/16/2016	685294.2	603549.0	8.50	115.0	1.4	112.2	9.7	102.5	95	12	Structural Fill		V5N
1	SF-67-1	9/16/2016	685264.5	603588.1	7.50	114.9	1.3	112.2	9.7	102.4	95	12	Structural Fill	Final Elevation	V5N
1	SF-68-1	9/16/2016	685234.2	603626.7	7.10	120.5	1.7	112.2	9.7	107.4	95	12	Structural Fill		V5N
1	SF-69-1	9/16/2016	685202.1	603666.6	7.40	115.5	1.5	112.2	9.7	102.9	95	12	Structural Fill		V5N
1	SF-70-1	9/16/2016	685149.2	603437.2	13.00	117.3	1.1	112.2	9.7	104.5	95	12	Structural Fill		V5N
1	SF-71-1	9/16/2016	685105.7	603488.2	12.90	117.5	1.1	112.2	9.7	104.7	95	12	Structural Fill		V5N
1	SF-72-1	9/16/2016	685061.4	603541.1	12.10	119.4	1.5	112.2	9.7	106.4	95	12	Structural Fill		V5N
1	SF-73-1	9/16/2016	685019.3	603590.9	11.10	109.6	1.5	112.2	9.7	97.7	95	12	Structural Fill		V5N
3	SF-75-3	9/16/2016	685048.3	603631.9	10.80	112.4	1.1	112.2	9.7	100.2	95	7	Structural Fill	Final Elevation	V5N
1	HC-68-1	9/21/2016	685468.1	603245.9	15.60	126.8	12.5	126	9.5	100.6	90	13	Horizon C	Back Scatter	V5N
1	HC-69-1	9/21/2016	685415.3	603236.1	18.50	120.0	11.5	126	9.5	95.2	90	13	Horizon C	Back Scatter	V5N
1	HC-70-1	9/21/2016	685377.4	603205.9	19.00	120.2	12.5	126	9.5	95.4	90	13	Horizon C	Back Scatter	V5N
1	HC-71-1	9/21/2016	685343.8	603244.9	15.80	136.7	11.6	126	9.5	108.5	90	13	Horizon C	Back Scatter	V5N
1	HC-72-1	9/21/2016	685385.8	603275.1	15.00	125.8	12.5	126	9.5	99.8	90	13	Horizon C	Back Scatter	V5N
1	HC-73-1	9/21/2016	685455.7	603281.1	14.80	125.9	12.7	126	9.5	99.9	90	13	Horizon C	Back Scatter	V5N
1	HC-74-1	9/21/2016	685420.3	603319.5	13.60	133.3	13.8	126	9.5	105.8	90	13	Horizon C	Back Scatter	V5N
1	HC-75-1	9/21/2016	685356.5	603338.7	15.60	118.7	9.8	126	9.5	94.2	90	13	Horizon C	Back Scatter	V5N
1	HC-76-1	9/21/2016	685317.1	603293.5	17.40	114.0	10.5	126	9.5	90.5	90	13	Horizon C	Back Scatter	V5N
1	HC-77-1	9/21/2016	685280.8	603340.2	16.70	120.3	8.9	126	9.5	95.5	90	13	Horizon C	Back Scatter	V5N
1	HC-78-1	9/21/2016	685319.9	603353.4	15.80	128.0	8.9	126	9.5	101.6	90	13	Horizon C	Back Scatter	V5N
1	HC-79-1	9/21/2016	685392.9	603361.5	14.80	113.6	11.0	126	9.5	90.2	90	13	Horizon C	Back Scatter	V5N
1	HC-80-1	9/21/2016	685366.5	603390.4	14.10	113.4	11.0	126	9.5	90.0	90	13	Horizon C	Back Scatter	V5N
1	HC-81-1	9/21/2016	685330.2	603424.2	18.60	114.0	9.9	126	9.5	90.5	90	13	Horizon C	Back Scatter	V5N
1	HC-82-1	9/21/2016	685315.5	603390.5	14.90	118.9	9.6	126	9.5	94.4	90	13	Horizon C	Back Scatter	V5N
1	HC-83-1	9/21/2016	685251.5	603374.3	16.20	117.5	9.2	126	9.5	93.3	90	13	Horizon C	Back Scatter	V5N
1	HC-20-1	8/11/2016	685874.8	602528.7	19.50	117.0	5.2	126	9.5	92.9	90	3	Horizon C	Back Scatter	V5N
1	HC-21-1	8/19/2016	685852.9	602578.1	17.60	117.1	9.1	126	9.5	92.9	90	5	Horizon C	Back Scatter	V5N
1	HC-22-1	8/19/2016	685815.3	602550.0	20.10	118.5	8.9	126	9.5	94.0	90	5	Horizon C	Back Scatter	V5N
2	SF-25-2	9/21/2016	685815.2	602802.2	20.30	107.3	1.2	112.2	9.7	95.6	95	9	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
2	SF-26-2	9/21/2016	685805.7	602859.6	20.20	109.0	1.2	112.2	9.7	97.1	95	9	Structural Fill	Final Elevation	V5N
2	SF-27-2	9/21/2016	685764.4	602879.3	21.60	111.9	1.1	112.2	9.7	99.7	95	9	Structural Fill	Final Elevation	V5N
2	SF-28-2	9/21/2016	685759.9	602945.9	21.30	105.1	0.9	112.2	9.7	93.7	95	9	Structural Fill	Area re-rolled	V5N
1	SF-31-1R	9/21/2016	685674.0	603030.0	20.60	106.6	1.9	112.2	9.7	95.0	95	10W	Structural Fill	Re-test from 9/12/16	V5N
1	SF-50-1	9/21/2016	685544.9	603236.4	16.10	116.3	3.7	112.2	9.7	103.7	95	11	Structural Fill		V5N
1	SF-51-1	9/21/2016	685512.5	603275.8	14.90	109.0	2.7	112.2	9.7	97.1	95	11	Structural Fill		V5N
1	SF-52-1	9/21/2016	685474.8	603320.8	13.50	111.2	2.0	112.2	9.7	99.1	95	13	Structural Fill		V5N
1	SF-53-1	9/21/2016	685451.1	603352.7	12.30	112.6	2.5	112.2	9.7	100.4	95	13	Structural Fill		V5N
1	SF-54-1	9/21/2016	685418.6	603393.2	11.20	112.2	1.8	112.2	9.7	100.0	95	13	Structural Fill		V5N
1	SF-55-1	9/21/2016	685388.8	603432.7	10.00	116.4	1.2	112.2	9.7	103.7	95	13	Structural Fill		V5N
1	SF-56-1	9/21/2016	685357.4	603473.3	9.20	109.9	1.1	112.2	9.7	98.0	95	13	Structural Fill		V5N
1	SF-57-1	9/21/2016	685345.4	603162.0	16.80	109.2	2.7	112.2	9.7	97.3	95	13	Structural Fill	Final Elevation	V5N
1	SF-58-1	9/21/2016	685313.8	603223.0	16.40	108.7	1.7	112.2	9.7	96.9	95	13	Structural Fill	Final Elevation	V5N
1	SF-59-1	9/21/2016	685280.5	603280.7	15.70	117.8	1.6	112.2	9.7	105.0	95	11	Structural Fill	Final Elevation	V5N
1	SF-60-1	9/21/2016	685237.1	603333.1	15.10	110.0	1.6	112.2	9.7	98.0	95	13	Structural Fill	Final Elevation	V5N
2	SF-65-2	9/21/2016	685327.5	603511.4	9.50	106.2	1.2	112.2	9.7	94.7	95	12	Structural Fill	Area to be re-rolled	V5N
2	SF-67-2	9/21/2016	685261.2	603594.2	8.50	110.8	1.4	112.2	9.7	98.8	95	12	Structural Fill		V5N
2	SF-68-2	9/21/2016	685235.2	603625.3	8.10	106.6	1.3	112.2	9.7	95.0	95	12	Structural Fill		V5N
2	SF-69-2	9/21/2016	685200.6	603661.2	8.40	111.1	2.1	112.2	9.7	99.0	95	12	Structural Fill		V5N
3	SF-76-3	9/21/2016	685079.7	603667.9	10.20	113.9	1.4	112.2	9.7	101.5	95	7	Structural Fill	Final Elevation	V5N
3	SF-77-3	9/21/2016	685126.3	603688.7	9.30	115.5	1.4	112.2	9.7	102.9	95	7	Structural Fill	Final Elevation	V5N
3	SF-78-3	9/21/2016	685171.1	603708.0	9.80	107.5	2.0	112.2	9.7	95.8	95	7	Structural Fill	Final Elevation	V5N
2	SF-28-2R	9/28/2016	685759.9	602945.9	21.30	110.0	1.3	112.2	9.7	98.0	95	9	Structural Fill	Re-test from 9/21/16	V5N
2	SF-29-2	9/28/2016	685724.2	602963.6	22.10	116.1	1.4	112.2	9.7	103.5	95	9	Structural Fill	Final Elevation	V5N
2	SF-30-2	9/28/2016	685721.9	603032.1	20.80	108.6	1.0	112.2	9.7	96.8	95	10W	Structural Fill	Final Elevation	V5N
2	SF-31-2	9/28/2016	685681.0	603029.6	21.10	107.2	1.3	112.2	9.7	95.5	95	10W	Structural Fill	Final Elevation	V5N
2	SF-42-2	9/28/2016	685452.8	602991.9	19.50	110.7	2.8	112.2	9.7	98.7	95	10W	Structural Fill	Final Elevation	V5N
2	SF-43-2	9/28/2016	685420.1	603045.0	18.80	107.3	2.4	112.2	9.7	95.6	95	10W	Structural Fill	Final Elevation	V5N
2	SF-50-2	9/28/2016	685545.7	603239.7	17.30	116.2	2.0	112.2	9.7	103.6	95	11	Structural Fill	Final Elevation	V5N
2	SF-51-2	9/28/2016	685573.3	603275.6	15.50	111.4	1.3	112.2	9.7	99.3	95	11	Structural Fill	Final Elevation	V5N
2	SF-52-2	9/28/2016	685477.1	603319.6	14.10	114.7	1.5	112.2	9.7	102.2	95	13	Structural Fill	Final Elevation	V5N
2	SF-53-2	9/28/2016	685450.4	603352.9	13.10	113.3	1.6	112.2	9.7	101.0	95	13	Structural Fill	Final Elevation	V5N
2	SF-54-2	9/28/2016	685422.3	603390.4	12.00	114.2	1.2	112.2	9.7	101.8	95	13	Structural Fill	Final Elevation	V5N
2	SF-55-2	9/28/2016	685390.8	603429.9	10.80	115.1	1.0	112.2	9.7	102.6	95	13	Structural Fill	Final Elevation	V5N
2	SF-56-2	9/28/2016	685358.3	603469.2	10.00	120.1	1.1	112.2	9.7	107.0	95	13	Structural Fill	Final Elevation	V5N

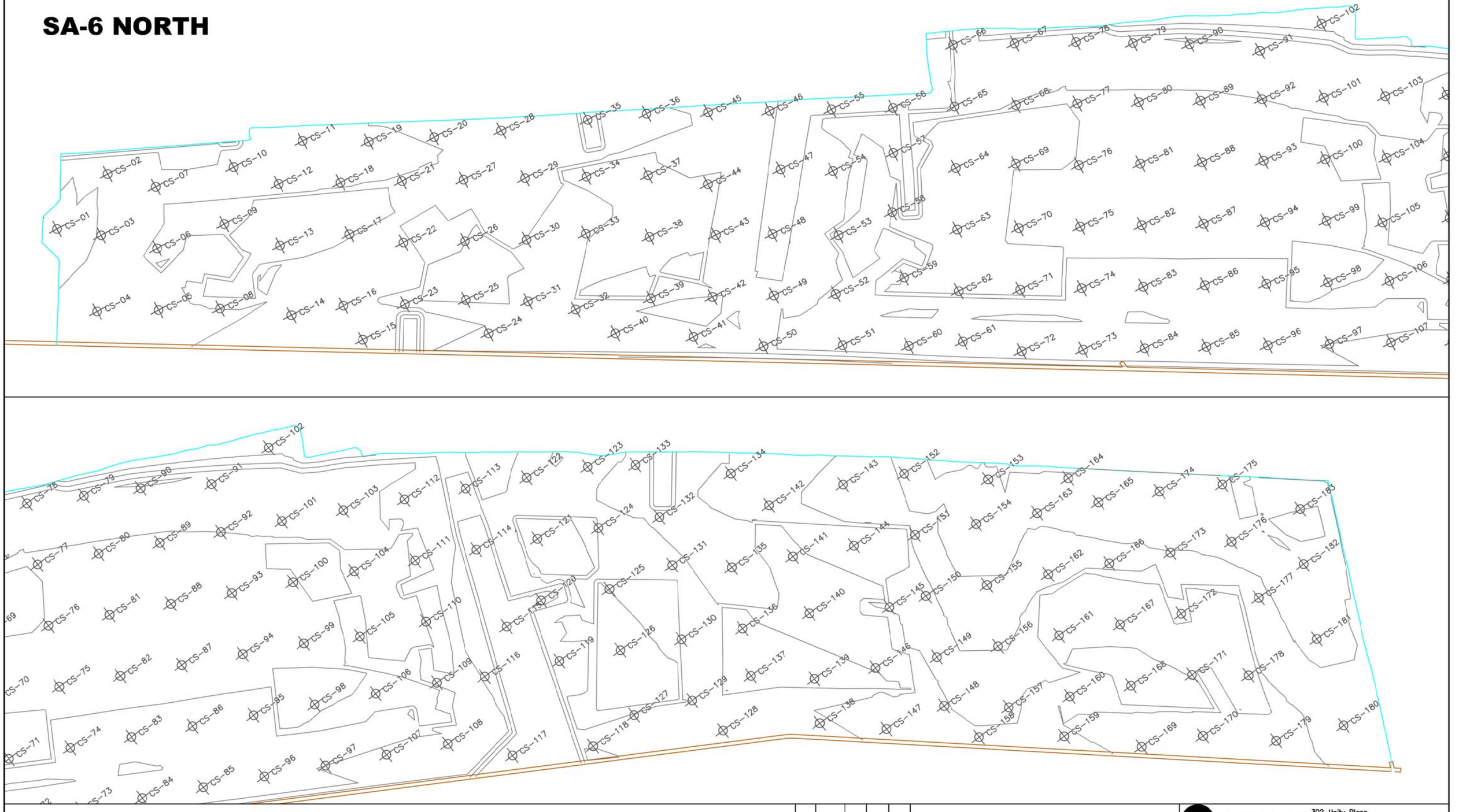
FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
2	SF-61-2	9/28/2016	685193.4	603386.6	13.30	122.8	2.2	112.2	9.7	109.4	95	13	Structural Fill	Final Elevation	V5N
2	SF-62-2	9/28/2016	685223.2	603428.2	12.50	110.4	1.0	112.2	9.7	98.4	95	13	Structural Fill	Final Elevation	V5N
2	SF-63-2	9/28/2016	685259.7	603460.0	11.10	113.6	1.4	112.2	9.7	101.2	95	13	Structural Fill	Final Elevation	V5N
2	SF-64-2	9/28/2016	685299.4	603486.9	9.80	114.6	1.6	112.2	9.7	102.1	95	13	Structural Fill	Final Elevation	V5N
2	SF-65-2R	9/28/2016	685327.5	603511.4	9.50	119.8	1.1	112.2	9.7	106.8	95	13	Structural Fill	Re-test from 9/21	V5N
2	SF-66-2	9/28/2016	685298.5	603550.4	9.50	118.1	1.2	112.2	9.7	105.3	95	12	Structural Fill	Final Elevation	V5N
3	SF-67-3	9/28/2016	685263.1	603589.9	9.50	113.2	1.1	112.2	9.7	100.9	95	12	Structural Fill	Final Elevation	V5N
3	SF-68-3	9/28/2016	685233.3	603627.8	9.40	112.8	1.4	112.2	9.7	100.5	95	12	Structural Fill	Final Elevation	V5N
3	SF-69-3	9/28/2016	685201.4	603664.6	9.60	113.8	1.6	112.2	9.7	101.4	95	12	Structural Fill	Final Elevation	V5N
2	SF-70-2	9/28/2016	685149.5	603436.1	14.00	116.6	1.2	112.2	9.7	103.9	95	12	Structural Fill	Final Elevation	V5N
2	SF-71-2	9/28/2016	685102.8	603489.6	13.40	111.7	1.4	112.2	9.7	99.6	95	12	Structural Fill	Final Elevation	V5N
2	SF-72-2	9/28/2016	685058.3	603539.5	12.90	110.4	1.8	112.2	9.7	98.4	95	12	Structural Fill	Final Elevation	V5N
2	SF-73-2	9/28/2016	685017.1	603590.8	12.20	111.8	1.2	112.2	9.7	99.6	95	12	Structural Fill	Final Elevation	V5N

2.0 Test Location Drawings

- **GDL Cover Soil (Initial and Reduced Frequency)**
- **Horizon C**
- **Structural Fill**

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION ⊕CS-XX

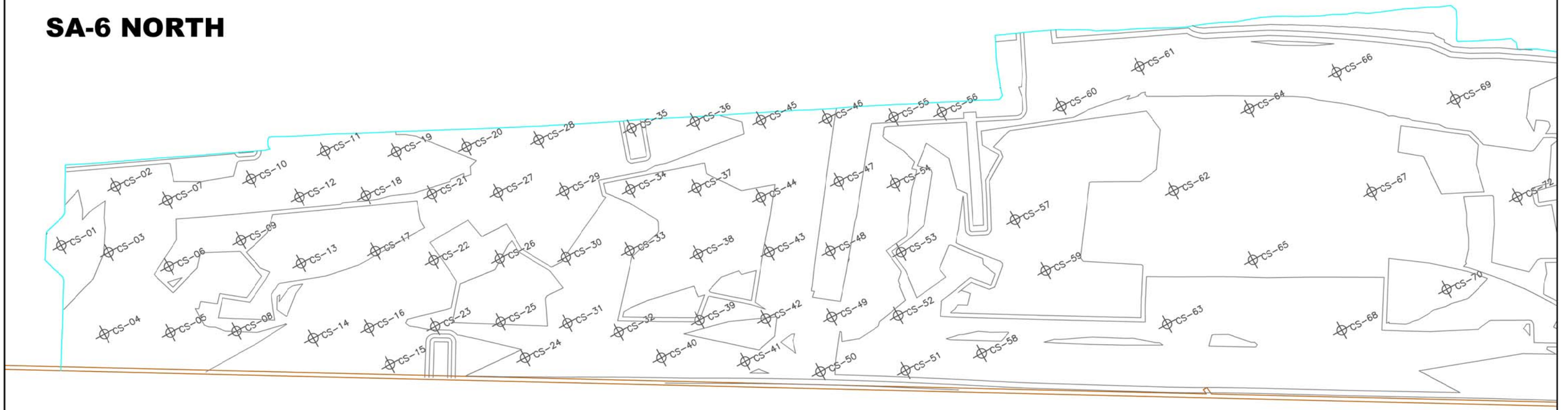
GDL COVER SOIL ELEVATION CONTOURS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME	GDL COVER SOIL COMPACTION LOCATIONS
PROJECT NAME & LOCATION	HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/12/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified by approval of RFI-076

LEGEND:

COMPACTION TEST LOCATION ⊕CS-XX

GDL COVER SOIL ELEVATION CONTOURS

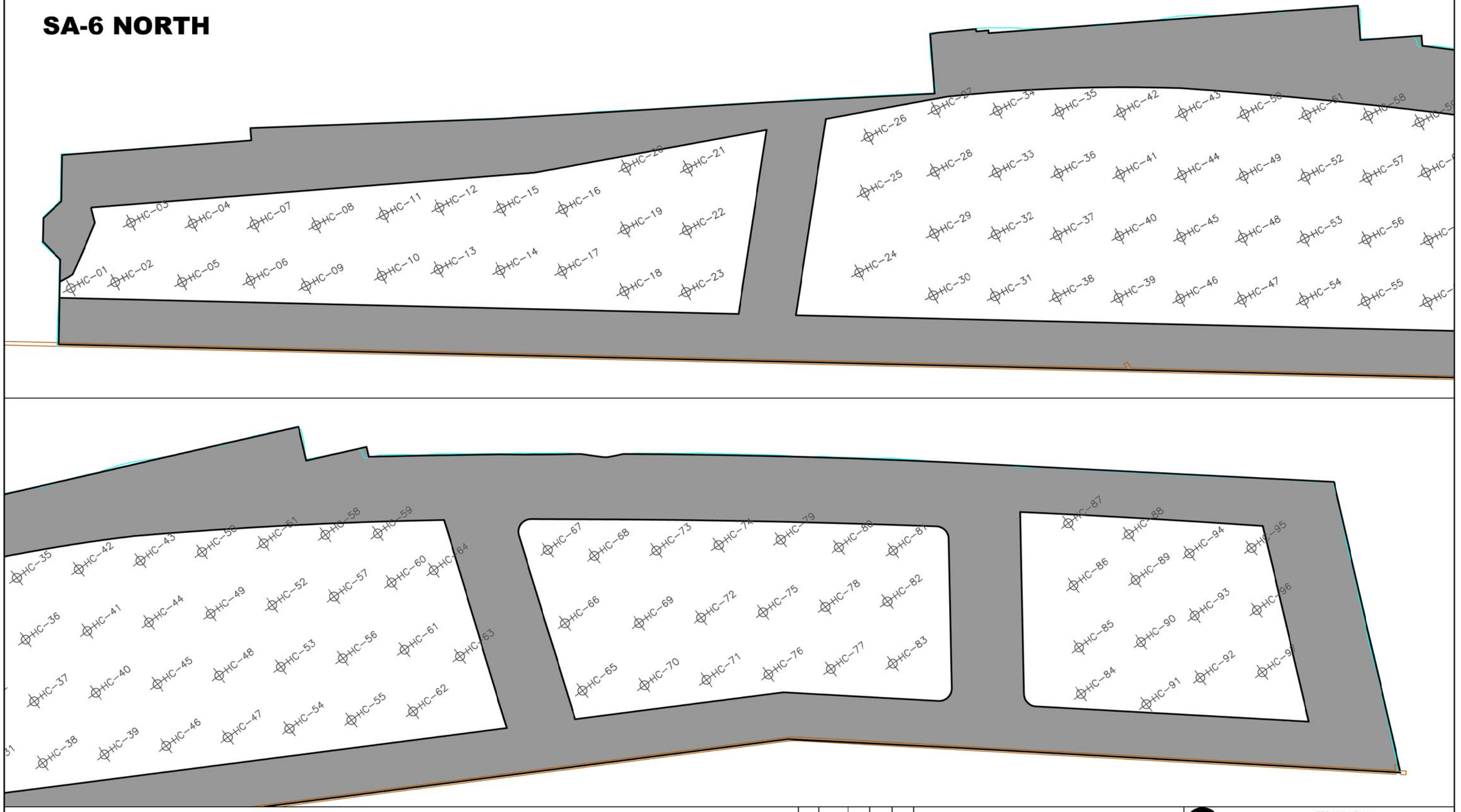
ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME: GDL COVER SOIL REDUCED FREQUENCY COMPACTION LOCATIONS

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	8/18/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION — HC-XX

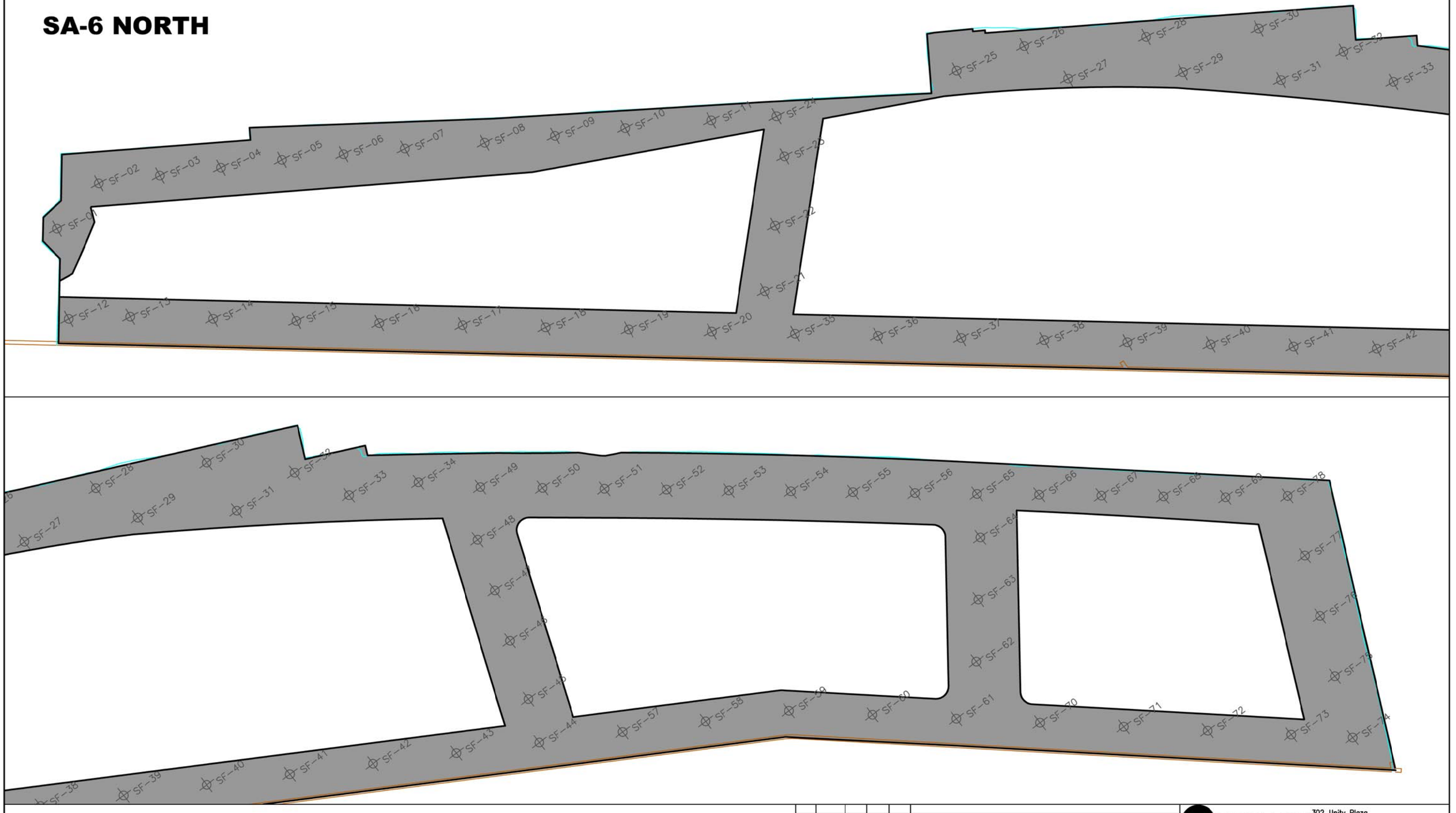
STRUCTURAL FILL LIMITS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME	HORIZON C COMPACTION LOCATIONS
PROJECT NAME & LOCATION	HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/15/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION — SF-XX

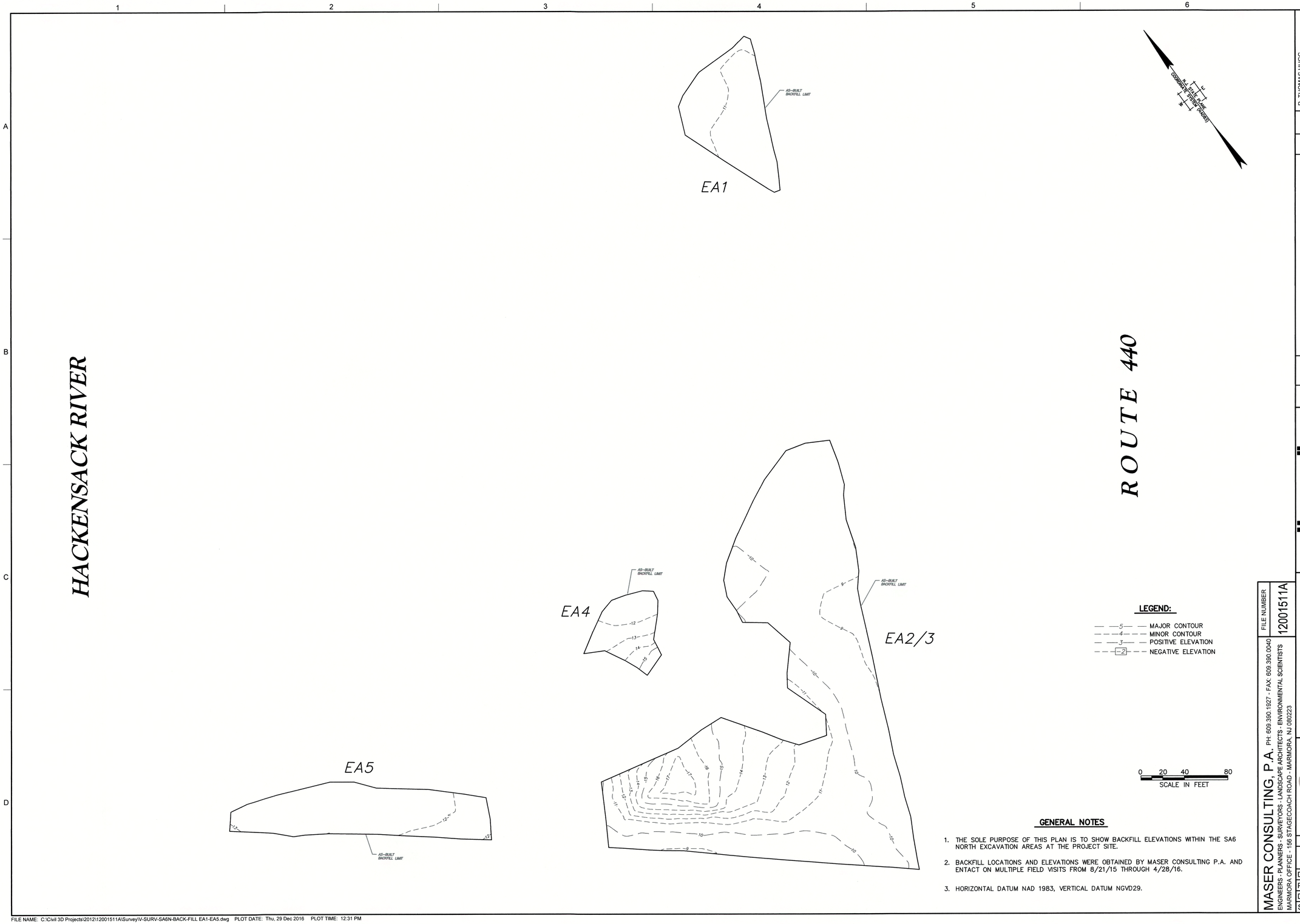
STRUCTURAL FILL LIMITS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME: STRUCTURAL FILL COMPACTION LOCATIONS

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/15/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	



LEGEND:

- —5— MAJOR CONTOUR
- —4— MINOR CONTOUR
- —3— POSITIVE ELEVATION
- —2— NEGATIVE ELEVATION

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW BACKFILL ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. BACKFILL LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 8/21/15 THROUGH 4/28/16.
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

R. THOMAS HUGG

NO.	DATE	REVISION	BY	APVD
1	12/28/16	GENERAL REVISIONS	BSB	RTH

DSGN GE | DR | CHK BSB | RTH

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
BACKFILL PLAN FOR EXCAVATION
AREAS 1, 2/3, 4 AND 5

FILE NUMBER
12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 689 - 2829

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

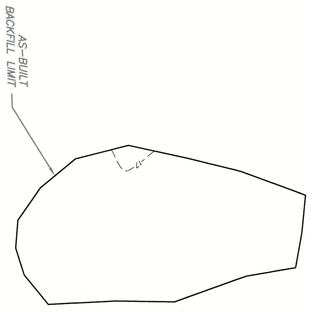
DATE	8/23/16
PROJ	3480-10-0027
DWG	C-111A
SHEET	1 OF 2

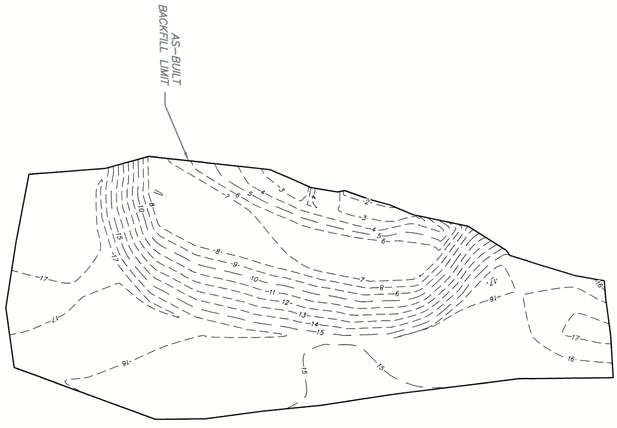
THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USERS AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SA6N-BACK-FILL EA1-EA5.dwg PLOT DATE: Thu, 29 Dec 2016 PLOT TIME: 12:31 PM

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SAAN-BACK-FILL-EA7-8.dwg PLOT DATE: Thu, 29 Dec 2016 PLOT TIME: 1:31 PM

HACKENSACK RIVER





ROUTE 440

LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR
- POSITIVE ELEVATION
- NEGATIVE ELEVATION

SCALE IN FEET: 0, 15, 30, 60

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW BACKFILL ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. BACKFILL LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 6/21/15 THROUGH 4/28/16.
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM NGVD29.

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
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MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

FILE NUMBER: 12001511A

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE 8/23/16
PROJ 3480-10-0027
DWG C-172A
SHEET 2 OF 2

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829

DRAWING STATUS: AS BUILT DRAWINGS

CIVIL

BACKFILL PLAN FOR EXCAVATION AREAS 7 AND 8

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

NO.	DATE	REVISION	BY	APVD
1	12/28/16	GENERAL REVISIONS	BSB	RTH

DSGN GE | DR | CHK BSB | APVD RTH

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS38737

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MASER CONSULTING P.A.

Engineers
Planners
Surveyors
Landscape Architects
Environmental Scientists

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Marmora, NJ 08223
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www.maserconsulting.com

SA-6 North Excavation: Confirmatory Points (Table 1.0)

Bottom Target Coordinates (based on PDI)					As-built Elevations		
Northing	Easting	Elevation 1	Sample ID	Excavation Area	Date Obtained	Elevation	Comments
686226.6	602197.5	3.7	087-SB-043	EA7	6/26/2015	3.4	Target Elevation Reached
686242.4	602173.1	7.8	087-SB-107	EA7	6/26/2015	3.5	Target Elevation Reached
685477.1	603650.1	8.4	088-SB-126	EA4	8/26/2015	3.0	Target Elevation Reached
685505.3	603645.5	3.0	088-SB-011	EA4	8/26/2015	2.8	Target Elevation Reached
685521.0	603649.4	5.3	088-SB-186	EA4	8/26/2015	2.8	Target Elevation Reached
685474.0	603398.6	-6.2	088-SB-153	EA5	8/31/2015	-4.8	Stratum D Reached
685486.7	603382.3	-4.0	088-SB-155	EA5	9/3/2015	-5.2	Stratum D Reached
685506.6	603356.6	-6.0	088-SB-156	EA5	9/3/2015	-5.1	Stratum D Reached
685534.2	603299.6	-6.2	088-SB-158	EA5	9/9/2015	-6.3	Stratum D Reached
685291.6	603615.5	-2.6	088-SB-177	EA2/3	11/23/2015	-1.7	Stratum D Reached
685359.5	603616.1	3.9	088-SB-179[2]	EA2/3	11/23/2015	1.7	Target Elevation Reached
685302.9	603632.4	-4.9	088-SB-C19	EA2/3	11/23/2015	-1.5	Stratum D Reached
685329.2	603629.5	2.0	088-SB-106	EA2/3	11/23/2015	-1.8	Stratum D Reached
685271.5	603641.2	-1.9	088-SB-175	EA2/3	12/3/2015	-1.4	Stratum D Reached
685301.3	603684.1	-2.0	088-SB-108	EA2/3	12/3/2015	-1.4	Stratum D Reached
685341.4	603647.7	-1.0	088-SB-134	EA2/3	12/3/2015	-1.9	Stratum D Reached
685250.2	603664.4	-2.3	088-SB-174	EA2/3	12/8/2015	-1.7	Stratum D Reached
685285.8	603689.8	-4.2	088-SB-189	EA2/3	12/8/2015	-1.6	Stratum D Reached
685316.8	603704.9	2.0	088-SB-420[2]	EA2/3	12/8/2015	-1.5	Stratum D Reached
686418.4	602378.4	2.7	087-SB-646	EA8	12/9/2015	1.1	Target Elevation Reached
686465.8	602361.7	4.5	087-SB-640	EA8	10/21/2015	2.2	Target Elevation Reached
686457.4	602359.1	1.6	087-SB-643	EA8	10/21/2015	1.6	Target Elevation Reached
686444.8	602379.1	3.9	087-SB-511	EA8	10/21/2015	3.3	Target Elevation Reached
686492.9	602411.9	6.5	087-SB-638	EA8	10/21/2015	3.3	Target Elevation Reached
686473.9	602384.0	2.0	087-SB-642	EA8	10/21/2015	1.8	Target Elevation Reached
686460.5	602386.2	2.0	087-SB-509	EA8	10/21/2015	1.4	Target Elevation Reached
686468.7	602395.1	3.7	087-SB-144	EA8	10/21/2015	1.6	Target Elevation Reached
686478.6	602406.8	3.8	087-SB-148	EA8	10/21/2015	1.6	Target Elevation Reached
686396.4	602358.6	7.5	087-SB-W25	EA8	10/21/2015	6.9	Target Elevation Reached
686427.6	602332.7	7.4	087-SB-102	EA8	6/26/2015	6.7	Target Elevation Reached

686443.9	602351.8	2.7	087-SB-644	EA8	12/9/2015	1.6	Target Elevation Reached
685488.8	603862.2	-1.7	087-SB-125	EA2/3	12/10/2015	-1.7	Stratum D Reached
685528.7	603877.3	-0.8	087-SB-127[2]	EA2/3	12/10/2015	-1.4	Stratum D Reached
685518.5	603849.4	-0.4	087-SB-128[2]	EA2/3	12/10/2015	-1.1	Stratum D Reached
685507.5	603867.4	-4.5	087-SB-A22	EA2/3	12/10/2015	-1.3	Stratum D Reached
685434.5	603843.6	-1.2	088-SB-162	EA2/3	12/17/2015	-1.4	Stratum D Reached
685245.4	603715.8	-4.1	088-SB-166	EA2/3	12/17/2015	-0.6	Stratum D Reached
685230.4	603688.7	-3.5	088-SB-173	EA2/3	12/17/2015	-1.6	Stratum D Reached
685262.8	603736.1	-0.1	088-SB-110	EA2/3	12/17/2015	-1.9	Stratum D Reached
685459.1	603857.6	-1.4	088-SB-117	EA2/3	12/17/2015	-1.2	Stratum D Reached
685459.4	603824.1	-1.2	088-SB-118	EA2/3	12/17/2015	-0.9	Stratum D Reached
685488.5	603833.2	-0.5	088-SB-161	EA2/3	12/17/2015	-0.7	Stratum D Reached
685497.0	603784.2	5.8	087-SB-603	EA2/3	12/17/2015	1.4	Target Elevation Reached
685472.5	603810.7	2.6	087-SB-584	EA2/3	12/17/2015	1.3	Target Elevation Reached
685292.2	603744.5	-1.5	088-SB-167[2]	EA2/3	12/22/2015	-0.6	Stratum D Reached
685200.1	603727.7	-8.1	088-SB-004	EA2/3	12/22/2015	-2.6	Stratum D Reached
685267.3	603764.3	0.1	088-SB-131	EA2/3	12/28/2015	-0.5	Stratum D Reached
685291.5	603775.8	-1.3	088-SB-164	EA2/3	12/30/2015	-0.9	Stratum D Reached
685330.7	603765.7	-0.2	088-SB-111[2]	EA2/3	12/30/2015	-0.6	Stratum D Reached
685354.3	603756.4	4.1	088-SB-422[2]	EA2/3	12/30/2015	3.0	Target Elevation Reached
685406.1	603785.8	3.6	088-SB-170	EA2/3	1/5/2016	3.5	Target Elevation Reached
685386.9	603759.9	4.4	088-SB-169[2]	EA2/3	1/5/2016	3.4	Target Elevation Reached
685362.9	603780.5	3.7	088-SB-113	EA2/3	1/5/2016	-0.6	Stratum D Reached
685449.2	603797.2	-0.6	088-SB-172	EA2/3	1/6/2016	-1.2	Stratum D Reached
685415.9	603805.7	-1.2	088-SB-115	EA2/3	1/6/2016	-0.2	Stratum D Reached
685445.5	603757.3	8.9	088-SB-425	EA2/3	1/6/2016	5.4	Target Elevation Reached
685465.0	603767.1	5.8	087-SB-604	EA2/3	1/6/2016	1.1	Target Elevation Reached
685432.1	603787.8	4.3	088-SB-423[2]	EA2/3	1/6/2016	-0.7	Stratum D Reached
685864.7	604018.0	5.8	087-SB-030	EA1	2/26/2016	5.4	Target Elevation Reached
685783.3	604016.3	8.0	087-SB-129	EA1	2/23/2016	5.7	Target Elevation Reached
685819.4	603991.1	9.1	087-SB-131[4]	EA1	2/23/2016	5.3	Target Elevation Reached
685849.3	604024.9	8.0	087-SB-132	EA1	2/26/2016	5.3	Target Elevation Reached
685866.4	603991.0	8.6	087-SB-133[4]	EA1	2/26/2016	5.1	Target Elevation Reached
685872.4	604017.6	9.2	087-SB-143[4]	EA1	2/26/2016	5.5	Target Elevation Reached
685804.7	603983.5	8.3	087-SB-153[4]	EA1	2/23/2016	5.8	Target Elevation Reached
685842.3	604022.2	8.5	087-SB-520	EA1	2/26/2016	5.4	Target Elevation Reached
685768.3	603998.9	6.3	087-SB-522[4]	EA1	2/19/2016	5.3	Target Elevation Reached
685754.1	603998.1	6.2	087-SB-523	EA1	2/19/2016	5.7	Target Elevation Reached
685809.6	604023.4	6.9	087-SB-A26	EA1	2/23/2016	6.5	Target Elevation Reached
685785.5	603988.4	7.0	087-SB-521[4]	EA1	2/19/2016	5.2	Target Elevation Reached

1 This is the actual elevation of the PDI Bottom sample included in the 100% design.

SA-6 North Excavation: Sidewall Confirmatory Points (Table 2.0)							
Sidewall Target Coordinates					As-built Elevations		
Northing	Easting	Elevation 1	Sample ID	Excavation Area	Date Obtained	Elevation	Comments
686220.7	602206.9	8.2	087-SB-043A	EA7	6/26/2015	3.4	Target Elevation Reached
686264.1	602213.4	8.5	087-SB-106	EA7	6/26/2015	3.3	Target Elevation Reached
686195.0	602176.6	8.3	087-SB-108	EA7	6/26/2015	3.2	Target Elevation Reached
686242.4	602211.8	8.4	087-SB-514	EA7	6/26/2015	3.4	Target Elevation Reached
686249.6	602181.1	8.8	087-SB-515	EA7	6/26/2015	3.3	Target Elevation Reached
686222.5	602171.4	8.6	087-SB-516	EA7	6/26/2015	3.4	Target Elevation Reached
685520.2	603679.3	6.4	087-SB-134	EA4	8/26/2015	5.3	Target Elevation Reached
685511.7	603623.9	8.5	088-SB-125	EA4	8/26/2015	2.8	Target Elevation Reached
685477.1	603650.1	10.3	088-SB-126	EA4	8/26/2015	3.0	Target Elevation Reached
685497.9	603664.5	8.3	088-SB-185	EA4	8/26/2015	2.8	Target Elevation Reached
685528.9	603653.4	7.6	088-SB-193	EA4	8/26/2015	5.2	Target Elevation Reached
685495.6	603636.2	8.3	088-SB-424	EA4	8/26/2015	2.7	Target Elevation Reached
685455.3	603421.3	-1.0	088-SB-152	EA5	8/31/2015	-4.6	Stratum D Reached
685486.7	603382.3	-2.0	088-SB-155	EA5	9/3/2015	-5.2	Stratum D Reached
685547.1	603302.2	-3.6	088-SB-159	EA5	9/10/2015	-5.6	Stratum D Reached
685566.5	603273.1	-4.1	088-SB-160	EA5	9/10/2015	-5.6	Stratum D Reached
685538.8	603332.8	-4.3	088-SB-182	EA5	9/9/2015	-5.9	Stratum D Reached
685513.9	603364.3	-4.8	088-SB-183	EA5	9/3/2015	-4.8	Stratum D Reached
685481.8	603405.4	-4.4	088-SB-184	EA5	8/31/2015	-4.8	Stratum D Reached
685333.3	603596.6	3.5	088-SB-105	EA2/3	11/18/2015	1.7	Target Elevation Reached
685350.3	603567.5	2.9	088-SB-132	EA2/3	11/18/2015	1.8	Target Elevation Reached
685348.1	603535.9	1.9	088-SB-190[3]	EA2/3	11/18/2015	1.9	Target Elevation Reached
685379.9	603632.8	6.5	088-SB-120	EA2/3	11/23/2015	1.3	Target Elevation Reached
685359.5	603616.1	7.9	088-SB-179[2]	EA2/3	11/23/2015	1.7	Target Elevation Reached
685333.5	603689.5	3.6	088-SB-129	EA2/3	12/3/2015	-1.3	Stratum D Reached
685379.3	603662.1	5.4	088-SB-180	EA2/3	12/3/2015	1.4	Target Elevation Reached
685355.1	603681.3	3.9	088-SB-181	EA2/3	12/3/2015	1.7	Target Elevation Reached
685316.8	603704.9	3.5	088-SB-420[2]	EA2/3	12/8/2015	-1.5	Stratum D Reached
686463.4	602423.6	6.3	087-SB-150	EA8	10/21/2015	3.4	Target Elevation Reached
686417.1	602325.5	7.5	087-SB-641	EA8	10/21/2015	6.7	Target Elevation Reached
686436.4	602412.0	3.9	087-SB-145	EA8	10/21/2015	3.3	Target Elevation Reached
686505.3	602412.1	7.5	087-SB-633	EA8	10/21/2015	6.9	Target Elevation Reached
686389.4	602327.8	8.4	087-SB-103	EA8	6/26/2015	7.0	Target Elevation Reached
686488.3	602424.8	8.5	087-SB-149	EA8	6/26/2015	6.5	Target Elevation Reached
686415.9	602393.1	8.5	087-SB-512	EA8	6/26/2015	6.6	Target Elevation Reached
686390.7	602366.9	7.9	087-SB-W25A	EA8	6/26/2015	6.7	Target Elevation Reached
685528.7	603877.3	4.7	087-SB-127[2]	EA2/3	12/10/2015	-1.4	Stratum D Reached

685518.5	603849.4	3.1	087-SB-128[2]	EA2/3	12/10/2015	-1.1	Stratum D Reached
685494.1	603822.7	8.4	088-SB-187	EA2/3	12/17/2015	-0.8	Stratum D Reached
685511.9	603791.7	8.3	087-SB-605	EA2/3	12/17/2015	1.4	Target Elevation Reached
685494.8	603764.3	9.3	087-SB-606	EA2/3	12/17/2015	1.3	Target Elevation Reached
685472.6	603750.7	8.2	087-SB-607	EA2/3	12/17/2015	5.1	Target Elevation Reached
685300.2	603720.8	3.0	088-SB-145	EA2/3	12/22/2015	-1.1	Stratum D Reached
685292.2	603744.5	1.0	088-SB-167[2]	EA2/3	12/22/2015	-0.6	Stratum D Reached
685330.7	603765.7	3.8	088-SB-111[2]	EA2/3	12/30/2015	-0.6	Stratum D Reached
685354.3	603756.4	8.6	088-SB-422[2]	EA2/3	12/30/2015	3.0	Target Elevation Reached
685312.4	603754.6	4.6	088-SB-421	EA2/3	12/30/2015	-0.9	Stratum D Reached
685376.0	603748.3	8.7	088-SB-146	EA2/3	1/5/2016	3.5	Target Elevation Reached
685386.9	603759.9	8.4	088-SB-169[2]	EA2/3	1/5/2016	3.4	Target Elevation Reached
685411.9	603776.3	7.9	088-SB-188	EA2/3	1/5/2016	3.5	Target Elevation Reached
685441.6	603749.6	8.0	088-SB-426	EA2/3	1/6/2016	5.3	Target Elevation Reached
685432.1	603787.8	6.3	088-SB-423[2]	EA2/3	1/6/2016	-0.7	Stratum D Reached
685819.4	603991.1	10.1	087-SB-131[4]	EA1	2/23/2016	5.3	Target Elevation Reached
685866.4	603991.0	10.1	087-SB-133[4]	EA1	2/26/2016	5.1	Target Elevation Reached
685872.4	604017.6	11.2	087-SB-143[4]	EA1	2/26/2016	5.5	Target Elevation Reached
685804.7	603983.5	10.3	087-SB-153[4]	EA1	2/23/2016	5.8	Target Elevation Reached
685768.3	603998.9	8.8	087-SB-522[4]	EA1	2/19/2016	5.3	Target Elevation Reached
685754.1	603998.1	7.7	087-SB-166	EA1	2/19/2016	5.7	Target Elevation Reached
685785.5	603988.4	8.5	087-SB-521[4]	EA1	2/19/2016	5.2	Target Elevation Reached
685875.2	604054.3	10.5	087-SB-542	EA1	2/25/2016	7.2	Target Elevation Reached
685847.2	603969.7	10.4	087-SB-585	EA1	2/25/2016	7.3	Target Elevation Reached

1 This is the actual elevation of the PDI Bottom sample included in the 100% design.

2 The IFC 100% Design for EA 2&3 included 9 perimeter borings that delineated both horizontal and vertical excavation limits. Sidewall and bottom confirmatory samples at these locations were collected from two separate elevation intervals. All sample results in these borings were <20ppm Hex Cr. The locations are color coded on the Excavation Bottom figure in green as Bottom Samples.

3 088-SB-190 was located in the earthen basement of the JCIA incinerator building in close proximity to the JCIA Pit. The boring log indicates that the materials appeared to be clean backfill. The western portion of the EA-2 excavation was observed to be a visibly clean imported sand backfill consistent with what was observed in the boring. Boring 088-SB-190 included <20 sample results below the design bottom elevation. A supplemental sample was taken post excavation to verify that the excavation was terminated in <20 PPM material. The result was <1 mg/Kg.

4 The IFC 100% Design for EA 1 included 6 perimeter borings that delineated both horizontal and vertical excavation limits. Sidewall and bottom confirmatory samples at these locations were collected from two separate elevation intervals. All sample results in these borings were <20ppm Hex Cr. The locations are color coded on the Excavation Bottom figure in green as Bottom Samples.

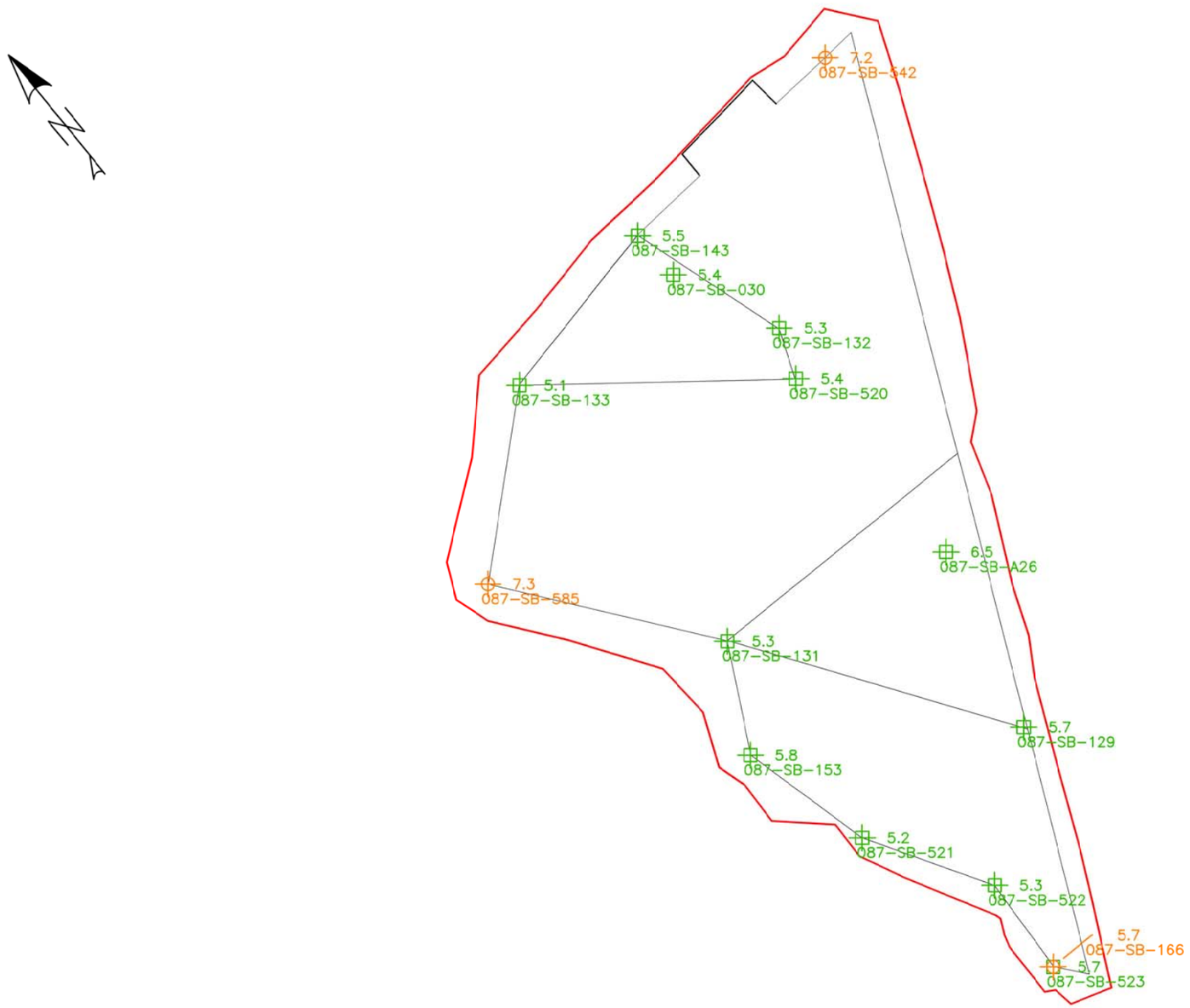
Maser Consulting P.A. certifies that the elevations, with their corresponding date obtained, of the Confirmatory Points depicted in Table 1, Sidewall Confirmatory Sidewall Points in Table 2 and Bottom of Excavation topographic spot elevations are correct, and representative of the as-built post-excavation grades throughout the corresponding excavation areas.

R. Thomas Hugg 3/16/16

R. THOMAS HUGG

NEW JERSEY PROFESSIONAL LAND SURVEYOR

LICENSE NO. 36737



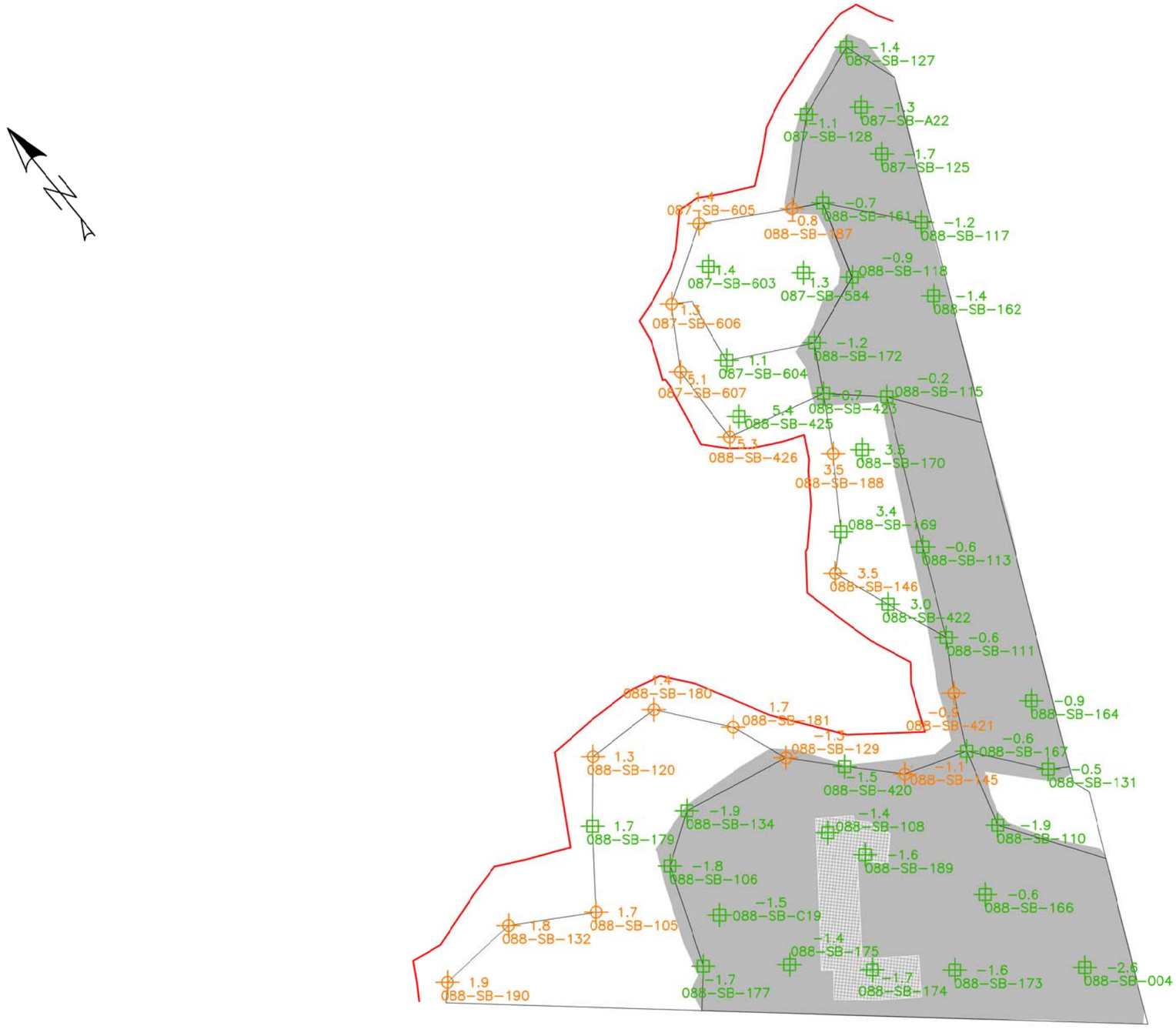
LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- EXCAVATION TO STRATUM D
- LIMIT OF GCL INSTALLATION
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA1
03-15-16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ



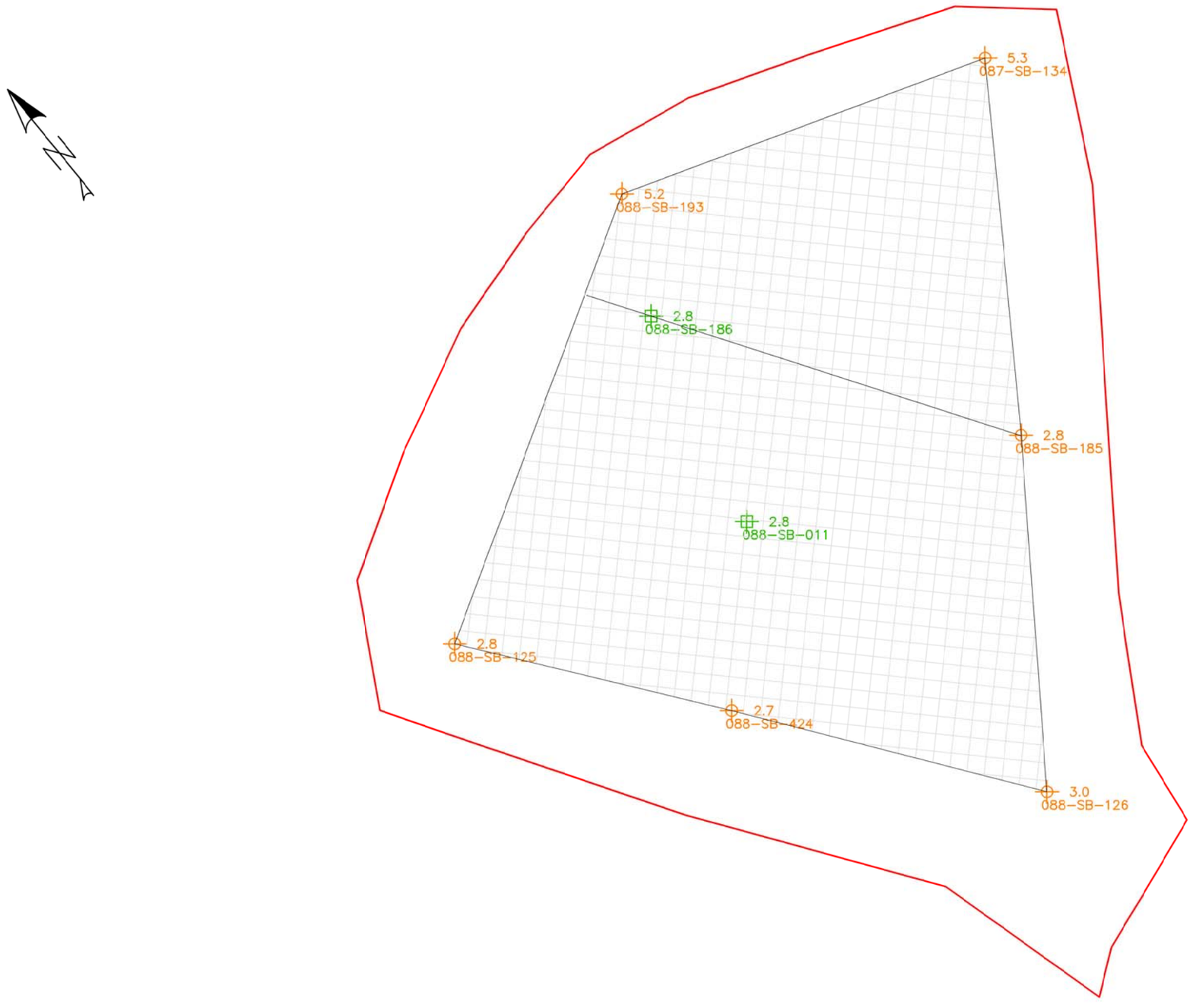
LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- EXCAVATION TO STRATUM D
- LIMIT OF GCL INSTALLATION
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA2/3
03-03-16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ



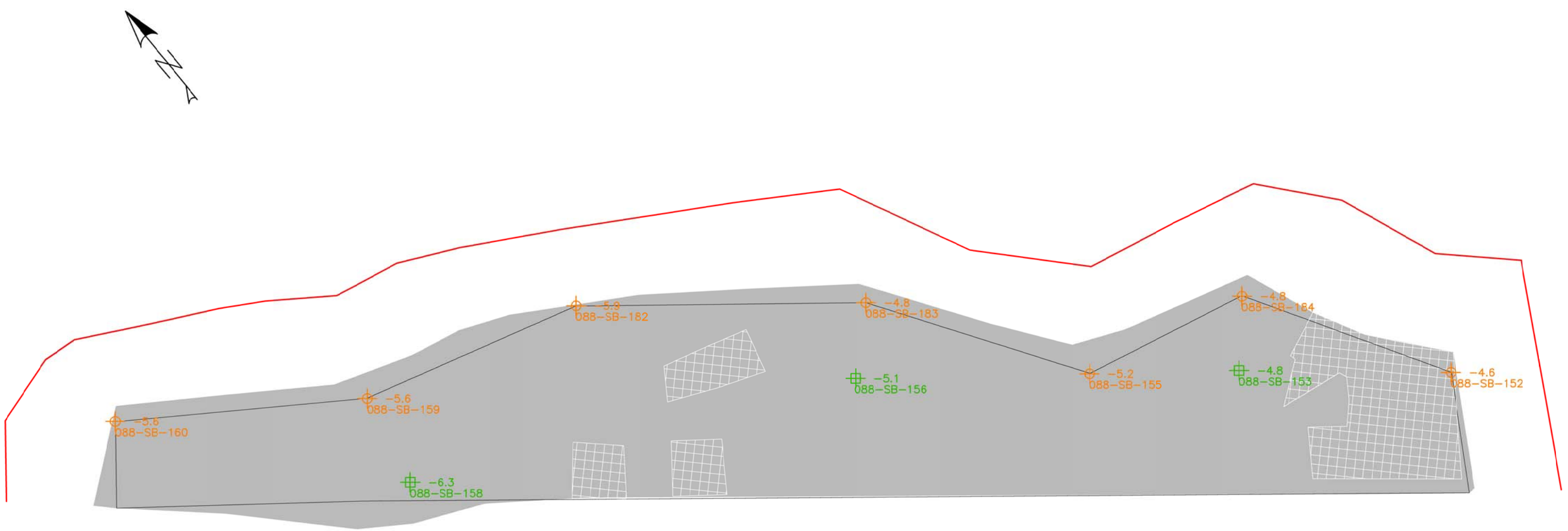
LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- CURRENT EXCAVATION TO STRATUM D
- CURRENT EXCAVATION TO <20 PPM
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA4
08-26-15

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ



LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- CURRENT EXCAVATION TO STRATUM D
- LIMIT OF GCL INSTALLATION
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA5
09-24-15

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- CURRENT EXCAVATION TO STRATUM D
- CURRENT EXCAVATION TO <20 PPM
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA7
06-30-15

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

LEGEND

- CONFIRMATORY BOTTOM SAMPLE ELEVATION
- CONFIRMATORY SIDEWALL SAMPLE ELEVATION
- 0.0 POINT ELEVATION
- POINT POINT DESCRIPTION
- PREVIOUSLY SUBMITTED DATA
- CURRENT EXCAVATION TO STRATUM D
- LIMIT OF GCL INSTALLATION
- LIMIT OF EXCAVATION AREA
- TOP OF EXCAVATION SLOPE

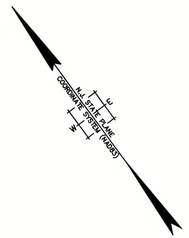
ENTACT 302 Unity Plaza Latrobe, PA 15650

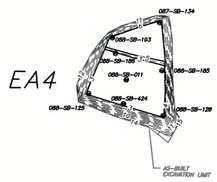
DRAWING NAME
EXCAVATION BOTTOM ELEVATIONS EA8
12-17-15

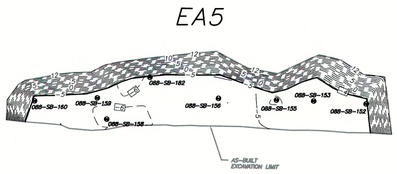
PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

HACKENSACK RIVER

ROUTE 440







LEGEND:

- —5— MAJOR CONTOUR
- —4— MINOR CONTOUR
- —3— POSITIVE ELEVATION
- -2- NEGATIVE ELEVATION

0 20 40 80
SCALE IN FEET

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW POST-EXCAVATION ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. POST-EXCAVATION LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 6/26/15 THROUGH 3/9/16.
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

NO.	DATE	GENERAL REVISIONS	BY	APVD
1	12/28/16	REVISION	BSB	RTH
DSGN		DR / CHK	BSB	RTH
		GE		

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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
EXCAVATION PLAN FOR EXCAVATION
AREAS 1, 2/3, 4 AND 5

FILE NUMBER
12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

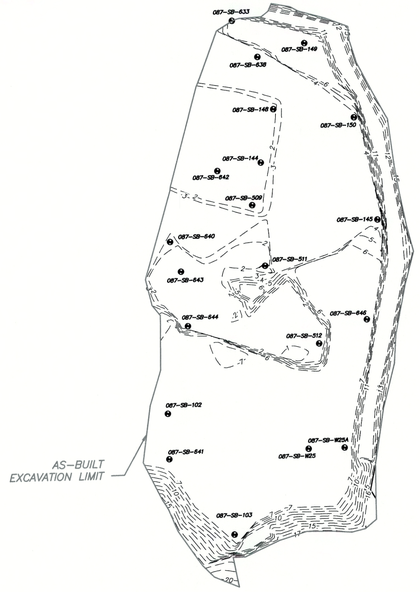
amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 689 - 2829

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

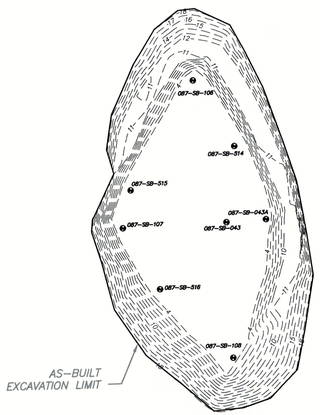
DATE	8/19/16
PROJ	3480-10-0027
DWG	C-111
SHEET	1 OF 2

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SA6N-EXCV-EA1-5.dwg PLOT DATE: Thu, 29 Dec 2016 PLOT TIME: 12:32 PM

HACKENSACK RIVER

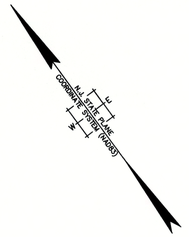


EA8



EA7

ROUTE 440



LEGEND:

- —5— MAJOR CONTOUR
- —4— MINOR CONTOUR
- —3— POSITIVE ELEVATION
- —2— NEGATIVE ELEVATION

0 15 20 40
SCALE IN FEET

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW POST-EXCAVATION ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. POST-EXCAVATION LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 6/26/15 THROUGH 3/9/16.
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

NO.	DATE	GENERAL REVISIONS	BY	APVD
1	12/28/16	REVISION	BSB	RTH
DSGN		DR / CHK	APVD	
	GE	BSB		RTH

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL

EXCAVATION PLAN FOR EXCAVATION AREAS 7 AND 8

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 689 - 2829

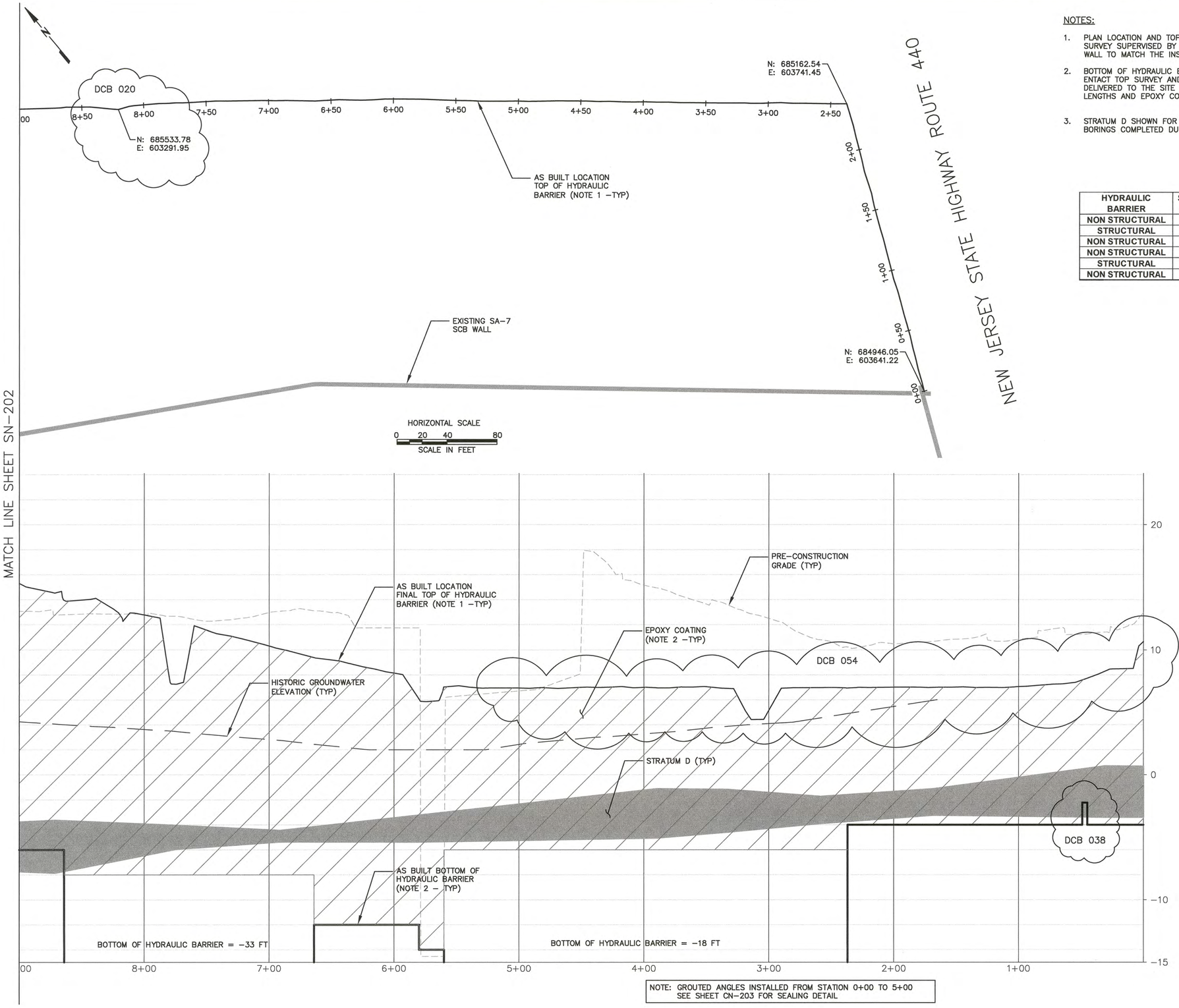
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	8/19/16
PROJ	3480-10-0027
DWG	C-112
SHEET	2 OF 2

FILE NUMBER 12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
ENGINEERS - PLANNERS - SURVEYORS - LANDSCAPE ARCHITECTS - ENVIRONMENTAL SCIENTISTS
MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SA6N-EXCV-EA7-8.dwg PLOT DATE: Thu, 29 Dec 2016 PLOT TIME: 12:32 PM



NOTE: GROUTED ANGLES INSTALLED FROM STATION 0+00 TO 5+00
SEE SHEET CN–203 FOR SEALING DETAIL

NOTES:

1. PLAN LOCATION AND TOP ELEVATION OF HYDRAULIC BARRIER BASED ON SURVEY SUPERVISED BY MASER CONSULTING AND UPON CUTTING OF THE WALL TO MATCH THE INSTALLED LINER GRADE.
2. BOTTOM OF HYDRAULIC BARRIER AND EXTENT OF EPOXY COATING BASED ON ENTACT TOP SURVEY AND SHEET PILE FABRICATION DRAWINGS. ALL SHEETS DELIVERED TO THE SITE WERE INSPECTED BY AMEC PERSONNEL TO VERIFY LENGTHS AND EPOXY COATING.
3. STRATUM D SHOWN FOR REFERENCE ONLY AND IS BASED ON GEOTECHNICAL BORINGS COMPLETED DURING THE PRELIMINARY DESIGN INVESTIGATION.

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
NON STRUCTURAL	0+00	2+37	-4	AZ 19-700
STRUCTURAL	2+37	5+60	-18	AZ 19-700
NON STRUCTURAL	5+60	5+80	-14	AZ 19-700
NON STRUCTURAL	5+80	6+64	-12	AZ 19-700
STRUCTURAL	6+64	8+64	-33	AZ 38-700N
NON STRUCTURAL	8+64	9+85	-6	AZ 19-700

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER 43507

NO.	DATE	REVISION	BY	APVD
2	12/8/16	DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	SGS
1	8/25/16	DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS

DSGN TDD | DR RJR | CHK TDD | APVD SGS

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Cert of Authorization 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-201
SHEET	54 OF 70

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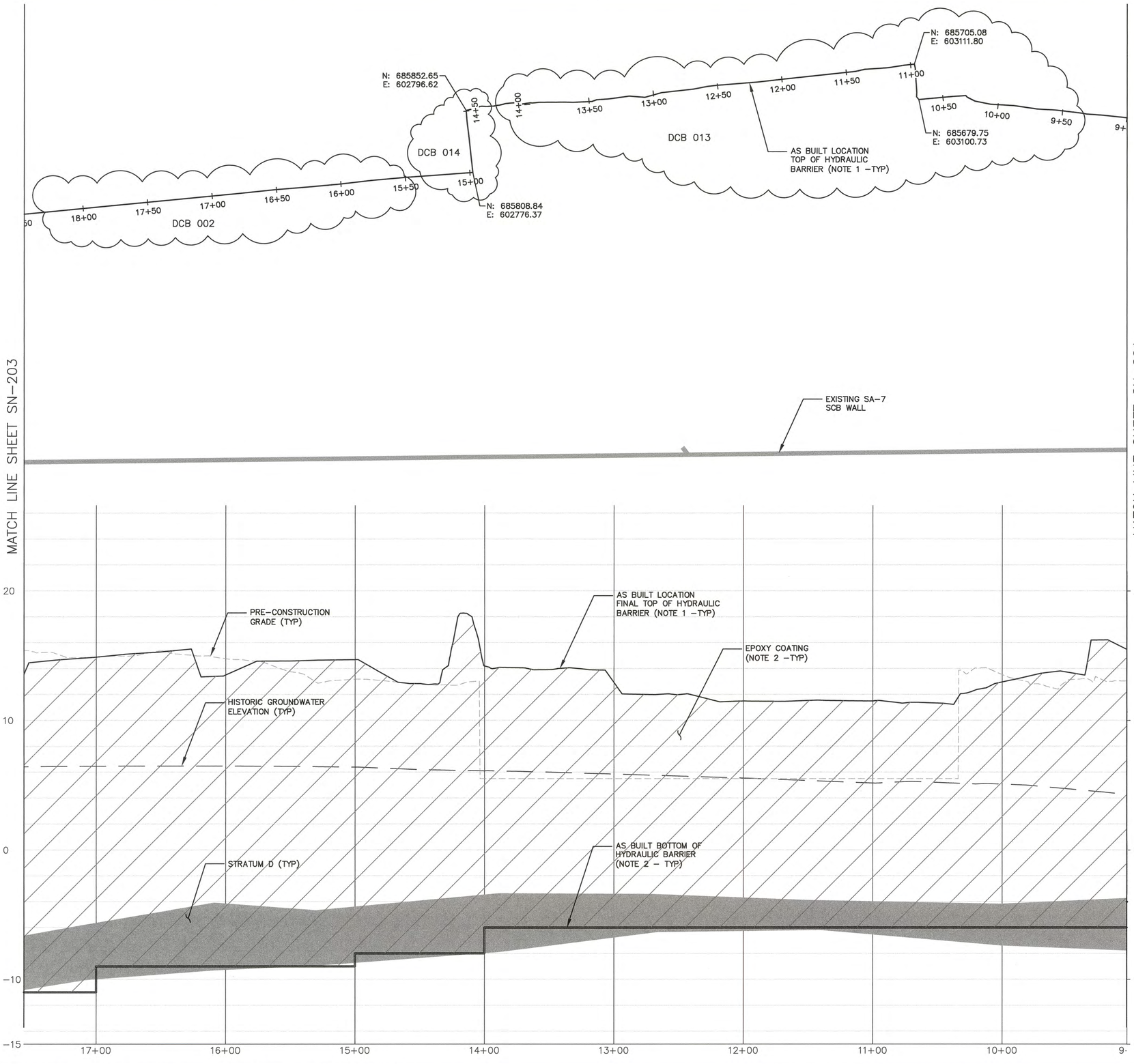
FILE NAME: C:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North VHB\SA-6 North VHB As Built.dwg PLOT DATE: Wed, 28 Dec 2016 PLOT TIME: 9:36 AM



NOTES:

1. REFER TO NOTES 1 THRU 3 ON SHEET SN–201

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
NON STRUCTURAL	8+64	9+85	-6	AZ 19-700
NON STRUCTURAL	9+85	14+00	-6	AZ 19-700
STRUCTURAL	14+00	19+00	SEE NOTE 4	AZ 19-700

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
LICENSE NUMBER 43507
NJ PROFESSIONAL ENGINEER

NO.	DATE	DSGN	DR	CHK	APVD
2	12/8/16	DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	RJR	TDD
1	8/25/16	DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS	SGS
NO.	DATE	REVISION	BY	APVD	SGS

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 888 - 2629
NJ Cert of Authorization 24GA28019000

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-202
SHEET	55 OF 70

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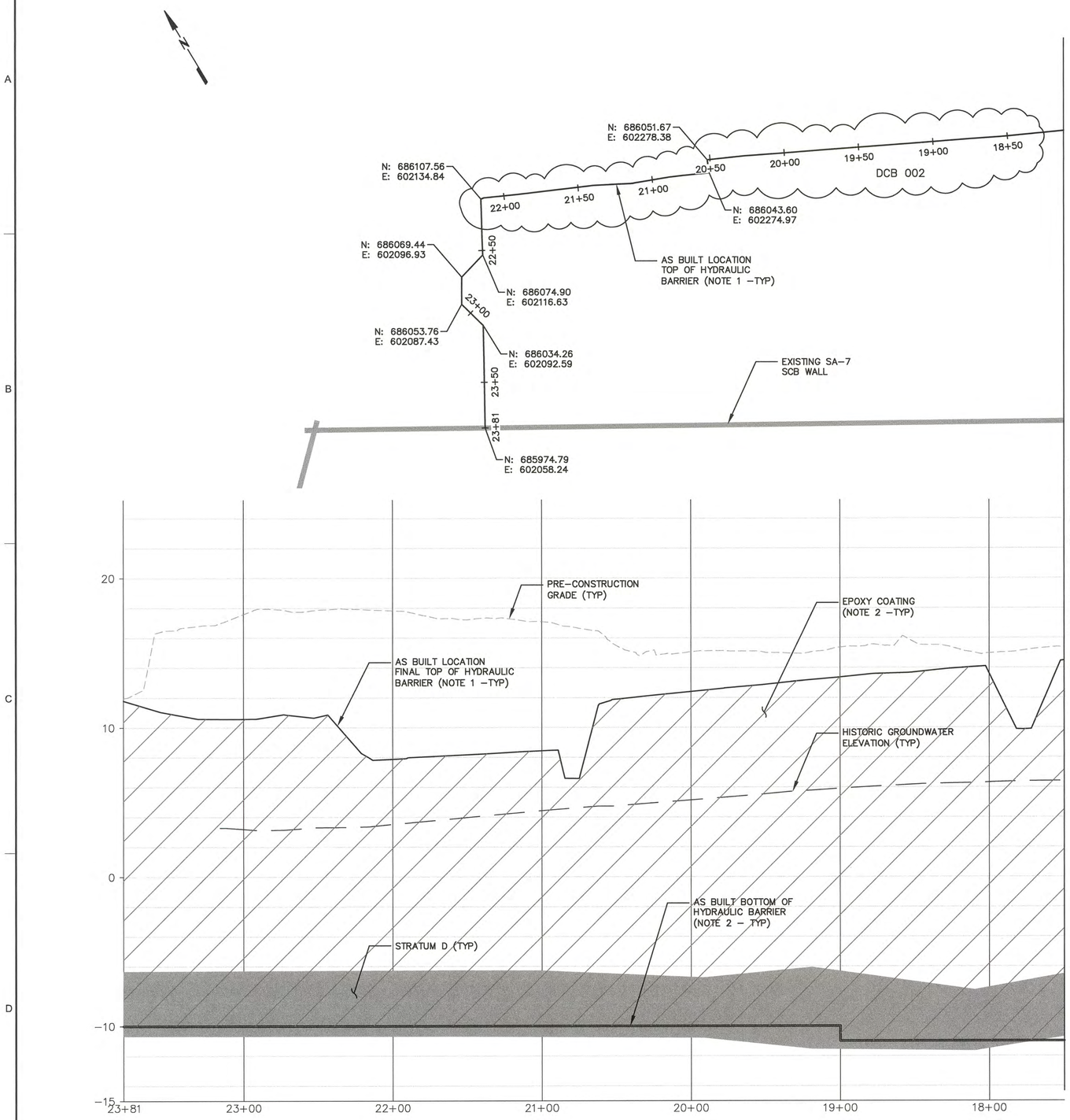
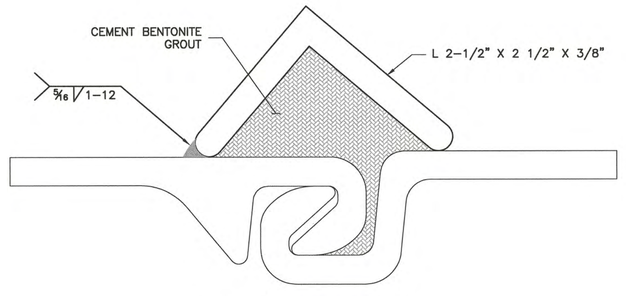


NOTES:

1. REFER TO NOTES 1 THRU 3 ON SHEET SN–201.

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
STRUCTURAL	14+00	19+00	SEE NOTE 4	AZ 19-700
NON STRUCTURAL	19+00	23+38	-10	AZ 19-700



SEE NOTE HB19 ON SHEET GN–003

SHEET SEALING DETAIL F
NTS SN–201 CN–301

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER 43507

NO.	DATE	DSGN	DR	CHK	APVD
2	12/8/16	TDD	RJR	TDD	SGS
1	8/25/16		REVISION		
			DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	SGS
			DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS
				BY	APVD

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

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NJ Cert of Authorization 24GA28010600

VERIFY SCALE
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0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-203
SHEET	56 OF 70

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MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 08022

FILE NUMBER 12001511A

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP FINAL GRADING PLAN

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2629

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	12/22/16
PROJ	3480-10-0027
DWG	CN-125
SHEET	1 OF 2

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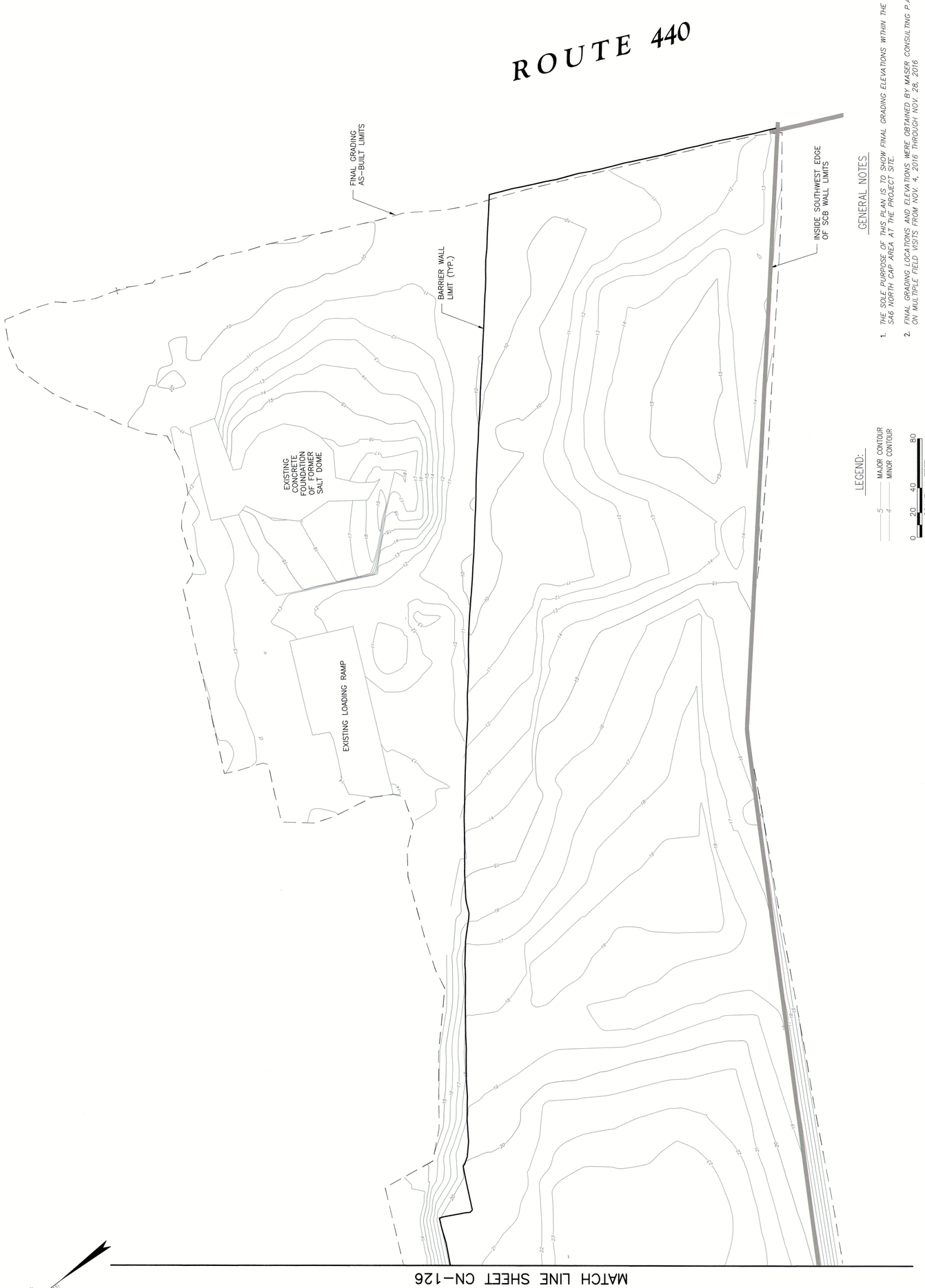
STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

NO.	DATE	REVISION	DMS	RTH
0.	1/24/17	SA-6 NORTH FINAL GRADING		

DSGN	DR	CHK	APVD

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS37137



GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW FINAL GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.
2. FINAL GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM NOV. 4, 2016 THROUGH NOV. 28, 2016
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

LEGEND:
5 MAJOR CONTOUR
4 MINOR CONTOUR

0 20 40 80
SCALE IN FEET

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\NORTH CAP TOPSOIL GRADING PLAN-12-22-16.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 12:47 PM

LEGEND:

5 MAJOR CONTOUR

4 MINOR CONTOUR

0 20 40 80

SCALE IN FEET

GENERAL NOTES

1. *THE SOLE PURPOSE OF THIS PLAN IS TO SHOW FINAL GRADING ELEVATIONS WITHIN THE SA6 NORTH CAP AREA AT THE PROJECT SITE.*
2. *FINAL GRADING LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. ON MULTIPLE FIELD VISITS FROM NOV. 4, 2016 THROUGH NOV. 28, 2016*
3. *HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.*

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MARMORA OFFICE - 156 STAGECOACH ROAD - MARMORA, NJ 080223

FILE NUMBER 12001511A

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
NORTH CAP FINAL GRADING PLAN

amec foster wheeler
Environment & Infrastructure, Inc.
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Hamilton, NJ 08619
(609) 689 - 2829

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	12/22/16
PROJ	3480-10-0027
DWG	CN-126
SHEET	2 OF 2

Honeywell
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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

NO.	DATE	REVISION	CHK	APVD
0.	1/24/17	SA-6 NORTH FINAL GRADING	DMS	RTH
DSGN		DR	BY	APVD

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER ... GS36737

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FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\NORTH CAP TOPSOIL GRADING PLAN-12-22-16.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 12:46 PM

HACKENSACK RIVER

ROUTE 440

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW FINAL GRADE ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. FINAL GRADE LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 8/21/15 THROUGH 4/28/16.
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

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FILE NUMBER 12001511A

NO.	DATE	REVISION	BY	APVD
0	01/26/17	SA-6 NORTH FINAL GRADING	BSB	RTH

DSGN GE | DR | CHK BSB | RTH

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL

FINAL GRADING PLAN
FOR EXCAVATION
AREAS 1, 2/3, 4 AND 5

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Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 587-3259

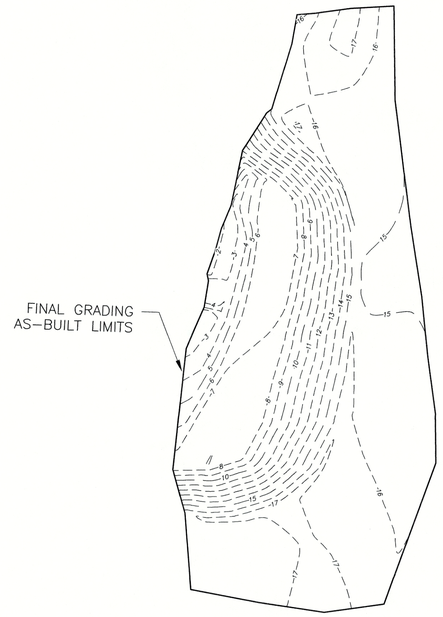
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	8/23/16
PROJ	3480-10-0027
DWG	CN-114A
SHEET	1 OF 2

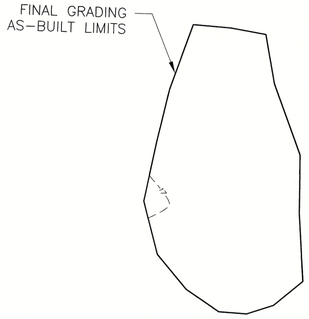
FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SA6N-BACK-FILL EA1-EA5.dwg PLOT DATE: Tue, 31 Jan 2017 PLOT TIME: 1:02 PM

HACKENSACK RIVER

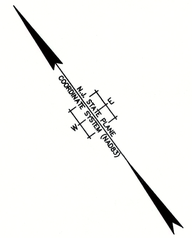
ROUTE 440



EA8



EA7



LEGEND:

- —5— MAJOR CONTOUR
- —4— MINOR CONTOUR
- —3— POSITIVE ELEVATION
- —2— NEGATIVE ELEVATION

0 15 30 60
SCALE IN FEET

GENERAL NOTES

1. THE SOLE PURPOSE OF THIS PLAN IS TO SHOW FINAL GRADE ELEVATIONS WITHIN THE SA6 NORTH EXCAVATION AREAS AT THE PROJECT SITE.
2. FINAL GRADE LOCATIONS AND ELEVATIONS WERE OBTAINED BY MASER CONSULTING P.A. AND ENTACT ON MULTIPLE FIELD VISITS FROM 8/21/15 THROUGH 4/28/16.
3. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NGVD29.

NO.	DATE	REVISION	BY	APVD
0	01/26/17	SA-6 NORTH FINAL GRADING	BSB	RTH

DSGN GE | DR | CHK | APVD BSB | RTH

R. THOMAS HUGG
NJ PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS36737

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STUDY AREA 6 NORTH
CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37394

DRAWING STATUS
AS BUILT DRAWINGS

CIVIL
FINAL GRADING PLAN
FOR EXCAVATION
AREAS 7 AND 8

FILE NUMBER
12001511A

MASER CONSULTING, P.A. PH: 609.390.1927 - FAX: 609.390.0040
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VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	8/23/16
PROJ	3480-10-0027
DWG	CN-115A
SHEET	2 OF 2

FILE NAME: C:\Civil 3D Projects\2012\12001511A\Survey\V-SURV-SA6N-BACK-FILL-EA7-8.dwg PLOT DATE: Thu, 26 Jan 2017 PLOT TIME: 2:57 PM

SURVEY CONTROL GRID POINT
HISTORIC FILL CAP (SEE NOTE 1)

SA–6 NORTH DEVELOPMENT AREA (SEE NOTE 2)

SA–6 NORTH OPEN SPACE CAP AREA

JCIA TRASH PIT

FORMER BUILDING FOOTPRINT (TYP)

HYDRAULIC BARRIER WALL (TYP)

HIGHWAY ROUTE 440

NEW JERSEY STATE HI

NOTES:

1. REFER TO TABLE 1 – STONE COVER THICKNESS SUMMARY FOR SURVEY DOCUMENTATION OF 6 INCH HISTORIC FILL CAP INSTALLATION. TABLE PROVIDES SURVEYED SUBGRADE PRIOR TO DEPLOYMENT OF DEMARCATION LAYER AND FINAL TOP OF STONE ELEVATIONS.

2. HISTORIC FILL CAP OVER REMAINDER OF SA–6 NORTH DEVELOPMENT AREA TO BE INSTALLED BY OTHERS AS PART OF THE NON CHROMIUM REMEDIATION ACTIVITIES.

LEGEND

HISTORIC FILL CAP – AASHTO #57 STONE

EXISTING CONCRETE

VEGETATIVE CAP AREA

0 40 80 160
SCALE IN FEET

Prepared/Date: TDD 2/23/17
Checked/Date: NAW 2/27/17

Honeywell
101 COLUMBIA RD. BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

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NJ Certificate of Authorization Number 24GA28015600

SURVEY CONTROL GRID
HISTORIC FILL STONE CAP
Project 3480-13-0354
FIGURE 1

C:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North RAP\SA-6 North HF Stone Cap Control Grid.dwg Mon, 27 Feb 2017 – 4:21pm tony.donovan

Honeywell SA-6 North
Devlopment Area Historic Fill Cap - JCIA Stone Area
Jersey City, New Jersey

Prepared By: T. Donovan 2/21/17
Checked By:

TABLE 1 - STONE COVER THICKNESS SUMMARY

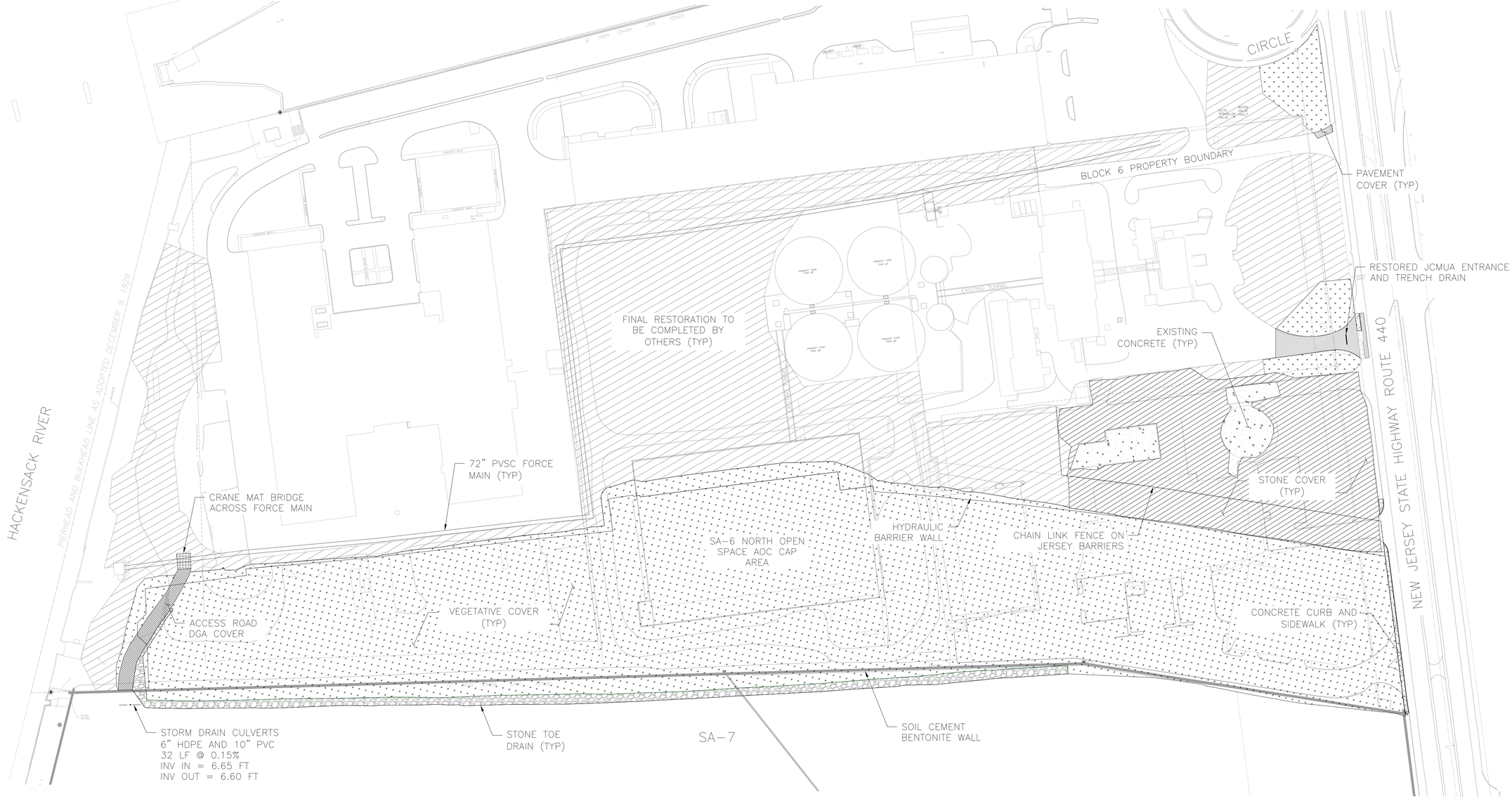
Point	Northing	Easting	Surveyed Subgrade	Surveyd Final Grade	Installed Stone Thickness
1	685523.28	603405.93	13.40	13.93	0.53
2	685513.73	603399.02	13.18	13.79	0.61
3	685496.18	603389.85	12.79	13.32	0.53
4	685481.52	603381.02	12.44	12.96	0.52
5	685474.27	603376.65	12.22	12.78	0.56
6	685460.54	603393.63	11.78	12.33	0.55
7	685472.85	603404.64	12.25	12.76	0.52
8	685487.69	603412.55	12.17	12.74	0.57
9	685474.43	603429.07	12.00	12.73	0.72
10	685458.39	603417.84	11.98	12.52	0.54
11	685446.63	603409.72	11.32	11.84	0.52
12	685433.57	603424.77	10.72	11.35	0.63
13	685448.21	603436.25	12.08	12.63	0.55
14	685463.05	603446.44	11.72	12.66	0.94
15	685475.20	603454.36	11.89	12.55	0.67
16	685462.84	603470.96	11.02	11.69	0.67
17	685447.76	603461.24	11.71	12.28	0.58
18	685433.94	603450.78	11.97	12.53	0.56
19	685419.97	603439.68	10.56	11.08	0.53
20	685408.16	603454.03	10.12	10.66	0.54
21	685423.48	603464.23	11.91	12.45	0.54
22	685439.65	603475.75	11.10	11.64	0.55
23	685451.75	603485.07	10.30	10.83	0.53
24	685439.98	603500.51	10.17	10.74	0.56
25	685425.05	603487.84	11.95	12.50	0.55
26	685410.56	603477.32	12.19	12.72	0.53
27	685397.54	603467.19	9.67	10.36	0.68
28	685384.42	603482.80	9.58	10.13	0.55
29	685399.85	603492.96	12.37	12.89	0.52
30	685416.20	603503.33	12.77	13.29	0.53
31	685375.27	603494.81	9.31	9.87	0.56
32	685362.92	603508.54	8.95	9.81	0.86
33	685349.54	603524.64	9.29	10.07	0.78
34	685336.73	603539.80	9.41	10.19	0.78
35	685327.61	603550.13	9.40	9.92	0.52
36	685281.01	603603.74	9.37	9.97	0.60
37	685297.06	603616.87	9.99	10.86	0.86
38	685310.26	603627.35	12.43	13.39	0.96
39	685307.69	603654.40	13.06	13.61	0.56
40	685289.59	603641.42	10.44	12.02	1.59
41	685276.06	603630.23	9.72	10.23	0.52
42	685264.24	603623.31	9.41	9.93	0.53
43	685251.42	603639.00	9.41	9.97	0.56
44	685269.54	603651.81	10.00	10.67	0.67
45	685282.97	603662.38	11.65	12.21	0.56
46	685295.57	603673.40	12.02	12.60	0.59
47	685281.54	603688.46	11.24	11.76	0.53
48	685265.41	603673.94	10.38	10.92	0.54
49	685250.53	603659.83	9.63	10.18	0.55
50	685239.56	603652.46	9.51	10.07	0.56
51	685226.86	603666.40	9.69	10.28	0.59
52	685243.34	603682.70	9.97	10.56	0.59
53	685257.98	603695.42	10.53	11.07	0.54
54	685269.45	603704.51	10.76	11.30	0.53

Point	Northing	Easting	Surveyed Subgrade	Surveyd Final Grade	Installed Stone Thickness
55	685256.97	603718.61	10.55	11.09	0.53
56	685241.17	603707.77	10.38	10.94	0.56
57	685224.67	603695.14	10.22	10.74	0.52
58	685209.82	603685.37	10.11	10.68	0.57
59	685194.95	603703.46	10.22	10.76	0.55
60	685214.38	603715.59	10.41	10.95	0.54
61	685230.39	603726.61	10.24	10.74	0.50
62	685245.62	603735.46	10.16	10.71	0.55
63	685236.23	603751.65	9.73	10.27	0.53
64	685217.43	603741.69	9.76	10.35	0.59
65	685200.22	603730.88	10.20	10.74	0.54
66	685183.06	603719.28	10.07	10.62	0.55
67	685215.11	603762.34	9.51	10.04	0.53
68	685198.78	603753.76	9.67	10.19	0.53
69	685182.41	603745.26	9.93	10.46	0.53
70	685170.23	603740.01	9.86	10.40	0.54
71	685487.22	603436.76	12.20	13.00	0.80
72	685503.86	603416.27	12.84	13.46	0.63
73	685390.17	603506.35	10.58	11.11	0.54
74	685403.99	603517.82	10.57	11.38	0.82
75	685420.55	603530.44	10.62	11.15	0.53
76	685435.83	603541.23	10.96	11.50	0.54
77	685445.86	603525.47	10.53	11.05	0.53
78	685456.27	603509.54	10.15	10.73	0.58
79	685464.15	603492.32	10.00	10.57	0.56
80	685476.15	603475.42	11.16	11.95	0.79
81	685486.05	603458.89	11.72	12.25	0.54
82	685501.34	603442.04	12.18	12.71	0.54
83	685515.44	603422.88	12.98	13.65	0.67
84	685537.55	603414.23	13.51	14.07	0.55
85	685551.27	603428.10	13.13	13.66	0.52
86	685548.41	603440.18	13.49	14.03	0.54
87	685541.41	603454.32	13.35	13.91	0.57
88	685532.50	603476.98	12.70	13.34	0.64
89	685544.94	603483.88	12.71	13.59	0.88
90	685538.89	603498.74	12.66	13.60	0.94
91	685530.51	603516.92	12.74	13.39	0.66
92	685520.97	603537.61	12.38	13.27	0.89
93	685512.89	603555.37	12.23	13.27	1.04
94	685495.92	603547.56	11.67	12.44	0.76
95	685479.71	603539.89	11.10	11.83	0.73
96	685464.81	603533.26	10.74	11.38	0.64
97	685472.16	603517.09	11.08	11.61	0.54
98	685481.21	603497.24	11.35	11.94	0.60
99	685490.04	603478.09	11.85	12.51	0.66
100	685500.34	603455.60	11.92	12.64	0.72
101	685427.26	603512.07	10.33	10.99	0.66
102	685379.17	603518.49	9.78	10.34	0.56
103	685393.80	603530.86	10.18	10.88	0.70
104	685409.67	603542.63	10.99	11.58	0.60
105	685381.45	603544.08	10.36	11.34	0.98
106	685365.37	603534.17	9.71	10.25	0.54
107	685352.32	603547.96	9.81	10.43	0.63
108	685389.63	603576.42	14.44	15.20	0.77
109	685366.42	603569.28	15.75	16.27	0.52
110	685340.26	603569.27	10.00	10.92	0.93
111	685328.33	603585.65	9.98	11.34	1.36
112	685316.29	603601.04	10.17	11.67	1.50
113	685305.80	603594.64	9.69	10.44	0.75

Point	Northing	Easting	Surveyed Subgrade	Surveyd Final Grade	Installed Stone Thickness
114	685296.15	603585.30	9.59	10.11	0.52
115	685311.07	603568.24	9.65	10.19	0.53
116	685328.51	603567.24	9.61	10.24	0.63
117	685345.79	603583.34	13.54	14.27	0.73
118	685333.45	603600.60	13.43	14.58	1.14
119	685325.77	603626.43	14.91	15.43	0.52
120	685350.68	603598.21	16.53	17.10	0.58
121	685368.10	603581.44	16.64	17.55	0.91
122	685360.58	603611.90	17.22	18.06	0.84
123	685345.88	603628.53	15.60	16.15	0.55
124	685333.37	603644.98	14.14	14.69	0.56
125	685225.73	603771.87	9.55	10.09	0.54
126	685245.80	603780.16	9.48	10.07	0.59
127	685257.19	603762.86	9.46	10.12	0.66
128	685269.18	603745.93	9.68	10.39	0.70
129	685281.52	603729.15	10.50	11.13	0.63
130	685293.33	603712.58	11.00	11.62	0.62
131	685306.67	603697.52	11.76	12.43	0.68
132	685321.33	603680.67	12.75	13.30	0.55
133	685335.92	603661.97	13.65	14.42	0.77
134	685349.41	603644.44	14.73	15.33	0.60
135	685364.16	603623.73	16.79	17.31	0.51
136	685378.92	603614.62	18.62	19.18	0.56
137	685399.77	603592.18	17.89	18.41	0.52
138	685392.67	603606.73	17.60	18.12	0.52
139	685402.01	603613.49	16.49	17.03	0.53
140	685390.10	603622.47	16.99	17.53	0.54
141	685378.98	603636.66	16.21	16.85	0.64
142	685366.30	603654.95	15.01	15.57	0.56
143	685350.79	603674.67	14.05	14.65	0.60
144	685336.85	603693.57	13.41	14.14	0.73
145	685322.26	603713.63	12.60	13.14	0.54
146	685308.59	603731.80	11.28	11.81	0.52
147	685294.62	603748.51	9.81	10.57	0.76
148	685282.83	603766.87	9.34	9.89	0.55
149	685274.40	603783.71	9.06	9.62	0.56
150	685268.12	603790.72	9.42	9.94	0.53
151	685289.85	603800.78	9.35	9.89	0.54
152	685303.57	603776.68	9.19	9.75	0.57
153	685319.57	603756.13	10.34	10.91	0.57
154	685333.72	603737.28	11.95	12.47	0.53
155	685345.08	603719.79	13.05	13.59	0.54
156	685360.35	603698.16	14.23	14.76	0.53
157	685374.32	603676.80	15.12	15.65	0.53
158	685389.93	603655.19	15.62	16.16	0.53
159	685401.91	603636.79	15.63	16.18	0.55
160	685391.44	603671.29	15.47	15.99	0.52
161	685385.41	603693.60	15.28	15.80	0.52
162	685377.78	603707.36	14.43	14.98	0.55
163	685364.28	603727.60	12.72	13.26	0.55
164	685349.70	603747.91	10.91	11.53	0.61
165	685336.19	603767.24	9.87	10.42	0.55
166	685322.07	603786.53	9.07	9.61	0.54
167	685305.98	603809.37	9.65	10.17	0.52
168	685329.67	603820.48	9.47	9.98	0.51
169	685342.02	603796.31	9.07	9.63	0.56
170	685355.84	603775.69	9.72	10.27	0.55
171	685369.79	603755.44	10.37	10.99	0.61
172	685385.02	603732.34	12.49	13.15	0.66

Point	Northing	Easting	Surveyed Subgrade	Surveyd Final Grade	Installed Stone Thickness
173	685397.71	603713.91	14.76	15.30	0.54
174	685408.35	603697.47	15.32	15.86	0.53
175	685397.48	603685.54	15.35	15.88	0.53
176	685428.19	603703.15	15.28	15.79	0.51
177	685417.14	603723.85	14.22	14.75	0.54
178	685404.09	603740.98	11.84	12.38	0.55
179	685391.77	603759.07	10.06	10.93	0.87
180	685379.63	603776.72	9.57	10.13	0.56
181	685367.64	603792.79	9.03	9.68	0.64
182	685357.17	603809.89	8.94	9.45	0.51
183	685345.58	603826.40	9.33	9.86	0.53
184	685366.65	603836.85	9.33	9.86	0.53
185	685379.98	603814.87	9.03	9.59	0.56
186	685391.37	603794.93	9.01	9.74	0.73
187	685407.13	603774.52	9.48	10.41	0.93
188	685423.08	603753.63	10.55	11.15	0.60
189	685434.08	603734.68	12.31	13.00	0.70
190	685445.77	603715.19	14.85	15.39	0.53
191	685463.49	603692.91	15.29	15.82	0.53
192	685457.66	603689.90	15.26	15.78	0.52
193	685445.74	603698.83	15.27	15.83	0.56
194	685449.80	603735.42	10.28	10.86	0.58
195	685469.91	603741.38	10.24	10.77	0.53
196	685453.16	603745.70	9.87	10.66	0.79
197	685439.76	603765.07	9.59	10.31	0.72
198	685426.86	603783.39	9.21	9.92	0.71
199	685413.18	603801.19	8.97	9.89	0.91
200	685400.85	603819.70	8.61	9.55	0.94
201	685392.46	603841.26	8.58	9.41	0.83
202	685406.36	603847.95	8.60	9.35	0.75
203	685418.02	603853.38	8.77	9.45	0.68
204	685427.53	603832.24	9.21	9.87	0.66
205	685438.23	603811.58	9.26	9.97	0.72
206	685449.14	603790.99	9.32	10.09	0.77
207	685460.27	603768.49	9.57	10.32	0.75
208	685428.91	603801.39	9.20	10.01	0.81
209	685417.88	603822.74	9.09	9.67	0.58
210	685497.04	603588.38	12.31	13.18	0.87
211	685477.45	603579.45	11.74	12.65	0.91
212	685459.42	603571.21	11.61	12.36	0.76
213	685440.57	603562.49	11.56	12.45	0.89
214	685423.05	603554.41	11.60	12.53	0.94
215	685404.25	603562.11	12.72	13.53	0.81
216	685449.84	603545.77	10.80	11.38	0.58
217	685471.28	603556.45	11.16	11.67	0.52
218	685491.10	603564.10	11.68	12.25	0.56
219	685506.90	603572.07	11.95	12.76	0.81
220	685523.96	603581.32	12.73	13.26	0.53
221	685534.03	603559.97	12.14	12.99	0.85
222	685542.20	603541.68	12.37	13.14	0.77
223	685548.91	603522.61	12.67	13.34	0.67
224	685558.06	603503.06	12.65	13.20	0.55
225	685566.03	603482.88	12.58	13.14	0.57
226	685573.22	603462.46	12.67	13.18	0.51
227	685581.27	603441.54	12.44	13.09	0.65
228	685587.54	603426.70	12.30	12.84	0.54
229	685572.50	603421.26	12.31	12.86	0.54
230	685565.98	603440.95	12.68	13.48	0.80
231	685557.49	603462.88	12.83	13.42	0.59

Point	Northing	Easting	Surveyed Subgrade	Surveyd Final Grade	Installed Stone Thickness
232	685608.18	603443.66	13.01	13.59	0.58
233	685598.62	603464.93	12.90	13.48	0.58
234	685587.85	603487.26	12.48	13.15	0.67
235	685579.62	603508.01	12.24	12.99	0.75
236	685572.20	603522.38	12.66	13.41	0.76
237	685562.43	603542.98	13.26	13.88	0.62
238	685552.43	603565.49	12.64	13.18	0.54
239	685494.23	603640.21	12.90	13.44	0.54
240	685543.89	603583.80	12.58	13.15	0.58
241	685533.66	603603.95	12.49	13.04	0.56
242	685526.28	603622.07	12.35	13.03	0.68
243	685542.16	603646.27	11.45	12.06	0.60
244	685527.72	603655.76	11.54	12.08	0.54
245	685514.57	603677.21	11.59	12.12	0.53
246	685503.62	603700.80	11.20	11.97	0.78
247	685492.98	603723.16	10.86	11.39	0.54
248	685483.20	603746.84	10.66	11.18	0.52
249	685481.37	603719.29	11.13	11.65	0.52
250	685492.42	603695.95	11.81	12.34	0.53
251	685502.78	603671.70	11.97	12.52	0.54
252	685482.06	603661.74	13.49	14.01	0.53
253	685473.47	603663.87	15.37	15.90	0.54
254	685463.53	603643.83	15.47	16.01	0.54
255	685513.89	603647.90	11.79	12.36	0.57
256	685509.17	603613.94	12.81	13.68	0.87
257	685514.16	603595.86	13.08	13.61	0.54
258	685486.38	603615.52	13.80	14.41	0.61
259	685536.92	603627.15	11.68	12.20	0.52
260	685548.62	603608.36	11.64	12.21	0.57
261	685560.01	603585.43	11.85	12.54	0.68
262	685570.20	603565.58	11.95	12.48	0.53
263	685579.38	603546.97	12.06	12.58	0.52
264	685590.49	603525.08	11.82	12.37	0.55
265	685600.46	603540.04	11.90	12.41	0.52
266	685612.62	603519.30	11.06	11.68	0.62
267	685609.19	603497.93	12.03	12.66	0.63
268	685620.49	603503.16	11.38	11.94	0.57
269	685594.15	603558.21	11.20	11.95	0.75
270	685584.11	603580.26	11.38	12.00	0.62
271	685573.64	603602.92	11.34	12.04	0.70
272	685564.04	603622.10	11.70	12.25	0.55
273	685554.89	603641.58	11.65	12.19	0.55
274	685417.33	603602.10	16.31	16.85	0.54
275	685469.91	603605.18	14.84	15.38	0.54
276	685444.27	603592.66	15.68	16.21	0.53
277	685446.73	603627.16	15.45	15.99	0.54
278	685418.24	603625.60	15.55	16.09	0.54



NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
VEGETATED COVER
PAVEMENT COVER
CONCRETE COVER
DGA COVER
RESTORATION BY OTHERS
STONE TOE DRAIN
SD STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH - SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

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August 8, 2014

Geoff Shallard
AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Re: SA-6 North Surcharge Monitoring
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

Mueser Rutledge Consulting Engineers (MRCE) reviewed the settlement and piezometer monitoring data related to Area 1N provided by AMEC, on July 18th 2014. MRCE's review of the available data is summarized below:

1. AMEC indicated boring sampling performed was to define the compressible layer stratification and the Vibrating Wire Piezometers (VWP) were set at the center of the layers. Center of the layer provide the most conservative pore water pressure reading for the effective stress evaluation. MRCE effective stress calculations were made at the center of the layers.

2. MRCE obtained the 06/16/14 measured fill thickness from the "Settlement Platform – Data Report". MRCE calculated the total stress as of 06/16/14 based on the 06/16/14 fill thickness and the "Historic Pre-Construction Conditions" total stresses provided by AMEC. MRCE calculated the pore water pressures based from 06/16/14 piezometer readings on "Vibrating Wire Piezometer – Data Report" and calculated the 06/16/14 effective stresses, as presented in Table 1.

3. MRCE compared calculated 06/16/14 effective stresses with the effective stresses provided by AMEC for "Final Post-Development Conditions". The defined goal of surcharge program was to achieve an equal or greater effective stress than the "Final Post-Development Conditions" effective stress. Accordingly, MRCE evaluated 06/16/14 percentage completion, shown as "MRCE % Completion (06/16/14)" in Table 1. Table 1 also presents 06/30/14 percent completion evaluation of AMEC, "AMEC % Completion (06/30/14)", for comparison.

4. Two settlement monitoring locations, N_FS-04 and N_HS-04 (highlighted in Table 1), had percentage completion less than 100%. These monitoring points did not meet the defined goal of the surcharge program as of 06/16/14.

5. AMEC provided updated settlement and piezometer monitoring data on August 6th 2014. MRCE calculated effective stresses and the percent completion for N_FS-04 and N_HS-04 based on the updated monitoring data, as shown in Table 2.

6. MRCE agrees that the defined goal of the surcharge program of achieving an equal or greater effective stress than the "Final Post-Development Conditions" effective stress is met in all settlement monitoring locations.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

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Table 1. MRCE SA-6 Surcharge Monitoring Review (06/16/14)

Source:		AMEC			Settlement Monitoring Data	VWP Monitoring Data	MRCE				AMEC
Settlement Monitoring Point	Layer	Center of the Layer EL. (ft)	Historic Pre-Construction Conditions Total Stress (psf)	Final Post-Development Conditions Effective Stress (psf)	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 06/16/14 (psf)	Pore Water Pressure 06/16/14 (psf)	Effective Stress 06/16/14 (psf)	% Completion 06/16/14	% Completion 06/30/14
N_FS-01	Center D	-10.8	3073	2308	2.6	6.1	3393	1058	2335	101%	103%
N_FS-02	Center O	-4.6	2262	2279	11.2	11.6	4048	1242	2418	106%	-
N_FS-02	Center D	-8.3	2647	2414	11.2	15.4	3663	1245	2807	116%	117%
N_FS-03	Center O	-2.9	2118	2431	9.8	9.9	3628	1065	2443	100%	-
N_FS-03	Center D	-7.2	2400	2529	9.8	11.5	3346	904	2563	101%	105%
N_FS-04	Center O	-2.2	1830	2598	10.9	12.9	3624	1206	2417	**93%**	-
N_FS-04	Center D	-6.5	2266	2764	10.9	10.1	3189	771	2418	**87%**	92%
N_FS-04	RC	-43.2	6777	4984	10.9	2.7	8135	2866	5269	106%	-
N_HS-01	Center D	-9.6	2886	2287	5.3	5.8	3552	959	2593	113%	110%
N_HS-02	Center D	-9.2	2723	2324	8.7	9.0	3813	1133	2680	115%	115%
N_HS-03	Center D	-8.7	2700	2427	10.9	5.6	4065	894	3171	131%	130%
N_HS-04	Center D	-8.6	2702	2303	3.7	5.7	3163	892	2271	**99%**	96%
N_HS-05	Center D	-9.9	2654	2562	16.7	7.8	4746	1109	3637	142%	145%
N_HS-05	RC	-54.7	7323	4843	16.7	-0.9	9415	3354	6061	125%	-
N_HS-07	Center D	-7.6	2214	2668	12.0	12.0	4374	1224	3149	118%	121%
N_HS-09	Center D	-7.3	2428	2748	12.5	12.5	4429	1235	3194	116%	119%

Table 2. MRCE Surcharge Monitoring Review (August 2014)

Source:		Settlement Monitoring Data	VWP Monitoring Data	MRCE				AMEC
Settlement Monitoring Point	Layer	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 06/16/14 (psf)	Pore Water Pressure 06/16/14 (psf)	Effective Stress 06/16/14 (psf)	% Completion August 14	% Completion August 14
N_FS-04	Center O	16.3	9.6	3867	738	3130	**120%**	-
N_FS-04	Center D	16.3	9.6	4303	1003	3300	**119%**	118%
N_HS-04	Center D	9.4	5.0	3877	847	3030	**132%**	99%

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Joseph N. Courtade
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November 21, 2014

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attention: Mr. Geoff Shallard

Re: Area 2N Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of November 17, 2014 AMEC settlement and piezometer monitoring data for Area 2N is summarized below:

AMEC indicated from borings and sampling the Vibrating Wire Piezometers (VWP) were set at the center of the compressible clay layer, which provides the most conservative pore water pressure reading for the effective stress evaluation. All the stress calculations are at the center of the compressible layers.

MRCE used measured fill thickness dated 10/28/14 from "Settlement Platform – Data Report" to calculate the total stress. Pore water was taken from the 10/28/14 "Vibrating Wire Piezometer – Data Report." Effective stress computed for 10/28/14, is presented in Table 1. MRCE compared the 10/28/14 calculated effective stress with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of surcharge program was to achieve an effective stress greater than the "Final Post-Development Conditions."

This review finds all Area 2N monitoring locations have met the surcharge program goal as of 10/28/14.

Very truly yours,
MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

MP:F:\111\11173\2014 Surcharge Removal Review\SA-6_Area 2N_Surcharge Removal Review\MRCE SA-6 Surcharge Monitoring Review- Area 2N.112114.docx

Table 1. MRCE SA-6 Surcharge Monitoring Review for Area 2N (10/28/14)

Source:		AMEC				Settlement Monitoring Data	VWP Monitoring Data	MRCE			MRCE	AMEC
Settlement Monitoring Point	Layer	Center of the Layer EL. (ft)	Pre-Surcharge Conditions Total Stress (psf)	Final Development Condition Effective Stress (psf)	Surcharge Conditions Effective Stress (psf)	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 10/28/14 (psf)	Pore Water Pressure 10/28/14 (psf)	Effective Stress 10/28/14 (psf)	% Completion 10/28/14	% Completion 10/28/14
N_FS-05	Center O			2603.1		14.29	7.12	3750.0	812.4	2937.6	113%	-
N_FS-05	Center D	-7.3	2360.6	2765.9	3343.5	14.29	5.41	4146.9	799.3	3347.5	121%	121%
N_FS-06	Center O			2685.9		15.06	6.47	3837.5	640.8	3196.7	119%	-
N_FS-06	Center D	-7.6	2360.6	2833.1	3387.6	15.06	5.96	4218.8	827.4	3391.3	120%	120%
N_FS-06	RC			6075.3		15.06	2.94	10752.5	3135.0	7617.5	125%	-
N_FS-07	Center O			2523.5		10.69	6.61	3486.3	674.5	2811.7	111%	-
N_FS-07	Center D	-6.7	2360.6	2588.0	2972.4	10.69	4.87	3660.0	740.7	2919.3	113%	115%

Notes:
1. % Completion is the ratio of measured effective stress under surcharge with respect to final effective stress in development condition.

Mueser Rutledge Consulting Engineers

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March 29, 2016

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attn: Mr. Geoff Shallard

Re: Updated Area 3N and 4N Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of March 15th, 2016 AMEC settlement and piezometer monitoring data for Area 3N and 4N is summarized below:

AMEC indicated boring sampling was performed to define the soil profile and the Vibrating Wire Piezometer (VWP) was set at the center of the compressible layer, so that the pore water pressure reading is the most conservative for effective stress evaluation. All the effective stress calculations were made at the center of the layers.

MRCE used the latest measured elevation head dated March 15th, 2016 from "Vibrating Wire Piezometer – Data Report" to calculate the post-surcharge pore water pressures. Post-surcharge total stresses were calculated using fill thickness measurements from the "Settlement Platform – Data Report" taken on March 9th, 2016. Calculated post-surcharge effective stresses are presented in Table 1 and Table 2. MRCE compared the calculated post-surcharge effective stresses with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of the surcharge program was to achieve an effective stress greater than "Final Post-Development Conditions."

This review finds that with the March 15, 2016 readings all settlement monitoring locations, including the two settlement locations, N_HS-11 in Area 3N (Table 1) and N_FS-12 in Area 4N (Table 2), have met the surcharge program goal. This finding is in agreement with the AMEC data review and interpretation.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

F:\111\11173\2015 Surcharge Removal Review\MRCE Peer Review Area 3N and 4N final.pdf

FOR: SA-6 North Surcharge Monitoring Review

Table 1. Area 3N Surcharge Review

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
N_FS-08	Center D	-7.0	2226.3	2400.5	2/9/2016	2/22/2016	11.8	7.0	3697.5	876.1	2821.4	**118%**	**114%**
N_FS-09	Center D	-4.9	2151.3	2217.8	2/9/2016	2/22/2016	12.0	6.4	3648.8	699.4	2949.4	**133%**	**127%**
N_FS-10	Center O	-3.5	1937.5	2525.6	2/9/2016	2/22/2016	12.4	8.6	3485.0	756.7	2728.3	**108%**	**109%**
	Center D	-6.0	2202.5	2619.0	2/9/2016	2/22/2016	12.4	6.7	3750.0	794.8	2955.2	**113%**	
N_FS-11	Center D	-5.1	2032.5	1919.6	2/9/2016	2/22/2016	6.4	4.2	2837.5	579.8	2257.7	**118%**	**118%**
N_HS-10	Center D	-5.2	2083.8	2216.4	2/9/2016	2/22/2016	7.5	6.4	3026.3	721.5	2304.7	**104%**	**101%**
N_HS-11	Center D	-5.7	2147.5	2280.4	3/9/2016	3/15/2016	6.6	4.2	2975.0	617.3	2357.7	**103%**	**102%**
N_HS-12	Center D	-4.4	2042.5	1931.7	2/9/2016	2/22/2016	5.5	4.5	2730.0	551.0	2179.0	**113%**	**111%**
N_HS-13	Center D	-4.4	1991.3	2050.1	2/9/2016	2/22/2016	5.8	4.3	2711.3	539.3	2172.0	**106%**	**107%**

FOR: SA-6 North Surcharge Monitoring Review

Table 2. Area 4N Surcharge Review

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			**MRCE**	**AMEC**
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	**% Completion**	**% Completion**
N_FS-12	Center D	-4.1	1927.5	1869.2	3/9/2016	3/15/2016	3.4	3.5	2348.8	473.9	1874.9	**100%**	**101%**
N_FS-13	Center D	-4.6	2248.8	2063.8	1/28/2016	2/22/2016	3.1	-0.9	2640.0	232.2	2407.8	**117%**	**119%**

TABLE 1N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-01	2308	2605	**113%**	Data as of August 2014
N_FS-02	2414	3186	**132%**	Data as of August 2014
N_FS-03	2529	2810	**111%**	Data as of August 2014
N_FS-04	2764	3076	**111%**	Data as of August 2014
N_HS-01	2287	2772	**121%**	Data as of August 2014
N_HS-02	2324	2824	**122%**	Data as of August 2014
N_HS-03	2427	3161	**130%**	Data as of August 2014
N_HS-04	2303	2522	**109%**	Data as of August 2014
N_HS-05	2562	3911	**153%**	Data as of August 2014
N_HS-07	2668	3577	**134%**	Data as of August 2014
N_HS-09	2748	3521	**128%**	Data as of August 2014

TABLE 2N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

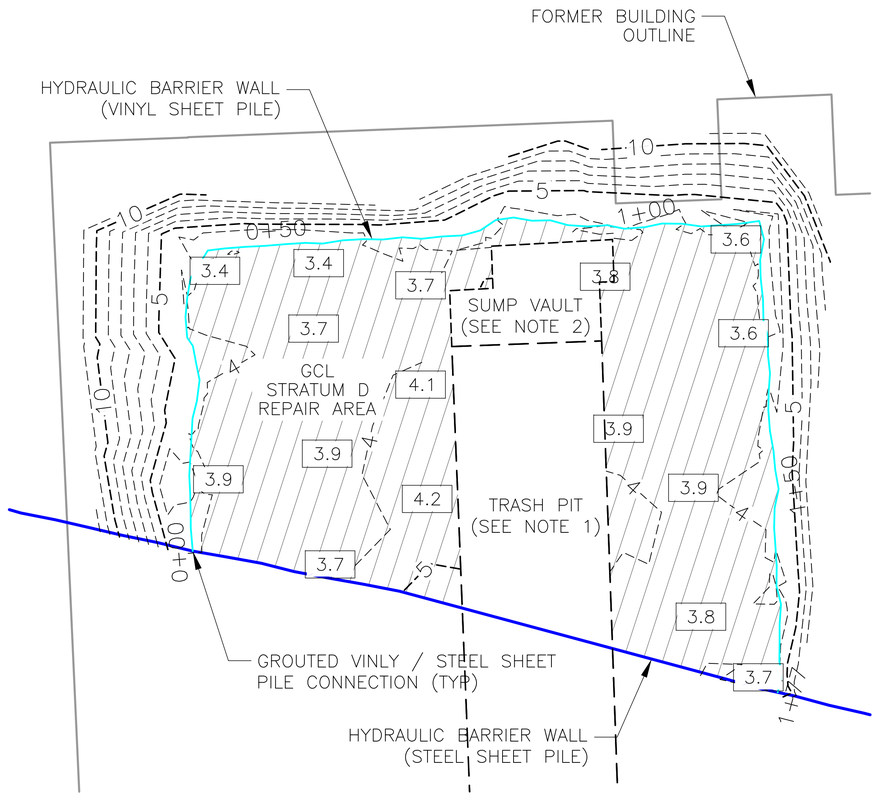
SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-05	2766	2970	**107%**	Data as of November 2014; Pore pressure elevated 9.2 ft. (Stratum D).
N_FS-06	2833	3497	**123%**	Data as of November 2014
N_FS-07	2588	3389	**131%**	Data as of November 2014

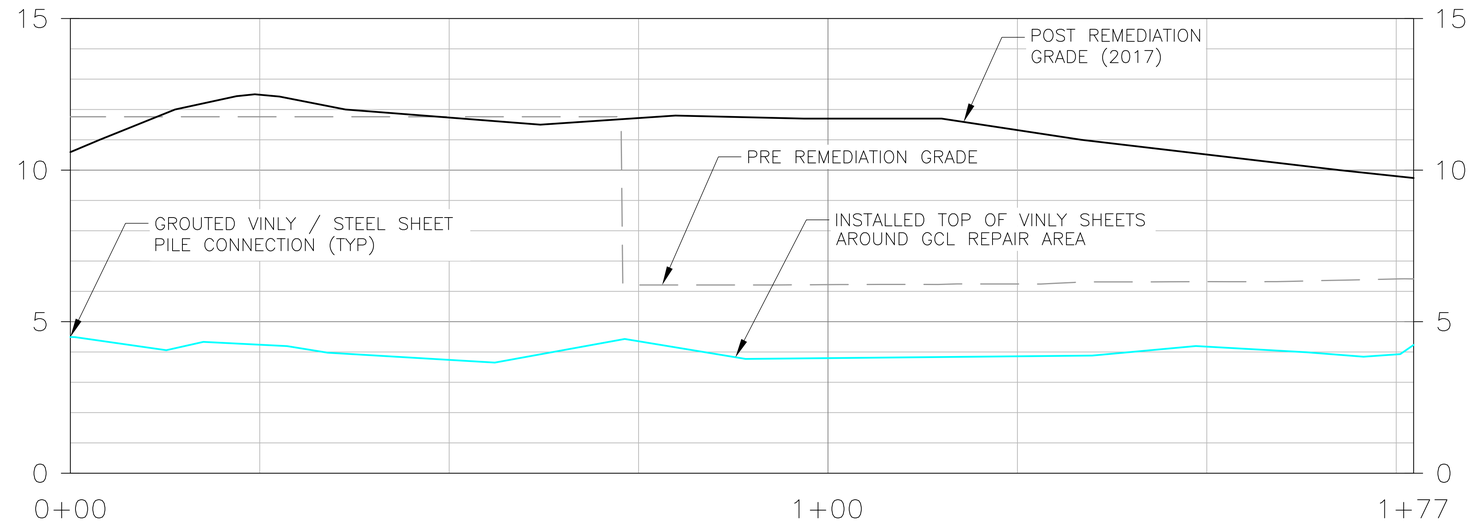
TABLE 3N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-08	2401	2832	**118%**	SP and VWP data through 3/9/16.
N_FS-09	2218	2909	**131%**	SP and VWP data through 3/9/16.
N_FS-10	2619	2964	**113%**	SP data through 3/9/16. VWP data through 3/15/16.
N_FS-11	1920	2273	**118%**	SP and VWP data through 3/9/16.
N_HS-10	2216	2313	**104%**	SP and VWP data through 3/9/16.
N_HS-11	2280	2335	**102%**	SP data through 3/9/16. VWP data through 3/24/16.
N_HS-12	1932	2198	**114%**	SP and VWP data through 3/9/16.
N_HS-13	2050	2214	**108%**	SP and VWP data through 3/9/16.

TABLE 4N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-12	1869	1897	**101%**	SP data through 3/9/16. VWP data through 3/24/16.
N_FS-13	2064	2433	**118%**	SP and VWP data through 3/9/16.

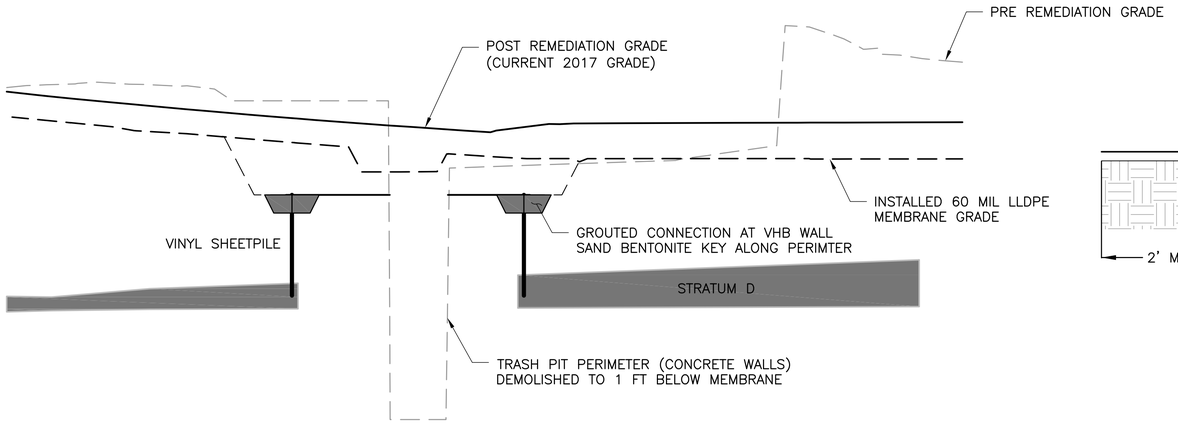




TOP OF VINYL SHEET PILE PROFILE

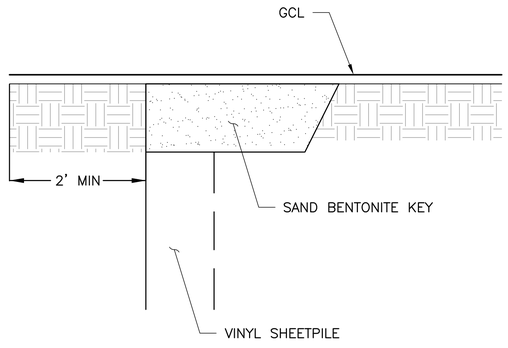
HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'



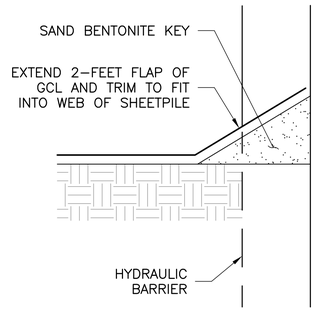
TYPICAL REPAIR SECTION ALONG HYDRAULIC BARRIER

NTS



SAND BENTONITE KEY DETAIL

NTS



GCL CONNECTION TO HYDRAULIC BARRIER

NTS

LEGEND

- VINLY SHEET PILE AS BUILT
- HYDRAULIC BARRIER AS BUILT
- EXCAVATION CONTOURS
- GEOSYNTHETIC CLAY LINER (GCL)
- 3.7 — GCL SPOT ELEVATION

NOTES

1. TRASH PIT WAS BACKFILLED WITH SOIL TO THE TOP OF THE CONCRETE WALLS WHICH WERE DEMOLISHED TO AN APPROXIMATE ELEVATION OF 7.0 FT TO 10.0 FT.
2. SUMP VAULT WAS BACKFILLED WITH FLOWABLE FILL TO AN APPROXIMATE ELEVATION OF 5.0 FT AND THEN SOIL BACKFILL WAS PLACED TO THE TOP OF THE VAULT AT AN ELEVATION OF APPROXIMATELY 12.0 FT.

0 20 40 FEET

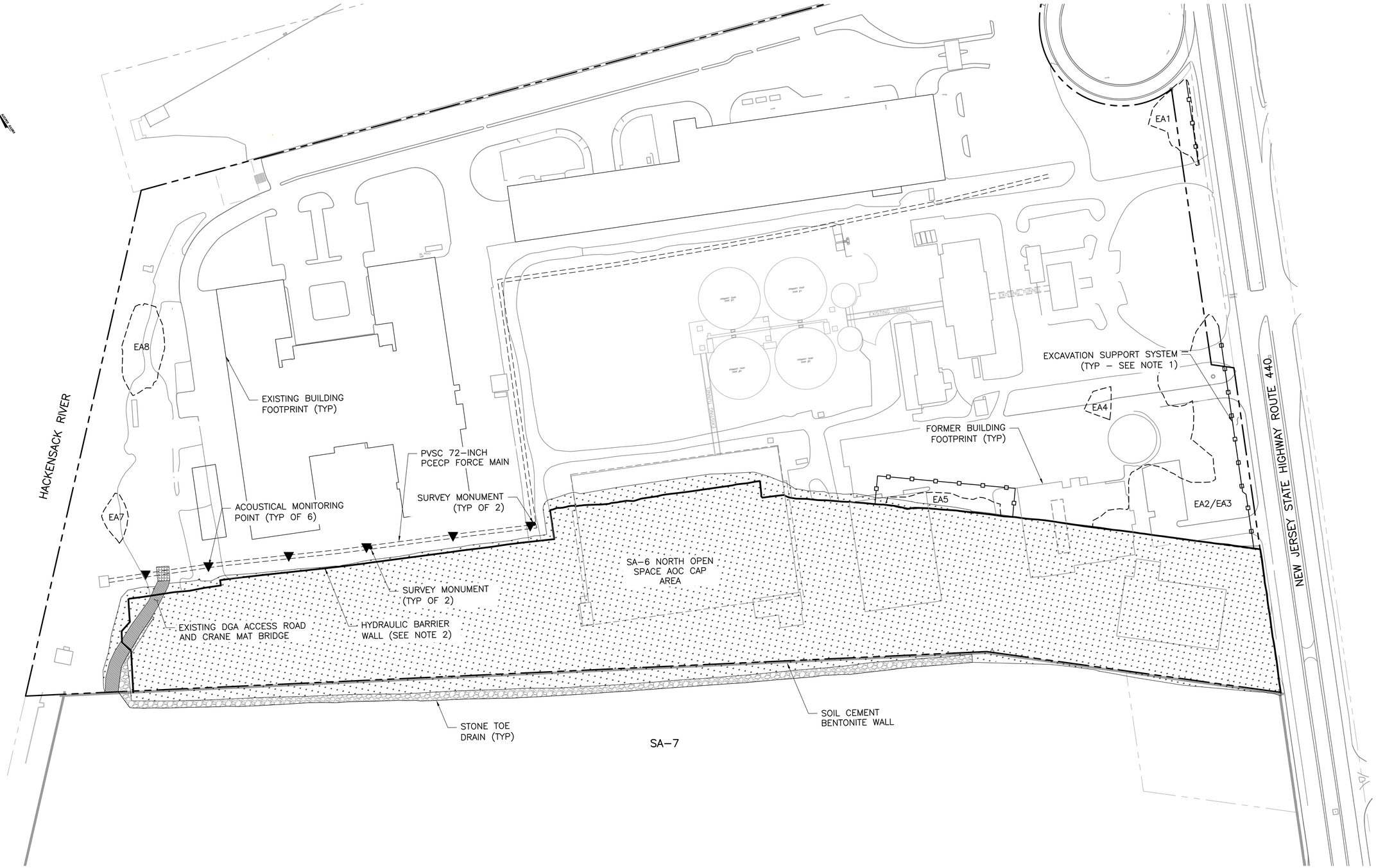
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	12/8/16	EJP	AE	AE	AB-JCIA Trash Pit Meadow Mat Repair

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME: JCIA Trash Pit As Built Vinyl Sheetpile and Meadow Mat Repair 12/08/16

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ



NOTES:

1. VIBRATION MONITORING WAS CONDUCTED BY GEOCOMP DURING SHEET PILE DRIVING UTILIZING A MOBILE INSTANTEL MICROMATE WITH GEOPHONE PLACED ON THE GROUND SURFACE IN THE VICINITY OF ACTIVITIES. TRIGGER LEVELS WERE ESTABLISHED AT 0.5 IN/SEC AND ALERT LEVELS AT 2.0 IN/SEC.

2. ACOUSTICAL MONITORING AND SURVEY POINTS WERE INSTALLED ALONG THE SECTION OF 72-INCH FORCE MAIN THAT RUNS PARALLEL TO THE HYDRAULIC BARRIER WALL. THESE MONITORING POINTS WERE UTILIZED DURING THE SURCHARGE PROGRAM TO EVALUATE ANY UNANTICIPATED STRESS IMPACTS.

0 40 80 160
SCALE IN FEET

Prepared/Date; TDD 2/23/17
Checked/Date: NAW 2/24/17

Honeywell 101 COLUMBIA RD, BOX 2105 MORRISTOWN, NJ 07962	CHROMIUM REMEDY STUDY AREA 6 NORTH JERSEY CITY, NEW JERSEY HONEYWELL SITE ID - 37472	amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ, 08619, (609) 689 - 2829 NJ Certificate of Authorization Number 24GA28019500	72-INCH FORCE MAIN SURVEY AND ACOUSTICAL MONITORING Project 3480-13-0354 FIGURE 12

C:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North RAR\SA-6 North Vibration Monitoring.dwg Mon, 27 Feb 2017 - 4:35pm tony.donovan

APPENDIX D

DESIGN CHANGE BULLETIN LOG

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
1	**DC 2013-7-29**	Surcharge Monitoring Plan modifications to match changes associated with relocation of the hydraulic barrier wall near the 72" force main. 72-Inch Force Main Monitoring Layout Plan, Details, and Notes developed. Surcharge pile layout redesign and instrumentation adjustments. The format of the Daily Report, Instrumentation Installation Forms, and Monitoring Data Forms has been modified to allow for generation using a "tablet application".	Submitted to all Parties on March 12, 2014.
2	**DC 2013-8-14 (HB Wall)**	Modifications to the Barrier Wall alignment and Surcharge Program to address concerns of NJDEP/PVSC/JCMUA and Honeywell regarding protection of 72 inch force main. Design drawings have been modified and design calculations revised in support of the required modifications to subgrade/liner grading and final grades.	Submitted to all Parties on September 12, 2013.
3	**DC 2013-8-14 (Grouted Angles)**	The area indicated on sheets S-201 to S-203 from Station 0+00 to 17+80 will be sealed with a cement bentonite grout in lieu of hydraulic sealant. This area will include a grouted angle.	Contingency to Expand Use of Grouted Joint Called out in 100% Design. Submitted to Contractor only as clarification or response to RFI.
4	**DC 2013-9-12**	Hydraulic barrier alignment for SA-6 South between 21+00 and 22+00 to be straightened. Stationing from 21+00 on is to be adjusted to account for the elimination of the 3-ft offset in the wall.	Minor alignment adjustment now that Boatyard Property transaction to Bayfront completed. Submitted to Contractor only as clarification or response to RFI.
5	**DC 2013-9-24**	Testing frequency for analytic parameters for imported borrow material is to be modified to 1 test/5,000 CY of borrow.	Honeywell directive to be more conservative than 100% Design. Submitted to Contractor only as clarification or response to RFI.
6	**DC 2013-12-12**	The proposed bottom of excavation elevations may be deepened as required to expose Post-Excavation Samples as reported on the revised PDI summary tables which were submitted to Parties in HON/Amec Response to Comments dated 02/06/14.	In addition to the periodic notice of excavation complete emails to the Parties, Honeywell submitted the following documents that further defined excavation extents, updated PDI Tables (converted to elevations), Colorized Area Excavation Depth Drawing, and procedures to certify those extents: 1) 2/6/14 RTC letter on 1/28/14 & 1/31/14 Plaintiff comment letters Re: Cells 17 - 29. 2) 3/3/14 SA-6 South Standard Operating Procedure, Confirmation of Excavation Limits. 3) 4/17/14 RTC letter on 4/11/14 Plaintiff comment letters Re: Cells 44 - 52. 4) 4/24/14 Revised SA-6 South Standard Operating Procedure, Confirmation of Excavation Limits.
7	**DC 2014-3-25**	Change Contingent GW system from wells to trench on both SA-6 S and SA-6N.	Submitted to all Parties on March 25, 2014 and April 23, 2014.
7.1	**DC 2014-6-10**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2014-6-10 includes the french drain installation, as well as pump and access station manholes for SA-6 South. Some design details, including the electrical design, will be finalized based field observations and constructability review.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016
7.2	**DC 2014-11-20**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2014-11-20 includes the french drain installation, electrical supply and discharge piping for SA-6 North.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016.
7.22	**DC 2016-6-6**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2016-6-10 includes the revised electrical supply and discharge piping for SA-6 North.	Submitted to Parties as Attachment to Declaration 004. (Design Change ID changed from DC 2016-6-10 to DC 2016-6-6 to reflect actual date on Design Change form).
7.3	**DC 2015-2-12**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2015-2-24 is a follow up to DC 2014-6-10, the SA-6 South CGWES trench design. DC 2015-2-24 includes details for electrical supply and discharge piping.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016
7.4	**DC 2015-9-03**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2015-9-03 is a follow up to DC 2015-2-24, the SA-6 South CGWES electrical supply. DC 2015-9-03 provides a revised electrical plan.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016
7.4.1	**DC 2016-5-24**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2016-5-24 was issued to address the elimination of a drop structure, the elimination of a flow meter, conduit sizing changes, and to clarify Entact's scope.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
7.4.2	**DC 2016-12-20**	This DCB documents a number of minor field changes that have been conveyed by the EOR to Entact during the course of the work and also includes revisions to the (E series) electrical drawings for both SA-6N and SA-6S.	Included as an attachment to Declaration 005.
7.5	**DC 2015-2-24**	AmecFW documented the SA-6 Contingent Groundwater system change to a trench system. The design will be released to Entact in stages to facilitate constructability. DC 2016-5-24 was issued to document the changes in the SA-6 North and South cap subgrades that resulted from the change to a trench system.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016
8.1	**DC 2013-8-14 (Surcharge)**	Modify surcharge pile toe of slope to reduce load on the bulkhead.	Submitted to all Parties on July 10, 2014.
9	**DC 2014-5-6**	Excavate down to 4 ft bgs (instead of 3 ft bgs) in a portion of the Site 163 excavation area.	5/6/14 letter from Honeywell summarizing the ERFS Site Vision field testing program indicated that this portion of Site 163 would be excavated instead of treated in-situ.
10	**DC 2014-5-19**	Defer removal of concrete/asphalt berm, demolition of subsurface concrete, and excavation to design elevations in the SA-6 South excavation area adjacent the bulkhead.	Submitted to all Parties on May 19, 2014.
11	**DC 2014-7-28**	Update the list of monitoring wells to be abandoned / retained.	Submitted to all Parties on August 26, 2014.
12	**DC 2014-10-28**	Direction on the handling of petroleum soils under the cap.	Submitted to all Parties on November 19, 2014.
13	**DC 2014-8-13**	Revised hydraulic barrier wall alignment through the sedimentation basin to reduce potential conflict with existing timber piles.	Submitted to all Parties on August 19, 2014.
14	**DC 2014-9-2**	Revised hydraulic barrier wall alignment adjacent the 72" force main in order to provide a clearance of 25 ft. between the centerline of the 72" force main and the barrier wall as previously agreed with PVSC.	Submitted to all Parties on September 4, 2014.
15	**DC 2014-10-31**	Revised Soil Management Plan (Appendix G - SA-6 North 100% Design Report) to indicate that any asphalt or concrete that meets NJDEP reuse requirements or is granted a variance by the NJDEP may be reused as backfill or placed underneath the cap. Contractor directed to consolidate arsenic-impacted asphalt in Cap Areas in a footprint that does not exceed 44,000 SF and to cover the asphalt with chromium-impacted soil.	Submitted to Contractor only as clarification or response to RFI.
16	**DC 2014-12-01**	The Southern limits of the Site 163 Chromium remediation extend close to the existing bulkhead. The bulkhead is in a dilapidated condition and has deteriorated subsequent to design of the remedy. During implementation of the remedy the condition of the bulkhead was visually assessed. As a result of this assessment it was determined that it was necessary to add additional protection to the backfill placed in Site 163 pending installation of the permanent replacement bulkhead. The design was modified in the field to include placement of geotextile fabrics and a sloped rip-rap facing to provide additional protection to the backfill.	Submitted to Contractor only as clarification or response to RFI.
17	**DC 2015-01-22**	In accordance with the 100% Design, the Contractor is directed to remove 0-2 feet of <20 mg/kg overburden historic fill soils from selected locations throughout the SA-6 North Open Space Area. This will create a nominal 10,000 to 12,000 cubic yards (CY) additional capacity under the SA-6 North liner without affecting final grades for the liner or cover soils. The SMP allows such soils that are confirmed to be below 20 mg/kg for hexavalent chromium, to be used as temporary surcharge in the cap areas, backfill for excavations, or to raise the grades for the Redevelopment Project outside of the cap areas. In the space created by this removal of the 0-2 feet of historic fill soils from selected locations throughout the SA-6 North Open Space Area, the Contractor will relocate an additional estimated 10,000 to 12,000 CY worth of 20-240 mg/kg hexavalent chromium soils currently staged at SA-6 South.	Submitted to Parties as Attachment to Declaration 004.
18	**DC 2015-01-22**	During shallow excavation along the cove on Site 163, unreinforced mass concrete and a steel structure were identified in direct contact with structural components of the bulkhead. The structures will be left in place and remediation will be completed with the other SA-6 South bulkhead deferral area along the river, once the permanent bulkhead is installed. The total volume of the three isolated areas left in place is estimated to be 35 cubic yards.	Submitted to all Parties on January 28, 2015.
19	**DC 2015-03-03**	Mueser Rutledge Consulting Engineers (MRCE) have revised the design for temporary excavation support in SA-6 North along Route 440. Revised drawings SN-501, SN-502, SN-503, SN-504, and SN-505 are included in this Design Change Bulletin.	Submitted to Contractor and BMUA/JCMUA. Submitted to all Parties on 5/27/15.

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
20	**DC 2015-03-30**	A pile cap was encountered during pre-trenching at the general location of the demolished Waste Management Garage. An alternatives evaluation was conducted and it was concluded that the least risk option was to re-align the wall to the south effectively resulting in a decrease in the cap area and an increase in the EA-5 Excavation.	Submitted to all Parties on 5/27/15.
21	**DC 2015-03-04**	The surcharge pile has been constructed to the design height of the barrier wall. The strip or land between the barrier wall and the property line is one of the "deferred areas" and varies in width from 0 to 12 feet. Final Development grades east of the barrier wall are at essentially the same grade as the existing grade. As such there is no additional load generated by the development grades and therefore there is no necessity of surcharge.	Submitted to Parties on July 2, 2015.
22	**DC 2015-03-09**	The utility pole relocations along Route 440 require the installation of new poles in the DOT Right of Way along Route 440. The DCB includes the pole sleeve construction details and locations.	Submitted to Contractor only as clarification or response to RFI.
23	**DC 2015-04-30**	A concrete protuberance was encountered 12-13 feet below grade, which prevented driving the sheet to full depth immediately adjacent the JCIA trash pit. The closure sheet was notched to clear the concrete, then lowered to design depth.	Submitted to Contractor only as clarification or response to RFI.
26.1	**DC 2015-05-19**	Supply and installation of specific components related to the contingent groundwater system will be deferred pending closure of the caps and stabilization of the groundwater levels and quality within the contingent groundwater system on both SA-6 North and SA-6 South.	Submitted to Parties as Attachment to Declaration 002 response memo on July 19, 2016
27	**DC 2015-06-18**	Bayfront Redevelopment Civil Designer has eliminated one utility corridor along the eastern portion of SA-6 South (water main and sewer line were relocated to another utility corridor). In addition, it was identified that minor increases in the Bayfront final grades of up to 0.25 feet may be made in the landscaped areas (no changes were made to the roadway grades). The difference between the adjusted Geomembrane Subgrade surface and Final Grade surface has been verified to meet the minimum and average requirements of the SA-6 South Consent Decree and the 100% Design.	Submitted to all Parties on June 18, 2015.
28	**DC 2015-05-29**	Details were revised in order to clarify cap termination beyond the SCB/VHB wall, GCL to SCB/sheetpile barriers and Geofoam Block locations above the liner.	Submitted to Parties on August 27, 2015.
29	**DC 2015-06-05**	Amec Foster Wheeler reviewed the piezometer locations shown in the IFC design with the latest road and utility designs prepared by CHA. This has resulted in minor movements of the piezometers. The movement will have no impact on the performance of the piezometers to meet their intended purpose for measurement of the hydraulic gradient across the wall.	Submitted to Parties on August 27, 2015.
30	**DC 2015-11-12**	Amec Foster Wheeler has provided Final Cap Grades (in CAD) to Entact. Amec Foster Wheeler and Entact developed a methodology for adapting grading of the cover soils to offsets from either subgrade or Final Development Grade. The methodology was described in the response to RFI 057. Some minor changes (0.1 to 0.2 ft.) have also been made in localized areas to improve surface drainage.	Included as an attachment to Declaration 005.
30.1	**DC 2016-04-15**	Amec Foster Wheeler has provided final restoration grades for SA-6 South Development Area. The DCB also includes the final cover types in revised Drawing C-128.	Included as an attachment to Declaration 005.
30.2	**September 2016-South**	The design change documents revisions to the final grading and SESCP drawings on the SA-6 South Chromium Remedy. Minor grading changes were performed in the field to improve surface drainage. In addition, the extent of demarcation fabric, crushed stone and DGA placed over the Development Area was increased to meet historic fill regulations. SESCP changes included installation of crushed stone toe drain along SA-7, installation of erosion mat, installation of supplemental diversion berms, and installation of stone check dams.	Included as an attachment to Declaration 005.
32	**DC 2015-06-18 (South)**	Amec Foster Wheeler and ERFS performed in-situ injections of calcium polysulfide (CAPS) at SA-6 South, Site 163 in July & August 2014. 6-month performance assessment soil samples were collected and analytical results indicated that seven of the fifteen treatment areas at the Site are now <20 milligrams per kilogram (m/kg) for Cr(VI). Honeywell will implement additional CAPS injections at several of the areas that remain >20 m/kg for Cr(VI). While the specific scope of this next field phase is provided in the attachment, the work will generally be performed in accordance with Amec Foster Wheeler's approved Work Plan for In-Situ Treatment of Chromium Impacted Soil, dated September 2012.	Submitted to all Parties on 6/22/15.

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
33	**DC 2015-06-18 (North)**	Injections of calcium polysulfide (CAPS) will be implemented in a limited portion of TA-10, north of the northern curbline for the future Stegman Boulevard to be constructed during the Bayfront Redevelopment project. Monitoring wells installed in the injection area and between the injection area and the adjacent 72- inch force main will be used to measure sulfate conditions in shallow groundwater. If necessary, clean potable water may be injected into the monitoring wells to dilute the sulfate concentrations in the shallow groundwater adjacent to the 72-inch force main. While the specific scope of the proposed injections is provided in the attachment, the work will generally be performed in accordance with Amec Foster Wheeler's approved Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil, dated February 19, 2013.	Submitted to all Parties on 6/22/15.
34	**DC 2015-06-15**	A Construction Control Grid for the SA-6 cap subgrade was developed in CAD as a Triangular Irregular Network for construction control and verification of compliance with cover thickness requirements in the Consent Decree and Open Space Design Standards.	Submitted to Parties on August 27, 2015.
35	**DC 2015-07-16**	The alignment of the gas vent system piping and trench was modified in the west portion of the SA-6 South cap to establish smooth grades in the utility corridors and avoid contingent groundwater extraction system components.	Submitted to Parties on August 27, 2015.
35.2	**DC 2015-08-18**	The Design detail (Drawing C-121, Detail AN) assembly has been modified to reflect changes resulting from collaboration between Entact and AmecFW.	Submitted to Parties on August 27, 2015.
35.3	**DC 2015-10-06**	GCL is required to be installed over the SCB wall and Barrier Wall at the locations shown in the annotated PDF of C-121 (rev 4, 8/13/15).	Submitted to Contractor only as clarification or response to RFI.
36	**DC 2015-07-22**	Detail BN has been modified to extend the LLDPE up and over the SCB Wall. The prior detail showed both the GDL and geomembrane terminating at the wall.	Submitted to Parties on August 27, 2015.
37	**DC 2015-07-28**	Drawing 304, Detail CE and associated notes regarding the "Liner Anchor to Concrete Structure" have been modified.	Submitted to Contractor only as clarification or response to RFI.
37.2	**DC 2015-08-07**	AmecFW has conducted further review of the "Liner to Concrete Structure Detail" (Drawing C-304, Detail CE) with Entact/ESI, including field review, to improve constructability.	Submitted to Contractor only as clarification or response to RFI.
38	**DC 2015-07-31**	The sheet pile pair is located at Sta. 0+50. Driving was stopped with a top elevation of +12.8 and a tip of -2.2. The top of meadow mat is at elevation +0.5. In accordance with the 100% Design Report (10.1.3 Bottom Key), the tip of the sheet shall be embedded a minimum of 2' into the Stratum D. The tip of the sheet is embedded 2.7 ft. and therefore meets the design criteria which was established in accordance with the requirements of the Consent Decree.	Submitted to Contractor only as clarification or response to RFI.
39	**DC 2015-07-30**	Entact was granted approval to install a wedge of soil in the B Street corridor against the SCB wall. There is a step up in this location from the corridor subgrade to the top of the SCB wall. The intent of the Entact request was to provide a more gradual transition between the corridor subgrade and SCB Wall. AmecFW reviewed the CHA utility drawings and determined that there were no utility structures within this location that would be impacted by the change i.e. the change has no impact on the future development. The remaining corridor to SCB wall detail will be installed as shown on the contract drawings.	Submitted to Contractor only as clarification or response to RFI.
41	**DC 2015-08-19**	Entact notified AmecFW that the vendor had experienced difficulty during set up and could not produce an acceptable quality of lettering on the orange non-woven geotextile (due to ink blurring). As an option Entact proposed installing a standard direct burial utility marking tape. AmecFW approved use of a 6 inch wide yellow PE tape with 3.5 inch bold back lettering as meeting the specified requirements for a distinctive colored high visibility marking.	Submitted to Parties on August 27, 2015.
42	**DC 2015-08-21**	The anchor trench section of the Specification 02372 CAP GEOMEMBRANE LINER Section 3.02 is standard industry language and part of AmecFW's standard Geomembrane Specification. During the process of finalizing development of the capping system in the 100% Design, the Engineer determined that anchor trenches were not required for either the SA-6N or SA-6S Caps. As such, Paragraph 3.02 is no longer required and therefore the following is deleted in its entirety.	Submitted to Parties on August 27, 2015.

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
43	**DC 2015-08-20**	The most easterly utility corridor was eliminated from the Development Plan, allowing for a revision to the cap subgrade and related revisions to the top of the Barrier Wall (revised Drawing S-201). Addendum: The top of the SCB wall will also be revised to reflect the elimination of the utility corridor (revised Drawing S-204).	Submitted to Parties on August 27, 2015.
45	**DC 2015-9-02**	As identified in the 100% Design, ENTACT should now remove approximately 2 ft. of historic fill from the post surcharge removal surface of Area 1N to create capacity for 20-240 mg/kg chromium impacted soils. Excavated Soils will be sampled and analyzed according to the Soil Management Plan. Should any excavated historic fill exceed the 20 mg/kg criteria, it will be placed under the cap.	Submitted to Parties as Attachment to Declaration 004.
46	**DC 2015-9-17**	Extensive searching of available soil suppliers (including 6 specifically identified as potential sources/vendors by Dr. Grabosky) indicated that current sources could substantially meet the most critical, but not all, IFC specifications. In response, AmecFW submitted the provided borrow source testing data per specifications to Dr. Grabosky for his review. Dr. Grabosky selected specific blends from the list that he identified as acceptable for use within the Open Space Areas. In addition, Dr. Grabosky recommended minor revisions to the specifications that the AmecFW engineer has accepted. Dr. Graboskyõs letter and specification revision recommendation are attached.	Submitted to Parties on September 23, 2015.
47	**DC 2015-9-04**	EA-8 boundaries have been revised to reflect additional sampling following initial excavation as defined in the 100% Design. The internal boundaries delineating the different soil disposition based on hexavalent chromium content have been revised. The revisions are minor in nature and are based on using a means of interpolation between sample points that is consistent with that used on SA-6S.	Submitted to Parties as Attachment to Declaration 003.
47.1	**DC 2015-11-18**	Drawing CN-118 has been revised to show additional excavation in EA-8 as outlined in DC 2015-09-04. In addition, review of DC 2015-09-04 indicated a small area where the 20 - 240 ppm hatch had not been carried to the outer limit of excavation. The hatch mark has been corrected in CN-118 revision 2.	Submitted to Parties as Attachment to Declaration 003.
48	**DC 2015-09-28**	Chromium-impacted soils within the residential footprint of Site 163 that remained at levels above 20 ppm hexavalent chromium after in-situ treatment will be excavated in lieu of additional in-situ treatment and further sampling.	Submitted to Parties on October 1, 2015.
48.1	**DC 2015-12-21**	Amec Foster Wheeler (AmecFW), Entact and Maser Consulting have developed alternative methods for documentation/survey of the excavation bottom in Site 163. The alternative methods were developed in light of safety considerations for surveyor access into a sheet piled excavation to elevation ï 8.0. The bottom of the excavation will be in very low strength Stratum O soils. These alternative survey control methods are different from those previously used in the SA-6 South Development Area.	Submitted to Contractor only as clarification or response to RFI.
50	**DC 2015-10-02**	As an additional precautionary measure, ENTACT will install warning tape directly on top of the root barrier layer. The warning tape will generally be installed perpendicular to the warning tape above the GDL. On the steep slopes into roadway/utility corridors and the tree planting areas the tape will be set running from the top of the slope to the bottom of the slope.	Submitted to Parties on October 8, 2015.
51	**DC 2015-10-22**	Pre-trenching on the vinyl sheetpile alignment revealed a significant number of old timber piles along the western edge of the proposed repair. Removal of the piles would create openings in the Stratum D. In lieu of removing sheetpile, the western side was relocated approximately 6 ft. further west. This will result in an expansion of the repair plan area from approximately 14,000 SF to approximately 14,500 SF. This change has no impact of the functionality of the chromium remedy or on the future site development.	Submitted to Contractor only as clarification or response to RFI.

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
52	**DC 2015-12-14**	Specification 02372, Sections 3.03 ï Geomembrane Placement, C. Liner Boots and 3.06 ï Field Quality Control, B. Nondestructive Seam Testing have been amended to include spark testing of extrusion welds that cannot be tested by other means. Spark testing will be performed in accordance with ASTM D6365 - Standard Practice for the Non Destructive Testing of Geomembrane Seams using the Spark Test. In addition, GRI-19 - Specification Seam Strength & Related Properties of Thermally Bonded Polyolefin Geomembrane was added as a reference document. The Specification also requires preparation of a Spark Testing form for each location that Spark Testing is used, to be signed by the Independent Geosynthetics QA representative. Agreement was reached between Honeywell and the Plaintiffs to implement Spark Testing on SA-6N. Specification 02372 has been revised accordingly.	Submitted to Parties on January 14, 2016.
53	**DC 2015-11-30**	EA 2&3 external boundaries remain consistent with the Issued for Construction Design. Internal waste classification boundaries required adjustment to clarify the limits in three small triangular areas within the main excavation. A complete set of EA 2&3 Drawings and AutoCAD Files have been included showing all intervals. EA-8 Issued for Construction defined excavation limits from the surface to elevation 7. Upon reaching elevation 7 supplemental sampling was conducted and excavation conducted based on those results. Observation of excavation faces revealed a suspect area that subsequent testing verified required removal. A further round of supplemental sampling established new excavation limits. A detail is shown on the Interval 6 drawing showing the extent of extra excavation required.	Submitted to Parties as Attachment to Declaration 003.
54	**DC 2016-02-02**	The interim grade in the SA-6 North landscape area has been raised by a nominal amount of 0.25ô(no changes were made to the roadway grades). The difference between the adjusted Geomembrane Subgrade surface and Interim Grade surface has been verified to meet the minimum and average requirements of the SA-6 North Consent Decree and the 100% Design.	Submitted to Parties as Attachment to Declaration 004. (Design Change ID changed from DC 2016-02-03 to DC 2016-02-02 to reflect actual date on Design Change form).
54.1	**DC 2016-02-22**	AmecFW revised the SA-6 North cap subgrade in a single localized area in order to accommodate Entactõs request to relocate Pump Station #1 (RFI 64). The subgrade has been lowered at the new location to accommodate the vault and piping, and raised in the original pump station location. In addition, for grading purposes, any hydraulic barrier sheets within the Sedimentation Basin that have sections below elevation 12.0 will be trimmed to a uniform elevation of 11.5.	Submitted to Parties as Attachment to Declaration 004.
54.2	**DC 2016-02-25**	This DCB has been issued to provide Entact with the latest SA-6 North HB Wall and SCB wall plan and profile drawings (SN-201 thru SN-205), which were modified to reflect changes made in DC 2016-02-22.	Submitted to Parties as Attachment to Declaration 004.
54.3	**DC 2016-5-11**	The interim grade in the SA-6 North landscape area has been raised by a nominal amount of 0.25ô(no changes were made to the roadway grades). The difference between the adjusted Geomembrane Subgrade surface and Interim Grade surface has been verified to meet the minimum and average requirements of the SA-6 North Consent Decree and the 100% Design. As part of DC 2016-5-11, AmecFW issued SA-6 North Interim Grades to Entact.	Submitted to Parties as Attachment to Declaration 004.
54.4	**DC 2016-5-20**	After further review, AmecFW lowered the geomembrane Pump Station #1 on the SA-6 North cap in order to provide additional separation between the geomembrane and the bottom of the vault. (Refer to DC 2016-02-22).	Submitted to Parties on June 15, 2016.
54.5	**DC 2016-7-14**	Design change documenting minor field changes needed to achieve positive drainage in the cap area.	Included as an attachment to November 2016 monthly progress report and included in the finalized Declaration 004.

SA-6 North/South Field Change Log			
AmecFW ID	**Changed Item Identifier**	**Description of Change**	**Comments**
54.6	**September 2016-North**	The design change documents revisions to the interim/final grading and SESCP drawings on the SA-6 North Chromium Remedy. Minor grading changes were performed in the field to improve surface drainage pending redevelopment. SESCP changes included installation of crushed stone toe drain along SA-7, installation of erosion mat, installation of supplemental diversion berms, and installation of stone check dams.	Included as an attachment to Declaration 005.
55	**DC 2016-05-03**	The laboratory results of all gradations for planting soils shall be presented in terms of the USDA classification system rather than the USCS classification system.	Submitted to Contractor only as clarification or response to RFI.
56	**DC 2016-03-18**	This DC 2016-03-18 documents the revised acceptable ranges of physical parameters and provides an updated specification made in consultation with Dr. Grabosky of Rutgers University. Dr. Grabosky provided his recommendations in correspondence dated 3/17/2016.	Submitted to Parties on March 22, 2016. Plaintiffs responded in a letter dated April 15, 2016. Plaintiffs and Honeywell subsequently held discussions and DCB 2016-04-20 was developed to document an agreement reached by all parties on the Special Master All-Hands monthly call on April 19, 2016.
57	**DC 2016-03-21**	Natureõs Choice was identified as the source that best met the physical requirements for Horizon C soils by Dr. Grabosky; however, several samples of Natureõs Choice Horizon C soils have hexavalent chromium concentration >1.0 mg/kg. Consequently, Honeywell is proposing a design change to allow the hexavalent chromium concentration in Natureõs Choice Horizon C soils to be less than 1.8 mg/kg, as agreed to by the parties, as documented in the attached emails. For future sampling, hexavalent chromium soil samples will be composited from 10 grab sample locations per 5,000 CY (maximum). There are additional conditions in Attachment A that are part of this DCB and specific to Natureõs Choice Horizon C soil. All other requirements specified in the 100% Design for imported soils will be met by the Natureõs Choice Horizon C soils as amended in previous DC 2015-09-17.	Submitted to Parties on March 22, 2016.
58	**DC 2016-05-06**	To allow for traffic flow within the project site following completion of the SA-6S Cap, a road will be installed within the "B Street" corridor. The road will be constructed by continuing the "Structural Fill under Roadways to within 6 inches of final grade"	Submitted to Parties on June 30, 2016.
59	**DC 2016-04-20**	This DCB documents the approved sources of Horizon B and Horizon C materials, as agreed to by all parties on the Special Master All-Hands monthly call on April 19, 2016.	Submitted to Parties on April 21, 2016.
60	**DC 2016-05-31**	This DCB documents the vault sketch Drawing C-310 (Rev 5, 5/31/16)	Submitted to Contractor only as clarification or response to RFI.
61	**DC 2016-11-09**	The limits and the type of restoration north of the SA-6N cap has been modified to be integrated with the SA-6N Non Chrome Remedy.	Included as an attachment to Declaration 005.
62	**DC 2016-7-12**	DC 2016-7-12 clarifies the limit of GCL deployment and the location of the sand bentonite plug in the SA-6 North cap.	Included as an attachment to July 2016 Monthly Progress Report.

Notes: All tracked changes will be reflected in the as-built drawings and Final Record Documents as agreed to with the Parties.

APPENDIX E

WELL INSTALLATION PERMITS/RECORDS

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606638

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: Rt. 440 Infront of 501 Rote 440

County: Hudson Municipality: Jersey City Lot: ROW Block: ROW

Easting (X): 603719 Northing (Y): 685108
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 17, 2016

DATE WELL COMPLETED: June 17, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-1

WELL CONSTRUCTION

Total Depth Drilled (ft.): 11.5 Finished Well Depth (ft.): 11.5 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	11.5	9		
Casing	0	6.5	4	Stainless Steel	type 304
Screen	6.5	11.5	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	3.5	9	4	0	70	4
Gravel Pack	3.5	11.5	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures
8 - 11.5: brown SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606638

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: Rt. 440 Infront of 501 Rote 440

County: Hudson Municipality: Jersey City Lot: ROW Block: ROW

Easting (X): 603719 Northing (Y): 685108
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-1

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: June 8, 2016
Expiration Date: June 8, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606638

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606639

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: Rt. 440 Infront of 501 Rote 440

County: Hudson Municipality: Jersey City Lot: ROW Block: ROW

Easting (X): 603711 Northing (Y): 685111
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 20, 2016

DATE WELL COMPLETED: June 20, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-2

WELL CONSTRUCTION

Total Depth Drilled (ft.): 8 Finished Well Depth (ft.): 8 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	8	9		
Casing	0	3	4	Stainless Steel	type 304
Screen	3	8	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	1	9	4	0	20	1
Gravel Pack	1	8	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 4 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606639

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: Rt. 440 Infront of 501 Rote 440

County: Hudson Municipality: Jersey City Lot: ROW Block: ROW

Easting (X): 603710 Northing (Y): 685111
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-2

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: June 8, 2016
Expiration Date: June 8, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606639

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
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The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606641

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 501 Rt 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603365 Northing (Y): 685484
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 16, 2016

DATE WELL COMPLETED: June 16, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-3

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	9		
Casing	0	8	4	Stainless Steel	type 304
Screen	8	13	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	6	9	4	0	120	7
Gravel Pack	6	13	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures
8 - 13: dark grey OL - Organic silts and organic silty clays of low plasticity

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606641

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 501 Rt 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603365 Northing (Y): 685484
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-3

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 8, 2016
Expiration Date: June 8, 2017

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606641

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606642

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 501 Rt 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603361 Northing (Y): 685479
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 16, 2016

DATE WELL COMPLETED: June 17, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-4

WELL CONSTRUCTION

Total Depth Drilled (ft.): 12 Finished Well Depth (ft.): 12 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12	9		
Casing	0	7	4	Stainless Steel	type 304
Screen	7	12	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	9	4	0	100	6
Gravel Pack	5	12	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures
8 - 12: brown OL - Organic silts and organic silty clays of low plasticity

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606642

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 501 Rt 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603661 Northing (Y): 685479
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-4

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606642

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606645

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602959 Northing (Y): 685778
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 20, 2016

DATE WELL COMPLETED: June 20, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-5

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	9		
Casing	0	8	4	Stainless Steel	type 304
Screen	8	13	9	4	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	9	4	0	100	6
Gravel Pack	5	13	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 9 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 10: brown SM - Silty sands, sand-silt mixtures
10 - 13: dark brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606645

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602959 Northing (Y): 685778
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-5

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606645

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606646

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602956 Northing (Y): 685773
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 20, 2016

DATE WELL COMPLETED: June 20, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-6

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	9		
Casing	0	8	4	Stainless Steel	type 304
Screen	8	13	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	9	4	0	100	6
Gravel Pack	5	13	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 6 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 10: brown SM - Silty sands, sand-silt mixtures
10 - 13: dark brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

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Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606646

WELL PERMIT

New Well

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Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

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Company Address: BOX 8 RT 206 NETCONG, NJ 07857

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County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602956 Northing (Y): 685773
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-6

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606646

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606647

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602088 Northing (Y): 686065
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 15, 2016

DATE WELL COMPLETED: June 16, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-9

WELL CONSTRUCTION

Total Depth Drilled (ft.): 12 Finished Well Depth (ft.): 12 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12	9		
Casing	0	7	4	Stainless Steel	type 304
Screen	7	12	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	9	4	0	100	6
Gravel Pack	5	12	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures
8 - 12: brown OH - Organic clays of medium to high plasticity

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606647

WELL PERMIT

New Well

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Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602088 Northing (Y): 686065
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-9

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606647

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
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Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606648

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PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602101 Northing (Y): 686066
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-10

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 7, 2016
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Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
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WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

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New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606648

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 525 Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602101 Northing (Y): 686066
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 15, 2016

DATE WELL COMPLETED: June 15, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-10

WELL CONSTRUCTION

Total Depth Drilled (ft.): 12 Finished Well Depth (ft.): 12 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12	9		
Casing	0	7	4	Stainless Steel	type 304
Screen	7	12	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	9	4	0	100	6
Gravel Pack	5	12	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: brown SM - Silty sands, sand-silt mixtures
8 - 12: brown OH - Organic clays of medium to high plasticity

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606650

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602442 Northing (Y): 685973
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 13, 2016

DATE WELL COMPLETED: June 14, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-7

WELL CONSTRUCTION

Total Depth Drilled (ft.): 26 Finished Well Depth (ft.): 20 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	26	9		
Casing	0	15	4	Stainless Steel	type 304
Screen	15	20	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	12	9	4	0	240	14
Gravel Pack	12	26	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: red/brown SM - Silty sands, sand-silt mixtures
8 - 15: brown SM - Silty sands, sand-silt mixtures
15 - 25: red/brown SP - Poorly graded sands and gravelly sands, little or no fines
25 - 26: gray PT - Peat, muck, and other highly organic soils gray silt to peat

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606650

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602442 Northing (Y): 685973
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-7

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606650

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606651

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602430 Northing (Y): 685948
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 15, 2016

DATE WELL COMPLETED: June 15, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: PZ-8

WELL CONSTRUCTION

Total Depth Drilled (ft.): 14 Finished Well Depth (ft.): 14 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	14	9		
Casing	0	9	4	Stainless Steel	type 304
Screen	9	14	4	Stainless Steel	0.030-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	7	9	4	0	140	8
Gravel Pack	7	14	9	4	no. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 5: brown OT - Other historic fill/debris
5 - 8: red/brown SM - Silty sands, sand-silt mixtures
8 - 14: brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606651

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602430 Northing (Y): 685948
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PZ-8

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 7, 2016
Expiration Date: June 7, 2017

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201606651

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510925

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: ROUTE 440 (SOUTH) Well discharged to on site treatment

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603700 Northing (Y): 685320
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: DW-6N

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: DEWATERING

Other Use(s):

Diameter (in.): 6

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 20

Deviation Requested: N

Drilling Method: Mud Rotary

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: September 14, 2015
Expiration Date: September 13, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510925

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510925

WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: ROUTE 440 (SOUTH) Well discharged to on site treatment

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603700 Northing (Y): 685320
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: September 21, 2015

DATE WELL COMPLETED: October 28, 2015

WELL USE: DEWATERING

Other Use(s):

Local ID: DW-6N

WELL CONSTRUCTION

Total Depth Drilled (ft.): 43 Finished Well Depth (ft.): 43 Well Surface: 2.5 ft. Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12	14		
Borehole	12	43	10		
Casing	0	18	6	PVC	sch 40
Casing	0	12	10	Steel	sch 40
Screen	18	43	6	PVC	0.020-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	17	10	6	0	515	29
Grout	0	12	14	10	0	485	27
Gravel Pack	17	43	10	6	no. 2 WG		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

RECORD OF TEST
Test Date: September 28, 2015
Pump Equipment: air lift
Well Yield: 10 gpm
Static Water Level: 5.7 ft. below land surface
Pumping Water Level: 15 ft. below land surface

ATTACHMENTS

PUMPING EQUIPMENT
Installed: Installed by Others
Installer's Name: ,
Pump Type:
Depth to Pump: _ ft. below land surface
Pump Capacity: _ gpm
Total Design Head: _ ft.
Pump Horsepower: _ hp
If pump tested Discharge Rate: _ gpm
Duration of Test: _ hours

GEOLOGIC LOG
0 - 5: brown SM - Silty sands, sand-silt mixtures some gravel
5 - 9: brown SM - Silty sands, sand-silt mixtures
9 - 11: black OL - Organic silts and organic silty clays of low plasticity
11 - 14: black/brown PT - Peat, muck, and other highly organic soils
14 - 16: grey SP - Poorly graded sands and gravelly sands, little or no fines m,f sand
16 - 40: red SM - Silty sands, sand-silt mixtures f sand with silt
40 - 42: tan OT - Other cobbles
42 - 43: red SW - Well-graded sands and gravelly sands, little or no fines f sand

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510930

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: ROUTE 440 Well discharge to on-site treatment

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603810 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: DW-7N

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: DEWATERING

Other Use(s):

Diameter (in.): 6

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 20

Deviation Requested: N

Drilling Method: Mud Rotary

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: September 14, 2015
Expiration Date: September 13, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510930

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510930

WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: ROUTE 440 Well discharge to on-site treatment

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603810 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: September 24, 2015

DATE WELL COMPLETED: October 28, 2015

WELL USE: DEWATERING

Other Use(s):

Local ID: DW-7N

WELL CONSTRUCTION

Total Depth Drilled (ft.): 48 Finished Well Depth (ft.): 48 Well Surface: 2.5 ft. Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	17	14		
Borehole	17	48	10		
Casing	0	17	10	Steel	sch 40
Casing	0	23	6	PVC	sch 40
Screen	23	48	6	PVC	0.020-inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	22	10	6	0	515	29
Grout	0	17	14	10	0	630	36
Gravel Pack	22	48	10	6	no. 1 WG		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

RECORD OF TEST
Test Date: September 28, 2015
Pump Equipment: air lift
Well Yield: 10 gpm
Static Water Level: 4.7 ft. below land surface
Pumping Water Level: 15 ft. below land surface

ATTACHMENTS

PUMPING EQUIPMENT
Installed: Installed by Others
Installer's Name: ,
Pump Type:
Depth to Pump: _ ft. below land surface
Pump Capacity: _ gpm
Total Design Head: _ ft.
Pump Horsepower: _ hp
If pump tested Discharge Rate: _ gpm
Duration of Test: _ hours

GEOLOGIC LOG
0 - 8: brown SM - Silty sands, sand-silt mixtures silt with sand and gravels
8 - 10: brown OT - Other wood
10 - 15: black OT - Other COPR
15 - 18: black PT - Peat, muck, and other highly organic soils
18 - 22: grey SW - Well-graded sands and gravelly sands, little or no fines f,m sand
22 - 48: red SM - Silty sands, sand-silt mixtures f sand and silt

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508938

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602517 Northing (Y): 685995
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-TWP-37

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Direct Push Probe

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508938

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508939

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602519 Northing (Y): 686014
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-TWP-38

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Direct Push Probe

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508939

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508940

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602543 Northing (Y): 686010
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-TWP-39

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Direct Push Probe

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508940

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508941

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602562 Northing (Y): 686006
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-TWP-40

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Direct Push Probe

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508941

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508942

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602552 Northing (Y): 685980
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-TWP-41

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Direct Push Probe

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508942

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
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This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508943

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602539 Northing (Y): 685991
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-MW-132

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508943

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508943

MONITORING WELL RECORD

PROPERTY OWNER: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Company/Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602536 Northing (Y): 685989
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: August 10, 2015

DATE WELL COMPLETED: August 10, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-132

WELL CONSTRUCTION

Total Depth Drilled (ft.): 16 Finished Well Depth (ft.): 16 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	16	8		
Casing	0	6	2	PVC	sch 40
Screen	6	16	2	PVC	.010

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	4	8	2	0	188	12
Gravel Pack	4	16	8	2	#1 Morie		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: Water Level Indicator
Well Development Period: 1 hrs.
Method of Development: Pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Geoprobe 6600
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 4: Black Brown SW - Well-graded sands and gravelly sands, little or no fines Asphalt and Fill
4 - 14: Black SM - Silty sands, sand-silt mixtures Fill
14 - 16: Brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Kevin Barber, MONITORING LICENSE # 519390 Company: SUMMIT DRILLING CO INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508944

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602514 Northing (Y): 685974
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-MW-133

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508944

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508944

MONITORING WELL RECORD

PROPERTY OWNER: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Company/Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602515 Northing (Y): 685974
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: August 10, 2015

DATE WELL COMPLETED: August 10, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-133

WELL CONSTRUCTION

Total Depth Drilled (ft.): 16 Finished Well Depth (ft.): 16 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	16	8		
Casing	0	6	2	PVC	sch 40
Screen	6	16	2	PVC	.010

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	4	8	2	0	188	12
Gravel Pack	4	16	8	2	#1 Morie		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: Water Level Indicator
Well Development Period: 1 hrs.
Method of Development: Pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Geoprobe 6600
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 4: Black Brown SW - Well-graded sands and gravelly sands, little or no fines Asphalt and Fill
4 - 14: Black SM - Silty sands, sand-silt mixtures fill
14 - 16: Brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Kevin Barber, MONITORING LICENSE # 519390 Company: SUMMIT DRILLING CO INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508945

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: 81 CHIMNEY ROCK RD BRIDGEWATER TWP, NJ 08807

PROPERTY OWNER

Name: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602530 Northing (Y): 685966
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-MW-134

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 16

Case ID Number: ERFS Jersey City

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 6, 2015
Expiration Date: August 5, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508945

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201508945

MONITORING WELL RECORD

PROPERTY OWNER: N/A BAYFRONT REDEVELOPMENT % THOMAS REU

Company/Organization: Bayfront Redevelopment % Thomas Reu

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Jersey City site 087

Address: 575 Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602530 Northing (Y): 685966
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: August 10, 2015

DATE WELL COMPLETED: August 10, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-134

WELL CONSTRUCTION

Total Depth Drilled (ft.): 16 Finished Well Depth (ft.): 16 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	16	8		
Casing	0	6	2	PVC	sch 40
Screen	6	16	2	PVC	.010

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	4	8	2	0	188	12
Gravel Pack	4	16	8	2	#1 Morie		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: Water Level Indicator
Well Development Period: 1 hrs.
Method of Development: Pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Geoprobe 6600
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 4: Black Brown SW - Well-graded sands and gravelly sands, little or no fines Asphalt and Fill
4 - 14: Black SM - Silty sands, sand-silt mixtures
14 - 16: Brown SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Kevin Barber, MONITORING LICENSE # 519390 Company: SUMMIT DRILLING CO INC

New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Jersey City Site 087

List all AKAs: Honeywell SA6-North

Street Address: 575 Rte 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-MW-132
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-06.0 Longitude: West 40-42-57.6
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685989 East 602536
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 14.63'
   Elevation Top of Outer casing: 15.00' Elevation of ground: 15.01'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature: Date 8/21/15

Surveyor's Name: Glen J. Lloyd License Number: GS37598

Firm Name: Maser Consulting P.A. Certificate of Authorization #: 24GA27986500

Mailing Address 331 Newman Springs Road Suite 203

City/Town: Red Bank State New Jersey Zip Code: 07710

Phone Number 732-383-1950 Ext.: 3466 Fax: 732-383-1984

New Jersey Department of Environmental Protection
Site Remediation Program

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Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

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2. Site Well Number (As shown on application or plans): 087-MW-133
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-06.3 Longitude: West 40-42-57.5
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685974 East 602515
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 14.60'
   Elevation Top of Outer casing: 14.90' Elevation of ground: 14.91'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
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County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-MW-134
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-06.1 Longitude: West 40-42-57.4
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685966 East 602530
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 14.68'
   Elevation Top of Outer casing: 15.04' Elevation of ground: 15.05'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
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Street Address: 575 Rte 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-TWP-37
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-06.3 Longitude: West 40-42-57.7
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685996 East 602518
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 16.16'
   Elevation Top of Outer casing: NO CASING Elevation of ground: 15.13'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
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New Jersey Department of Environmental Protection
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Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

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1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-TWP-38
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-06.2 Longitude: West 40-42-57.9
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 686014 East 602520
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 16.09'
   Elevation Top of Outer casing: NO CASING Elevation of ground: 14.90'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
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New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

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SECTION A. SITE NAME AND LOCATION

Site Name: Jersey City Site 087

List all AKAs: Honeywell SA6-North

Street Address: 575 Rte 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-TWP-39
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-05.9 Longitude: West 40-42-57.9
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 686010 East 602543
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 15.73'
   Elevation Top of Outer casing: NO CASING Elevation of ground: 14.73'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
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New Jersey Department of Environmental Protection
Site Remediation Program

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SECTION A. SITE NAME AND LOCATION

Site Name: Jersey City Site 087

List all AKAs: Honeywell SA6-North

Street Address: 575 Rte 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s): ERFS Jersey City

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner Honeywell
2. Well Location (Street Address) Rte 440, Jersey City, Hudson County, NJ
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 9

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-TWP-40
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-05.7 Longitude: West 40-42-57.8
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 686006 East 602563
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 15.67'
   Elevation Top of Outer casing: NO CASING Elevation of ground: 14.75'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
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SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201508938
2. Site Well Number (As shown on application or plans): 087-TWP-41
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 074-06-05.8 Longitude: West 40-42-57.6
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685981 East 602553
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 16.09'
   Elevation Top of Outer casing: NO CASING Elevation of ground: 15.13'
   Check one: ☐ NAVD 88 ☒ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
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New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609973

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-1S in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602529 Northing (Y): 686004
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-1D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609973

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609974

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-1D in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602529 Northing (Y): 686004
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-1S

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609974

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609975

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-2S in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602538 Northing (Y): 685992
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-2D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609975

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609976

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-2D in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602538 Northing (Y): 685992
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-2S

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609976

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609977

WELL PERMIT

New Well

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Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-3S in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602548 Northing (Y): 685997
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-3D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
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Commissioner

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Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609977

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
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This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609978

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

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PROPERTY OWNER

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Address: 575 Route 440 nested w/087-IP-10-3D in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602548 Northing (Y): 685997
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-3S

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609978

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609979

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-4S in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602531 Northing (Y): 685989
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-4D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609979

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609980

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-4D in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602531 Northing (Y): 685989
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-4S

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609980

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609981

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-5S in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602542 Northing (Y): 685983
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-5D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609981

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609982

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356

City: Scottsdale State: Arizona Zip Code: 05261

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 Route 440 nested w/087-IP-10-5D in 6" hole

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602542 Northing (Y): 685983
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 087-IP-10-5S

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INJECTION

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments: 619614_Site 087 IW diagram ERFS Aug 11 2016.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: August 19, 2016
Expiration Date: August 19, 2017

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201609982

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600074971

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: MI HOLDINGS

Company/Organization: MI Holdings

Address: Rt. 440 & Carbon Place C/O Honeywell Jersey City, New Jersey 07303

WELL LOCATION: Honeywell Redevelopment Project

Address: RT. 440 & CARBON PLACE STUDY AREA 6

County: Hudson Municipality: Jersey City Lot: 2D Block: 1290.1

Easting (X): 602974 Northing (Y): 685537
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-001

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 15

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	2	2	PVC	sch 40
Screen	2	15	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	15	2	0	0	27	1.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600066472

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY SEWAGE AUTHOR

Company/Organization: Jersey City Sewage Author

Address: 575 State Highway 440 Jersey City, New Jersey 07303

WELL LOCATION: Honeywell Redevelopment Project

Address: STATE HIGHWAY RT. 440

County: Hudson Municipality: Jersey City Lot: 2.D Block: 1290.A

Easting (X): 602722 Northing (Y): 685825
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 1, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW03

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 95

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	85	2	PVC	sch 40
Screen	85	95	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	95	2	0	0	172.7	9.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Brian Buttari

Obstruction Type:

Authorization Number: A1402036

Alternative Decomm. Method? No

Authorization Date: February 25, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600066475

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMSON REUTERS

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: STATE HIGHWAY RT. 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603609 Northing (Y): 686287
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 20, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW14

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 97

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	87	2	PVC	
Screen	87	97	2	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	97	2	0	0	175	10
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Brian Buttari

Obstruction Type:

Authorization Number: A1402037

Alternative Decomm. Method? No

Authorization Date: February 25, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602354 Northing (Y): 686405
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 9, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-35

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	32	2	PVC	Sh40
Screen	32	42	2	PVC	Unknown

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	42	2	0	0	75	4.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1405110

Alternative Decomm. Method? No

Authorization Date: May 23, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600054692

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMSON REUTERS

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603613 Northing (Y): 686301
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 20, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-I30T

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 81

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	65.5	2	PVC	
Casing	0	19	6	Steel	
Screen	65.5	80.5	2	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	80.5	2	0	0	145	8.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Brian Buttari

Obstruction Type:

Authorization Number: A1402038

Alternative Decomm. Method? No

Authorization Date: February 25, 2014

Method Used

ATTACHMENTS:

Douglas Myerchin
MASTER
Sealing Driller: LICENSE # 0001612

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047478

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY

Company/Organization: Jersey City

Address: 280 Grove St. Jersey City, New Jersey 07305

WELL LOCATION: Honeywell Redevelopment Project

Address: HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 2.E,2.D Block: 1290.A

Easting (X): 602739 Northing (Y): 685689
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087MW01

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	2	PVC	sch 40
Screen	3	13	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	2	0	0	23	1.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600054745

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900, Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: HWY. 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603026 Northing (Y): 686439
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 22, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-O29T

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 102

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	18	6	Steel	
Casing	0	87	2	PVC	sch 40
Screen	87	102	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	102	2	0	0	215	12
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Brian Buttari

Obstruction Type:

Authorization Number: A1402040

Alternative Decomm. Method? No

Authorization Date: February 25, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047477

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY

Company/Organization: Jersey City

Address: 280 Grove St. Jersey City, New Jersey 07305

WELL LOCATION: Honeywell Redevelopment Project

Address: HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 2.E,2.D Block: 1290.A

Easting (X): 602464 Northing (Y): 685860
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087MWS1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 14

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	4	2	PVC	sch 40
Screen	4	14	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	14	2	0	0	25	1.4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047482

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602536 Northing (Y): 685535
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 9, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-U28

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 16

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	2	PVC	Sh40
Screen	6	16	2	PVC	0.020"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	16	2	0	0	28	1.6
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047481

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Byafront Redevelopment

Address: HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602537 Northing (Y): 686413
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 9, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-W25

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	2	PVC	Sh40
Screen	8	18	2	PVC	0.020"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	32	1.8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

H. Robert Seybold
JOURNEYMAN
Sealing Driller: LICENSE # 0001348

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047476

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY INCINERATION

Company/Organization: Jersey City Incineration

Address: US Highway 1 Jersey City, New Jersey 07305

WELL LOCATION: Honeywell Redevelopment Project

Address: 501 HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 15D Block: 1290.A

Easting (X): 602092 Northing (Y): 686119
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-Y20

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	2	PVC	sch 40
Screen	3	13	2	PVC	.020

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	2	0	0	23	1.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMSON REUTERS

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: 525 Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603523 Northing (Y): 685657
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 20, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-OBS-6D

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20	2	PVC	
Screen	20	30	2		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	30	2	0	0	54	3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1405111

Alternative Decomm. Method? No

Authorization Date: May 23, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801593

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: HONEYWELL, INC.

Company/Organization: Honeywell, Inc.

Address: 101 Columbia Rd. Morristown, New Jersey 07962

WELL LOCATION: Honeywell Redevelopment Project

Address: 575, 555 & 501 RT 440 087-PZ-001

County: Hudson Municipality: Jersey City Lot: 2E / 2D Block: 1290.1

Easting (X): 602158 Northing (Y): 686104
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-PZ-001 SHALLOW

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 22

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	17	2	PVC	sch 40
Screen	17	22	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	22	2	0	0	39	2.2
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801594

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: HONEYWELL, INC.

Company/Organization: Honeywell, Inc.

Address: 101 Columbia Rd. Morristown, New Jersey 07962

WELL LOCATION: Honeywell Redevelopment Project

Address: 575, 555 & 501 RT 440 087-PZ-002

County: Hudson Municipality: Jersey City Lot: 2E / 2D Block: 1290.1

Easting (X): 602152 Northing (Y): 686108
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-PZ-002 DEEP

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 36

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0.5	36	2	PVC	sch 40
Screen	31	36	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	36	2	0	0	64	3.6
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801595

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: 575, 555 & 501 RT 440 087-PZ-003

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603161 Northing (Y): 685659
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 9, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 087-PZ-003 SHALLOW

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	13	2	PVC	
Screen	13	18	2		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	33	2
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801596

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 575, 555 & 501 RT 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603159 Northing (Y): 685665
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 1, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 087-PZ-004

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 29

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20	6	PVC	Sh40
Casing	0	24	2	PVC	Sh40
Screen	24	29	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	29	2	0	0	50	3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1503097

Alternative Decomm. Method? No

Authorization Date: March 31, 2015

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801597

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: HONEYWELL, INC.

Company/Organization: Honeywell, Inc.

Address: 101 Columbia Rd. Morristown, New Jersey 07962

WELL LOCATION: Honeywell Redevelopment Project

Address: 575, 555 & 501 RT 440 087-PZ-005

County: Hudson Municipality: Jersey City Lot: 2E / 2D Block: 1290.1

Easting (X): 602445 Northing (Y): 685877
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-PZ-005 SHALLOW

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 20.5

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0.5	20.5	2	PVC	sch 40
Screen	15.5	20.5	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20.5	2	0	0	37	2.1
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801598

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: HONEYWELL, INC.

Company/Organization: Honeywell, Inc.

Address: 101 Columbia Rd. Morristown, New Jersey 07962

WELL LOCATION: Honeywell Redevelopment Project

Address: 575, 555 & 501 RT 440 087-PZ-006

County: Hudson Municipality: Jersey City Lot: 2E / 2D Block: 1290.1

Easting (X): 602442 Northing (Y): 685874
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 087-PZ-006 DEEP

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 36

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0.5	36	2	PVC	sch 40
Screen	31	36	2	PVC	.010

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	36	2	0	0	64	3.6
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402168

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603490 Northing (Y): 686277
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402169

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603520 Northing (Y): 686267
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402170

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603549 Northing (Y): 686254
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-3

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402171

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603580 Northing (Y): 686201
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-4

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402172

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 remain as is per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603607 Northing (Y): 686226
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-5

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402173

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603576 Northing (Y): 686241
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-6

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402174

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603560 Northing (Y): 686224
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-7

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402175

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603640 Northing (Y): 686213
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-8

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201402176

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCMUA Building

Address: 555 Rt. 440 per Roger Logel

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603680 Northing (Y): 686204
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-IW-9

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	4	PVC	
Screen	3	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Rt. 575

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603522 Northing (Y): 685809
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-106

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	19.95	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	19.95	4	0	0	142	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number: A1610090

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603558 Northing (Y): 686232
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-107

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	19.6	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	19.6	4	0	0	140	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number: A1610091

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603629 Northing (Y): 686211
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-108

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	19.44	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	19.44	4	0	0	139	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number: A1610092

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603608 Northing (Y): 686248
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-109

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20.79	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20.79	4	0	0	148	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number: A1610093

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603570 Northing (Y): 686259
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-110

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20.7	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	29.7	4	0	0	148	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Mark Ortega

Obstruction Type:

Authorization Number: A1610094

Alternative Decomm. Method? No

Authorization Date: October 27, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603524 Northing (Y): 686286
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-111

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	19.54	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	19.54	4	0	0	140	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Mark Ortega

Obstruction Type:

Authorization Number: A1610095

Alternative Decomm. Method? No

Authorization Date: October 27, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603495 Northing (Y): 686295
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-112

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20.64	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20.64	4	0	0	147	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Mark Ortega

Obstruction Type:

Authorization Number: A1610096

Alternative Decomm. Method? No

Authorization Date: October 27, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603598 Northing (Y): 686207
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-113

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20.27	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20.27	4	0	0	145	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Mark Ortega

Obstruction Type:

Authorization Number: A1610097

Alternative Decomm. Method? No

Authorization Date: October 27, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603612 Northing (Y): 686221
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-114

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	10.45	2	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10.45	2	0	0	19	1
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Mark Ortega

Obstruction Type:

Authorization Number: A1610098

Alternative Decomm. Method? No

Authorization Date: October 27, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY JCDPW

Company/Organization: JCDPW

Address: 575 Route 440 Jersey City, New Jersey 07305

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603501 Northing (Y): 686281
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 28, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-115

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	12	4	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	12	4	0	0	86	5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Julia Altieri

Obstruction Type:

Authorization Number: A1610100

Alternative Decomm. Method? No

Authorization Date: October 28, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600088451

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 RT 440 (MW1) JERSEY CITY DEPT. OF PUBLIC WORKS

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602868 Northing (Y): 686322
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: (087 MW 118) OLD AKA-MW1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	13	4	HDPE	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	4	0	0	93	5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600088452

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 RT 440 (MW2) JERSEY CITY DEPT. OF PUBLIC WORKS

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602888 Northing (Y): 686346
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: (087 MW 119) OLD AKA-MW2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 11

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	11	2	PVC	
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	11	2	0	0	20	1
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201117826

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603600 Northing (Y): 686270
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-124

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 14

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	4	2	PVC	
Screen	4	14	2		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	14	2	0	0	25	1.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201117828

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603610 Northing (Y): 686260
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 087-MW-126

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	4	PVC	
Screen	6	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201117829

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603600 Northing (Y): 686250
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-MW-127

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	4	PVC	
Screen	6	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201117830

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JCDPW

Address: 575 Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 603620 Northing (Y): 686240
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: INJECTION

Other Use(s):

Local ID: 087-MW-128

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 10

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	4	PVC	
Screen	6	10	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	10	4	0	0	71	4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913635

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440 MW-111

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603314 Northing (Y): 685561
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: October 27, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 088-OW-5 AKA MW-111

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	2	PVC	
Screen	8	18	2		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	32	2
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600074969

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Batfront Redevelopment

Address: RT. 440 & CARBON PLACE STUDY AREA 6

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603598 Northing (Y): 685046
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 10, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-002

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 15

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	2	2	PVC	Sh40
Screen	2	15	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	15	2	0	0	27	1.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

H. Robert Seybold
JOURNEYMAN
Sealing Driller: LICENSE # 0001348

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600049802

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603442 Northing (Y): 685314
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-101

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 14

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	4	4	PVC	Sh40
Screen	4	14	4	PVC	0.020"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	14	4	0	0	94	4.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell

Address: 501 Rt 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603411 Northing (Y): 685299
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 30, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-102

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8.9	4	PVC	
Screen	8.9	18.9	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18.9	4	0	0	135	7.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1603084

Alternative Decomm. Method? No

Authorization Date: March 26, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600049801

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603415 Northing (Y): 685483
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 10, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-103

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 20

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	5	4	PVC	Sh40
Screen	5	20	4	PVC	0.020"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20	4	0	0	145	8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913629

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440 MW-105

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603411 Northing (Y): 685379
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 30, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 088-OW-1 AKA MW-105

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	4	PVC	
Screen	6	11	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	11	4	0	0	80	4.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1603085

Alternative Decomm. Method? No

Authorization Date: March 29, 2016

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913630

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603457 Northing (Y): 685345
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-106/OW-2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	2	PVC	Sh40
Screen	8	18	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	32	1.8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913631

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603467 Northing (Y): 685388
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-107/EW-1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	4	PVC	Sh40
Screen	8	18	4	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	4	0	0	130	7.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913632

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603424 Northing (Y): 685276
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-108/OW-3

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	2	PVC	Sh40
Screen	8	18	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	32	1.8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913633

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR AT

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603438 Northing (Y): 685285
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088- MW-109/OW-4

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	2	PVC	Sh40
Screen	8	18	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	2	0	0	32	1.8
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913634

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 501 ROUTE 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603416 Northing (Y): 685269
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 24, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-110/EW-2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	4	PVC	Sc40
Screen	8	18	4	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	4	0	0	128	7
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200913628

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: JERSEY CITY INCINERATOR

Address: 501 ROUTE 440 SVE-114

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603318 Northing (Y): 685550
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 12, 2016

WELL USE: SOIL VAPOR EXTRACTION

Other Use(s): Monitoring **Local ID:** 88-EW-3 AKA MW-113

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 18 Was a New Well Drilled? N

Formation Type: Unconsolidated New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	4	PVC	
Screen	8	18	4	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	18	4	0	0	128	7.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No Authorization Official:

Obstruction Type: Authorization Number:

Alternative Decomm. Method? No Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201117831

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: JCIA

Address: 501 Route 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603410 Northing (Y): 685378
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 30, 2016

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-114

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 11

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	7	4	PVC	
Screen	7	11	4		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	11	4	0	0	80	4.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1603086

Alternative Decomm. Method? No

Authorization Date: March 29, 2016

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: State Route 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603472 Northing (Y): 685380
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 12, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 088-MW-115

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3.5	4	PVC	Sc40
Screen	3.5	13.5	4	PVC	Unknown

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13.5	4	0	0	94	5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Julia Altieri

Obstruction Type:

Authorization Number: A1508027

Alternative Decomm. Method? No

Authorization Date: August 11, 2015

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600047476

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: JERSEY CITY INCINERATION

Company/Organization: Jersey City Incineration

Address: US Highway 1 Jersey City, New Jersey 07305

WELL LOCATION: Honeywell Redevelopment Project

Address: 501 HIGHWAY 440

County: Hudson Municipality: Jersey City Lot: 15D Block: 1290.A

Easting (X): 602092 Northing (Y): 686119
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: February 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 088MWG1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	3	2	PVC	sch 40
Screen	3	13	2	PVC	.020

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	2	0	0	23	1.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Mark Christman
JOURNEYMAN
Sealing Driller: LICENSE # 0021241

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801589

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 575, 555 & 501 RT 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603710 Northing (Y): 685154
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 10, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 088-PZ-001

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 12

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	7	2	PVC	Sh40
Screen	7	12	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	12	2	0	0	22	1.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801590

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 575, 555 & 501 RT 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603713 Northing (Y): 685161
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 10, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 088-PZ-002

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 25

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	20	2	PVC	SH40
Casing	0	14	6	PVC	Sh40
Screen	20	25	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	25	2	0	0	45	2.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1503098

Alternative Decomm. Method? No

Authorization Date: March 31, 2015

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801591

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 575, 555 & 501 RT 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603349 Northing (Y): 685392
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 25, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 088-PZ-003

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 15.5

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	10.5	2	PVC	Sh40
Screen	10.5	15.5	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	15.5	2	0	0	27	1.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
P200801592

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bay Front Redevelopment

Address: 575, 555 & 501 RT 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603343 Northing (Y): 685394
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 2, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 088-PZ-004

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 27.5

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	18	6	PVC	SH40
Casing	0	22	2	PVC	SH40
Screen	22	27	2	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	27	2	0	0	50	2.75
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1503096

Alternative Decomm. Method? No

Authorization Date: March 31, 2015

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510925

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: ROUTE 440 (SOUTH) Well discharged to on site treatment

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603700 Northing (Y): 685320
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: DEWATERING

Other Use(s):

Local ID: DW-6N

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 43

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	12	10	Steel	
Casing	0	18	6	PVC	
Screen	18	43	6	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	43	6	0	0	690	39
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1603064

Alternative Decomm. Method? No

Authorization Date: March 21, 2016

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201510930

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: ROUTE 440 Well discharge to on-site treatment

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603810 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: DEWATERING

Other Use(s):

Local ID: DW-7N

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 48

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	23	6	PVC	
Casing	0	17	10	Steel	
Screen	23	48	6	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	48	6	0	0	770	44
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1603065

Alternative Decomm. Method? No

Authorization Date: March 21, 2016

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600076860

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: STATE RT. 440 STUDY AREA 7

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603459 Northing (Y): 685139
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: August 12, 2015

WELL USE: MONITORING

Other Use(s):

Local ID: 115-E4-DO

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 44.5

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	24.5	4	PVC	SH40
Casing	0	20.5	8	Steel	SH40
Screen	24.5	44.5	4	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	44.5	4	0	0	320	18
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Julia Altieri

Obstruction Type:

Authorization Number: A1508030

Alternative Decomm. Method? No

Authorization Date: August 11, 2015

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Bayfront Redevelopment

Address: 60 Kellogg St & Rt. 440

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603099 Northing (Y): 685381
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: May 26, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 115-ES-DO

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	26.9	4	PVC	SH40
Casing	0	20	4	Steel	SH40 - Approximate Depth
Screen	26.9	46.9	4	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	46.9	4	0	0	335	19
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official: Lynn Stout

Obstruction Type:

Authorization Number: A1405115

Alternative Decomm. Method? No

Authorization Date: May 23, 2014

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
2600078834

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: HONEYWELL INTERNATIONAL

Company/Organization: HONEYWELL INTERNATIONAL

Address: 101 COLUMBIA ROAD Morristown Town, New Jersey 07962

WELL LOCATION: Honeywell Redevelopment Project

Address: STATE ROUTE 440 SA-7

County: Hudson Municipality: Jersey City Lot: 14J, H Block: 1290.1

Easting (X): 602449 Northing (Y): 685758
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 25, 2014

WELL USE: MONITORING

Other Use(s):

Local ID: 115-W1-DO

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.):

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	36.9	4	PVC	SCH40
Screen	36.9	46.9	4	PVCX	.020

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	46.9	4	0	0	334	19
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

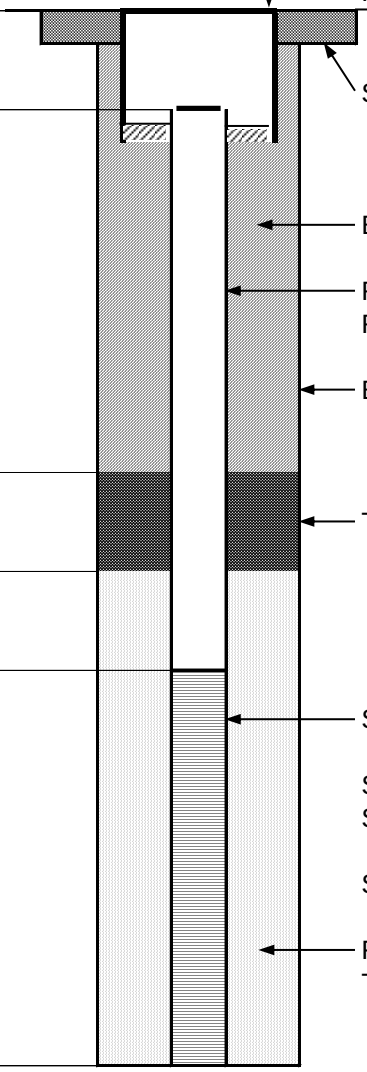
ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-500
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/31/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 7

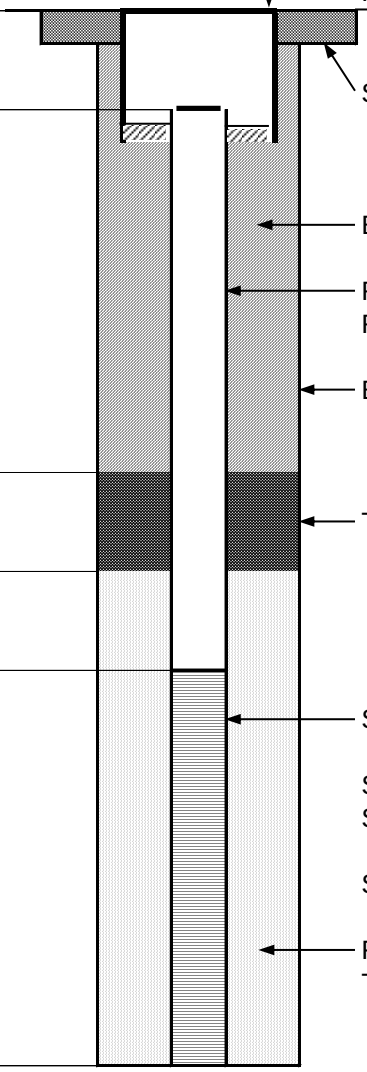
Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	0	7	Flushmount Diameter: 8"
Riser Pipe	xxx		Surface Seal Type: Concrete
			Backfill/Grout Type: Type 2 Portland Cement
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 2"
			Borehole Diameter: 6 5/8"
Top of Seal	1	6	
			Type of Seal: #00 Sand
Top of Filter Pack	1.5	5.5	
Top of Screen	2	5	
			Screen Type: Schedule 40 PVC
			Screen ID: 2"
			Screen Slot Size: .0010"
			Screen Length: 9'
			Filter/Sand Pack Type: #1 Sand
Base of Screen / Total Depth	11	-4	



Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-501
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/30/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 15

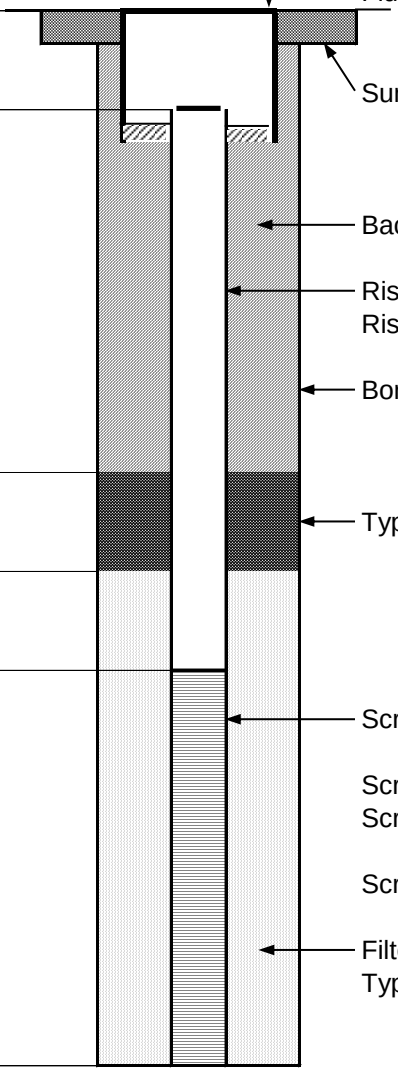
Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	0	15	Flushmount Diameter: 8"
Riser Pipe	xxx		Surface Seal Type: Concrete
			Backfill/Grout Type: Type 2 Portland Cement
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 2"
			Borehole Diameter: 6 5/8"
Top of Seal	6	9	
			Type of Seal: #00 Sand
Top of Filter Pack	7	8	
Top of Screen	8	7	
			Screen Type: Schedule 40 PVC
			Screen ID: 2"
			Screen Slot Size: .0010"
			Screen Length: 8.5'
			Filter/Sand Pack Type: #1 Sand
Base of Screen / Total Depth	16.5	-1.5	



Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-502
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/30/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 14.9

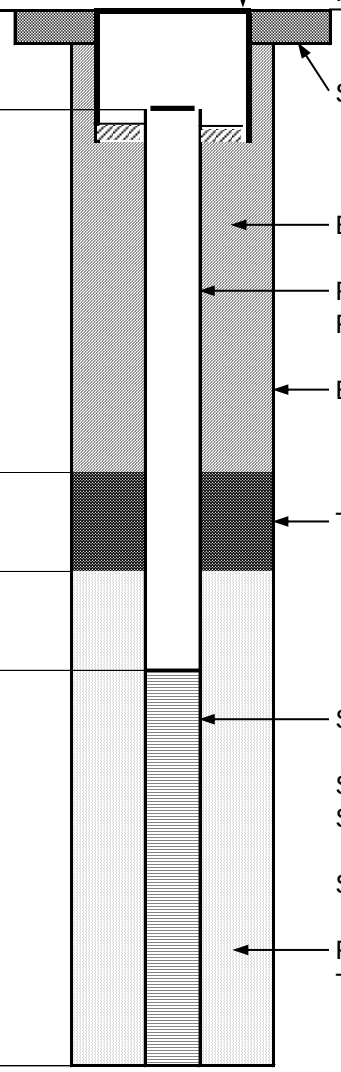
Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	0	14.9	Flushmount Diameter: 8"
Riser Pipe	xxx		Surface Seal Type: Concrete
			Backfill/Grout Type: Type 2 Portland Cement
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 2"
			Borehole Diameter: 6 5/8"
Top of Seal	5.9	9	
			Type of Seal: #00 Sand
Top of Filter Pack	6.9	8	
Top of Screen	7.9	7	
			Screen Type: Schedule 40 PVC
			Screen ID: 2"
			Screen Slot Size: .0010"
			Screen Length: 8'
			Filter/Sand Pack Type: #1 Sand
Base of Screen / Total Depth	15.9	-1	



Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-503
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/31/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 7.7

Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	0	7.7	Flushmount Diameter: 8"
Riser Pipe	xxx		Surface Seal Type: Concrete
			Backfill/Grout Type: Type 2 Portland Cement
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 2"
			Borehole Diameter: 6 5/8"
Top of Seal	0.7	7	
			Type of Seal: #00 Sand
Top of Filter Pack	1.2	6.5	
Top of Screen	1.7	6	
			Screen Type: Schedule 40 PVC
			Screen ID: 2"
			Screen Slot Size: .0010"
			Screen Length: 8'
			Filter/Sand Pack Type: #1 Sand
Base of Screen / Total Depth	9.7	-2	



Notes:

APPENDIX F

WELL ABANDONMENT RECORDS

State of New Jersey
Department of Environmental Protection
Site Remediation Program
Mailcode 401-06
P.O. Box 420
Trenton, NJ 08625-0420

CHRIS CHRISTIE
Governor
KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Maria Kaouris, Remediation Manager
Honeywell International, Inc.
101 Columbia Road
Morristown, New Jersey 07962

Date: February 16, 2012

Approval

Re: Classification Exception Area
Study Areas 5, 6 and 7
Hudson County Chromate Sites 73, 87, 88, 90, 115, 117, 120, 124, 125, 134, 140, 153, 157, and 184
Jersey City, Hudson County
NJDEP PI # G000008789

Dear Ms. Kaouris:

The New Jersey Department of Environmental Protection (NJDEP) has reviewed the Groundwater Classification Exception Area (CEA) application dated 8 June 2009, prepared by HydroQual, Inc. The NJDEP has determined that the referenced document is in compliance with Section 7:26E-8.3 of the New Jersey Technical Requirements for Site Remediation, and the CEA Guidance Document (revised November 1998). NJDEP hereby approves the CEA request effective the date of this letter.

Honeywell is advised that the CEA does not specify monitoring requirements since it functions as a notification mechanism, not as a "stand alone" enforcement or regulatory document. The need and the extent of ground water monitoring required during the duration of the CEA will be determined as part of the Comprehensive Ground Water Monitoring Program. As specified in NJAC 7:26E-8.3(b)5, the Department will require Honeywell to notify external agencies/affected parties of the CEA designations according to the guidelines established in the CEA Guidance Document (11/98) which can be located at: http://www.nj.gov/dep/srp/guidance/cea/ceaguid2.pdf. Note that all property owners within the plume do not need to be notified as long as they are on public water. Honeywell must also comply with the Biennial Certification requirements at NJAC 7:26E-8.6.

The CEAs are for the ground water contamination in three distinct water bearing zones (Shallow, Deep Overburden, and Bedrock). Since the aerial extent of contamination is different for each of the three zones, three separate CEAs were prepared. Note that these

CEAs are only for total and hexavalent chromium. Any other ground water contamination areas within or nearby (e.g. organic compounds in Study Area 6 – North) will require a separate CEA.

If you have any questions, please contact Thomas J. Cozzi of the Site Remediation Program at (609) 984-2905.

Sincerely,

Thomas J. Cozzi, Assistant Director
NJDEP Site Remediation

C: Barbara A. Netchert, Hudson County Clerk
Hudson County Regional Health Commission (CEHA)
Robert Byrne, RMC, Jersey City Clerk
Robert Vogt, Jersey City Division of Health
Carol Ann Wilson, Hudson County Department of Health & Human Services
Stephen D. Marks PP, AICP, Hudson County Division of Planning
Bureau Chief, NJDEP Bureau of Safe Drinking Water
Bureau Chief, NJDEP Bureau of Water Systems and Well Permitting
David Doyle, NJDEP-SRP
David Van Eck, NJDEP-BGWPA

State of New Jersey
Department of Environmental Protection
Site Remediation Program
Mailcode 401-06
P.O. Box 420
Trenton, NJ 08625-0420

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101 Columbia Road
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Bureau Chief, NJDEP Bureau of Water Systems and Well Permitting
David Doyle, NJDEP-SRP
David Van Eck, NJDEP-BGWPA

JUNE 2009 CEA APPLICATION

Ground Water Classification Exception Area Fact Sheet

A. SITE INFORMATION

1. Program's Site Identification Number: 64070

2. Program Interest Number (Preferred ID): G000002548

3. Program Interest Name: Roosevelt Drive In (Site 115)

4. Street address: 425, 445 & 465 Route 440

5. City: Jersey City

6. County: Hudson

7. Block and Lots of the site (duplicate if the site is located in more than one municipality):

   a. Name of the municipality in which the site is located: Jersey City

   b. Block and Lots: Block: 1290.A Lots: 11W, 9L, 11H, 11J, 11K, 11L, 11Y, 11M, 11N, 11O, 11P, 11Q, 11R, 12B, 12A, 10Z, 10E, 10H, 10Y, 11T, 11U, 2D, 2E, 15D

   c. Year of tax map: 1977

8. United States Geological Survey Quadrangle map, indicating the location of the site, presented as Exhibit A.

9. Site Contact:

   a. Name of contact person: John J. Morris, P.E.

   b. Company name: Honeywell International Inc.

   c. Mailing address: 101 Columbia Road Morristown, NJ 07962

   d. Phone number: (973) 455 - 4003

B. PROPOSED CLASSIFICATION EXCEPTION AREA INFORMATION

1. Narrative description of proposed classification exception area:

The proposed CEA boundary represents the maximum extent to which groundwater in the shallow water-bearing zone (fill material) contains total chromium in excess of the NJDEP Class II-A Ground Water Quality Standards (GWQS). With one exception, this delineation is based on prior subsurface investigations conducted in the vicinity of Hudson County Chromate Site 115 (Study Area 7). The basis for this delineation has been documented in Section 4 of the Final Groundwater Investigation Report (FGIR) prepared by HydroQual on behalf of Honeywell (HydroQual, February 2, 2007). The proposed CEA boundary therefore has been developed based on the extent of total chromium in the shallow zone as depicted on Figure 4.2-3 of the FGIR. The exception is that there is no longer groundwater present above the meadow mat within the boundary of Site 115, and thus this portion of the Study Area has been carved out of the CEA. The majority of this area has been excavated and replaced with clean fill. The remaining portion of Site 115 is currently being excavated and has been dewatered through pumping from headers installed within the COPR. Based on multiple lines of evidence (as further discussed in the FGIR), it is concluded that this plume has reached steady-state conditions and thus no further lateral expansion of the plume is expected.

2. Location of proposed classification exception area (duplicate if the site is located in more than one municipality):

a. Name of the municipality in which the site is located: Jersey City

b. Block and Lots: Block: 1290.A Lots: 9H, 11W, 9L, 11H, 11J, 11K, 11L, 11Y, 11M, 11N, 11O, 11P, 11Q, 11R, 12B, 12A, 10Z, 10E, 10H, 10Y, 11T, 11U, 2D, 2E, 15D; Block: 1290.B Lots: 9E, 10F, 10G; Block: 1288.2 Lot: C1; Block: 1275 Lot: 4; Block: 1285.5 Lot: 1; Block 1286 Lot: 5; Block: 1286.5 Lot: 1; Blocks: 1291 – 1292 Lot: 76

c. Year of tax map: 1977

3. Affected aquifer(s):

Aquifer Name	Vertical Depth	Ground Water Classification
Fill	0 - 20 ft	Class II-A

4. Contaminant concentrations:

Contaminant	Concentration[1]	GWQS[2]	SWQS[3]
Chromium (Total)	229,000 ug/L	70 ug/L	750 ug/L
Chromium (Hexavalent)	115,000 ug/L	-------	50 ug/L

5. Proposed classification exception area boundaries:

Horizontal: Scaled map indicating projected areal extent of proposed classification exception area, as well as location of site, presented as Exhibit B.

Vertical: As stated in B.3., above.
Locational coordinates of boundary of proposed classification exception area as New Jersey State Plane Coordinates. A minimum of four coordinates shall be submitted, in a format compatible with Department's geographic information system:

Northing	Easting	(New Jersey State Plane Coordinates)
683438	603172	
683814	603807	
684547	604214	
685701	604234	
685353	603400	
686111	602154	
685441	601413	
684256	602709	

Latitude	Longitude
40.7090	-74.0994
40.7100	-74.0971
40.7120	-74.0956
40.7152	-74.0956
40.7143	-74.0986
40.7164	-74.1031
40.7145	-74.1057
40.7113	-74.1011

6. Estimated size of the proposed ground water classification exception area:

45.35 Acres

7. Projected duration and expiration date of the proposed classification exception area:

a. Duration (in years and or days): Indeterminate

Data from prior investigations indicates that the presence of elevated chromium in the shallow groundwater is limited to the extent of COPR and COPR-impacted soils. This indicates that the plume will not expand beyond its current extent, and that concentrations will remain above the NJ GWQS as long as the COPR remains in place. Thus, with the following exceptions, the duration of the proposed CEA is indeterminate.

The exceptions include ongoing and planned remedial actions which will reduce the concentrations and/or footprint of the shallow groundwater plume. For example, hot spot soil excavation with off-site disposal, soil containment, capping, and the installation of subsurface barrier walls are planned for SA-5, SA-6 north and SA-6 south. Remedial action work plans that provide a description of these activities have been approved by NJDEP. Upon completion of these remedial activities, proposals will be made to modify the CEA accordingly.

b. Expiration date (as calendar date): N/A

Footnotes

1 Maximum concentration detected at the time Classification Exception Area information submitted to the Department. For a complete list of sampling points in which chromium was detected above applicable standards, refer to the Final Groundwater Investigation Report-Honeywell Study Area 7 Site (HydroQual, February 2007).

2 New Jersey Ground Water Quality Standards, N.J.A.C. 7:9-6.

3 New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B.

EVALUATION OF CURRENT AND FUTURE GROUNDWATER USE (RESULTS OF THE 25-YEAR WATER USE PLANNING REVIEW)

EVALUATION OF CURRENT AND FUTURE GROUNDWATER USE
(RESULTS OF THE 25-YEAR WATER USE PLANNING REVIEW)
(per 7:26E-8.3(b)4(ii) of the NJ Technical Requirements)

No.	Required Contact	Results of Inquiry	Influence On CEA
1	New Jersey Water Supply Master Plan	Contacted Ian Snook, DEP Division of Water Supply – no need for reviewing the NJ Water Supply Master Plan (e-mail dated 02/06/2008).	None
2	DEP Bureau of Water Allocation	Completed well search indicated 5 water supply wells within 1-mile radius – for details see Table 1.	None
3	Municipal Master Plans – Hudson County	Contacted Barbara A. Netchert, County Clerk's Office – was transferred to Neil Carroll, County Counsel's office and to Willie J. Flood, Register's office – no plans that would affect the groundwater	None
	Municipal Master Plans – Jersey City	Contacted Robert Byrne, City Clerk's Office and Bob Cotter, Director of Planning – Master Plan does not affect the groundwater.	None
4	Zoning Plans – Hudson County	Contacted Neil Carroll, County Counsel's office – no plans that would affect the groundwater	None
	Zoning Plans – Jersey City	Contacted Robert Byrne, City Clerk's Office and Bob Cotter, Director of Planning – no Zoning Plans that would affect the groundwater.	None
5	Local Water Purveyor	Contacted Richard Henning, United Water NJ and Keh Liu, Jersey City Municipal Utilities Authority – no plans pertaining to installation of water lines that would affect the groundwater.	None
6	Planning Officials – Hudson County	Contacted Stephen Marks, County Director of Planning and Mariano Vega, County Dept. of Parks, Engineering and Planning – was transferred to Bob Jasek, County Engineer – no plans that would affect the groundwater	None
	Planning Officials – Jersey City	Contacted Bob Cotter, City Director of Planning and Brian O'Reilly, City Business Administrator – no plans that would affect the groundwater.	None

EVALUATION OF CURRENT AND FUTURE GROUNDWATER USE
(RESULTS OF THE 25-YEAR WATER USE PLANNING REVIEW)
(per 7:26E-8.3(b)4(ii) of the NJ Technical Requirements)

No.	Required Contact	Results of Inquiry	Influence On CEA
7	Board of Health – Hudson County	Contacted Carol Ann Wilson, County Dept. of Health & Human Services – was transferred to Michael Walker, County Regional Health Comission – no plans that would affect the groundwater.	None
	Board of Health – Jersey City	Contacted Harry Melendez, City Dept. of Health & Human Services – was transferred to Joseph Castagna, County Health Officer – nothing that would affect the groundwater.	None
8	Ordinances Restricting Installation of Potable Wells – Hudson County	Contacted Barbara A. Netchert, County Clerk, Neil Carroll, County Counsel's office, Stephen Marks, County Director of Planning, Mariano Vega, County Dept. of Parks, Engineering and Planning, Bob Jasek, County Engineer, and Michael Walker, County Regional Health Comission – no ordinances restricting installation of potable wells (no potable wells in Jersey City area).	None
	Ordinances Restricting Installation of Potable Wells – Jersey City	Contacted Robert Byrne, City Clerk, Bob Cotter, City Director of Planning, Brian O'Reilly, City Business Administrator, and Joseph Castagna, County Health Officer – no ordinances restricting installation of potable wells (no potable wells in Jersey City area).	None

Table 1
Water Supply Wells
Well Search Summary

The results of the well search found five (5) water supply wells within a 1-mile radius of the site. Three (3) of these wells are listed as industrial water supply wells and the other two as domestic and non-public. Although their current operational status is unknown, all five wells are completed in the bedrock rather than the Shallow zone. None of the wells are located within the proposed CEA boundary, and potable water is provided to all locations within a 1-mile radius of the site.

Permit No.	Owner Name	Well Depth	Capacity	Well Use	Permit Date
		feet	gpm		MM-YY-DD
2600004975	CELANESE CHEMICAL CO	200	20	Domestic	FEB-81-25
2600001731	SPEEDWAY AUTO LAUNDR	150	40	Industrial	OCT-57-11
2600040387	FOWLER EQUIPT. CO. I	300	40	Industrial	APR-95-18
2600043694	PARK, HEE	150	35	Industrial	FEB-96-26
2600002429	GAS INC	150	10	Non Public	JUN-61-20

NAME AND ADDRESS COPY LIST

NAME AND ADDRESS COPY LIST

Barbara A. Netchert
Hudson County Clerk's Office
Brennan Court House
583 Newark Ave.
Jersey City, NJ 07306
Tel (201) 795-6112

Robert Byrne, RMC
Jersey City Clerk's Office
280 Grove Street
Jersey City, NJ 07302
Tel (201) 547-5150

Carol Ann Wilson
Hudson County Department of Health & Human Services
Meadowview Campus
595 County Road
Secaucus, NJ 07094
Tel (201) 271-4310

Harry Melendez
Jersey City Department of Health & Human Services
201 Cornelison Avenue
Jersey City, NJ 07304
Tel 201-547-6800

County Environmental Health Act
Hudson County Regional Health Commission
Meadowview Campus, Building 1
595 County Avenue
Secaucus, NJ 07094
(201) 223-1133 - Environmental Coordinator

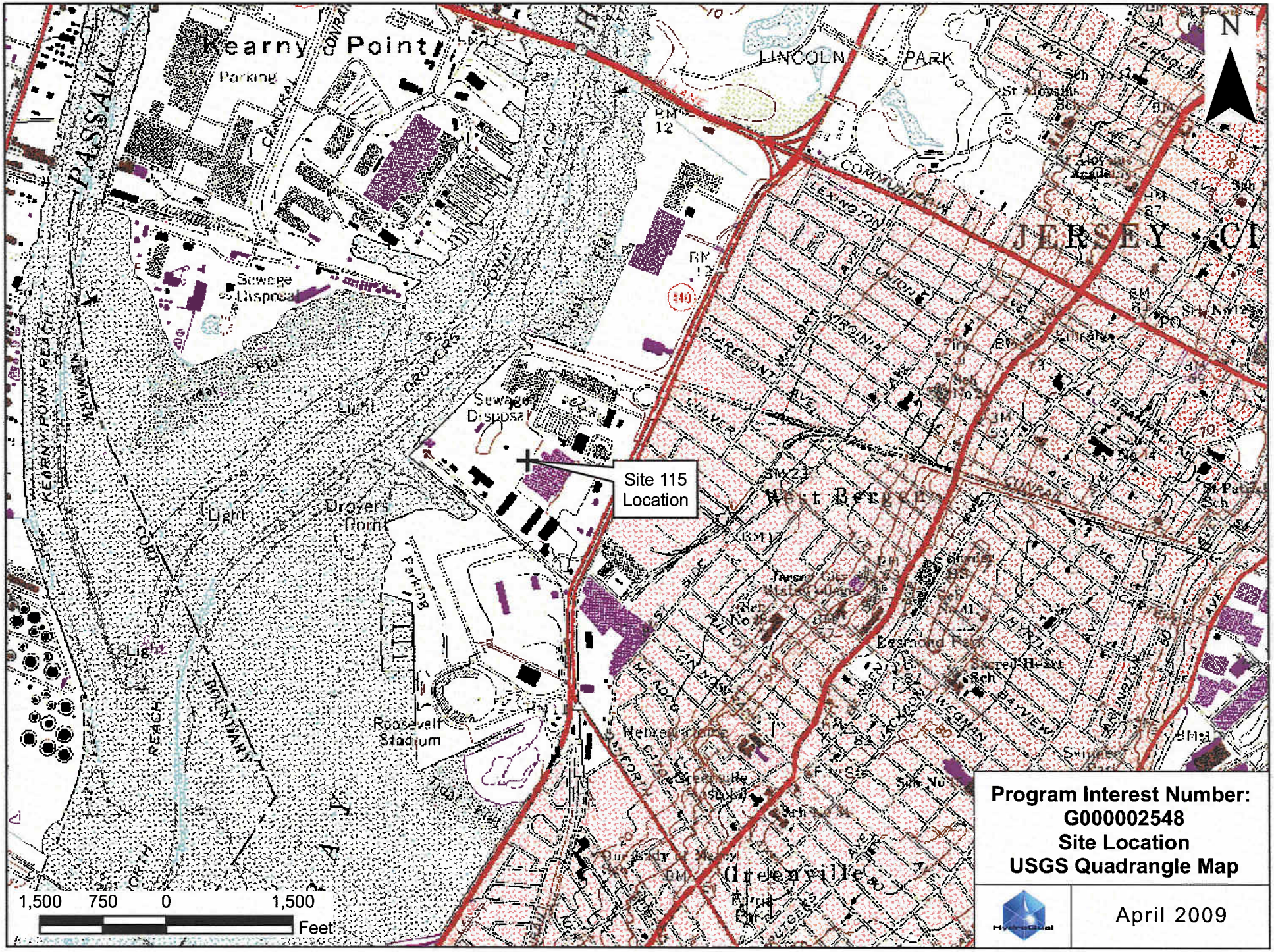
Stephen D. Marks PP, AICP
Hudson County Division of Planning
Brennan Court House
583 Newark Avenue
Jersey City, NJ 07306
Tel (201) 217-5137

Bureau Chief
Department of Environmental Protection
Bureau of Safe Drinking Water
401 E. State Street
P.O. Box 426
Trenton, NJ 08625-0426
(609) 292-5550

Diane Zalaskus
Department of Environmental Protection
Bureau of Water Allocation
401 E. State Street
P.O. Box 426
Trenton, NJ 08625-0426
(609) 292-2957

EXHIBIT A:

USGS QUADRANGLE MAP



Program Interest Number: G000002548
Site Location
USGS Quadrangle Map

April 2009

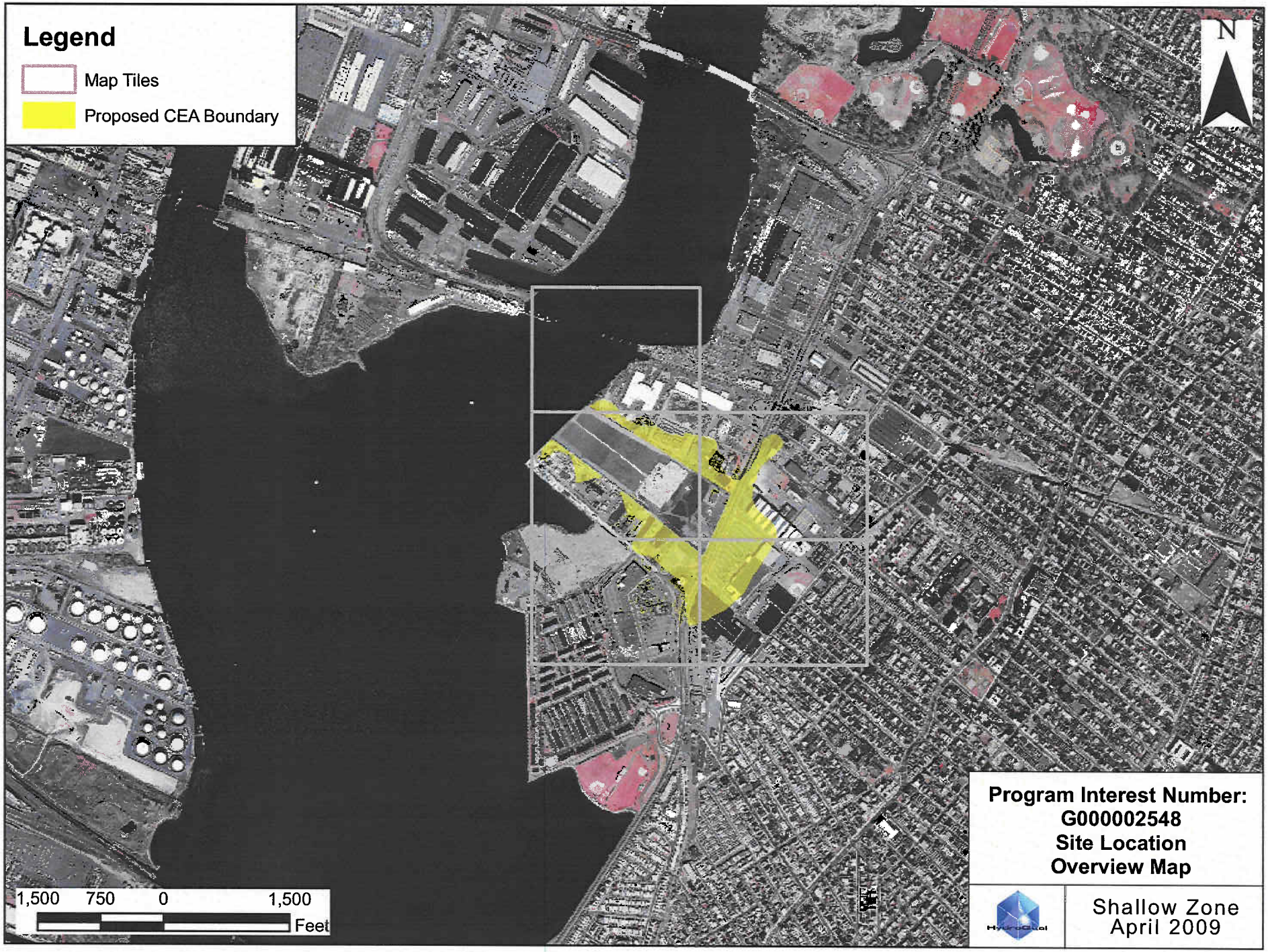
Data Source: USGS Digital Raster Graphic, Jersey City

EXHIBIT B:

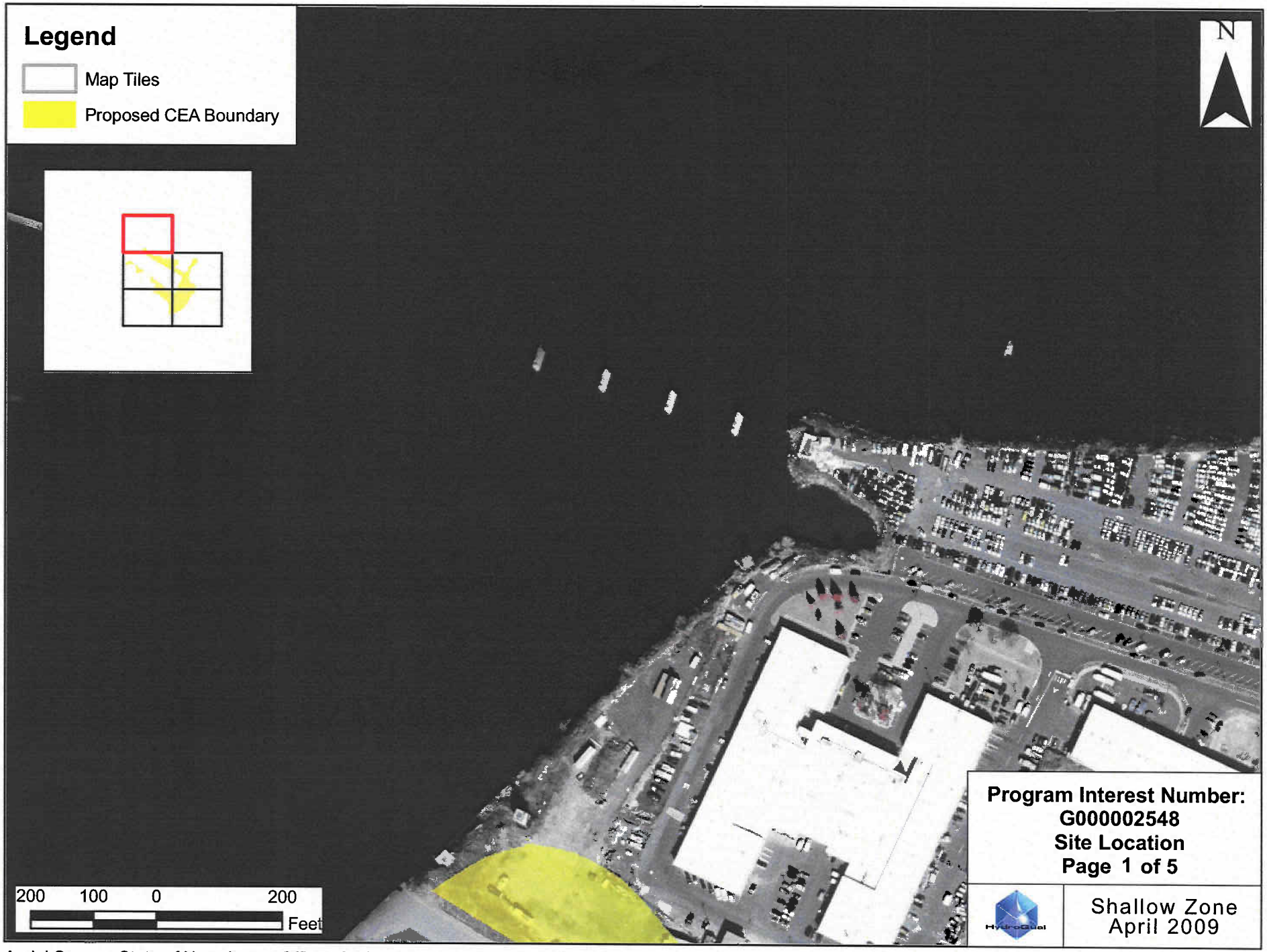
AERIAL EXTENT OF PROPOSED CEA AND SITE LOCATION MAPS

CEA BOUNDARY

EXTENT OF TOTAL CHROMIUM ABOVE THE NJDEP GROUNDWATER QUALITY STANDARDS (70 ppb)



Aerial Source: State of New Jersey Office of Information Technology, Office of Geographic Information Systems, 2002



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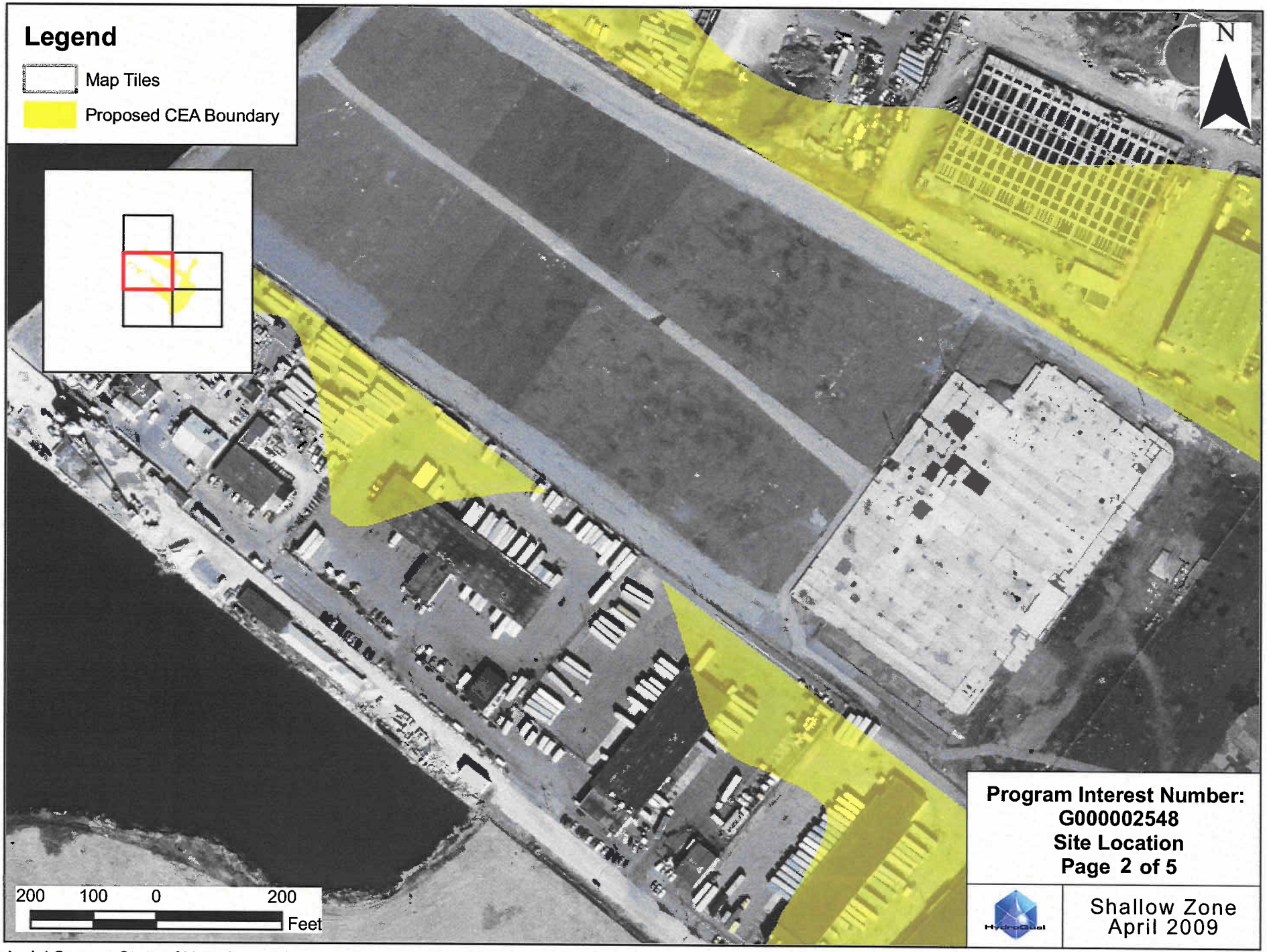

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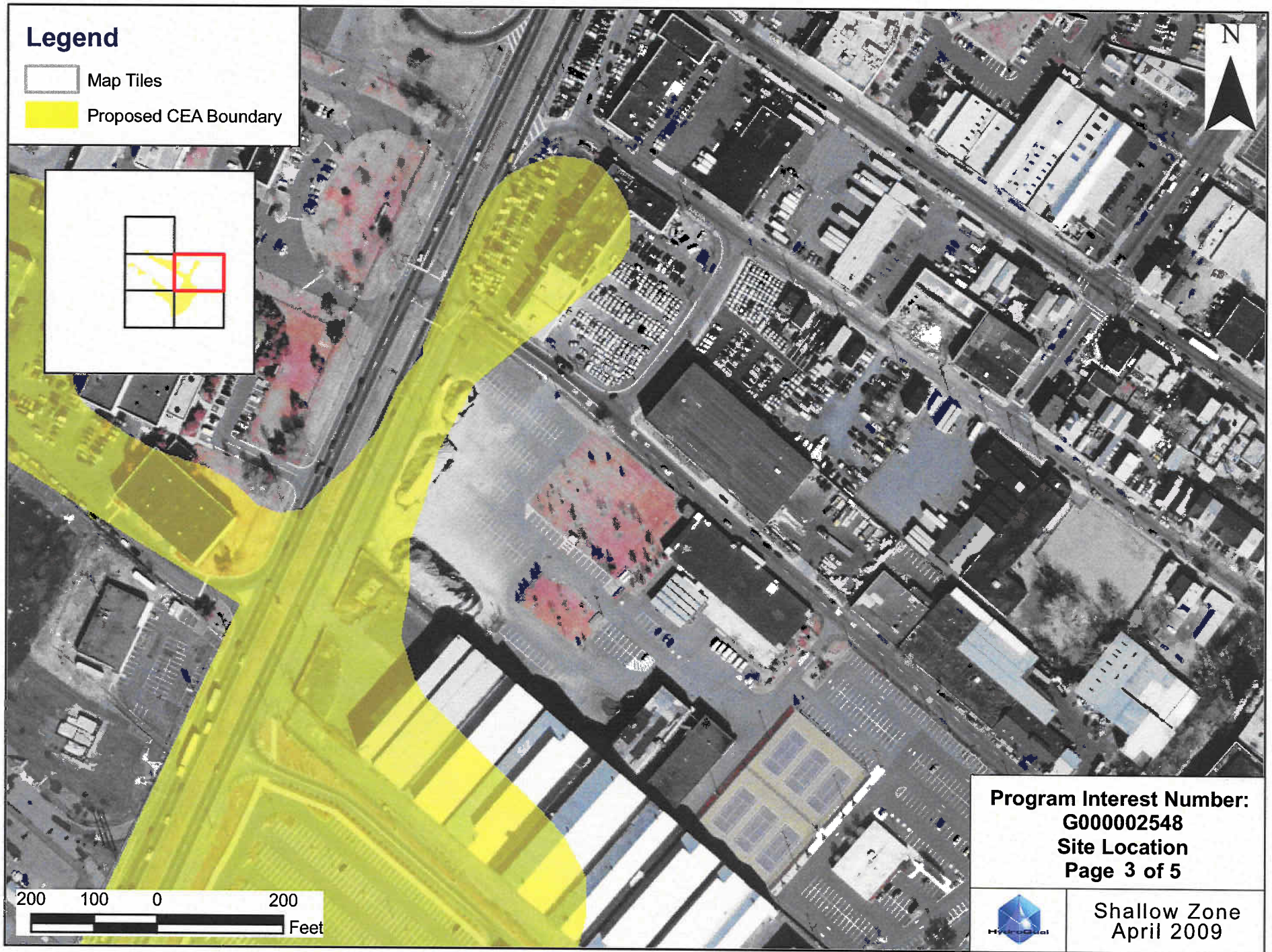

Aerial Source: State of New Jersey Office of Information Technology, Office of Geographic Information Systems, 2002

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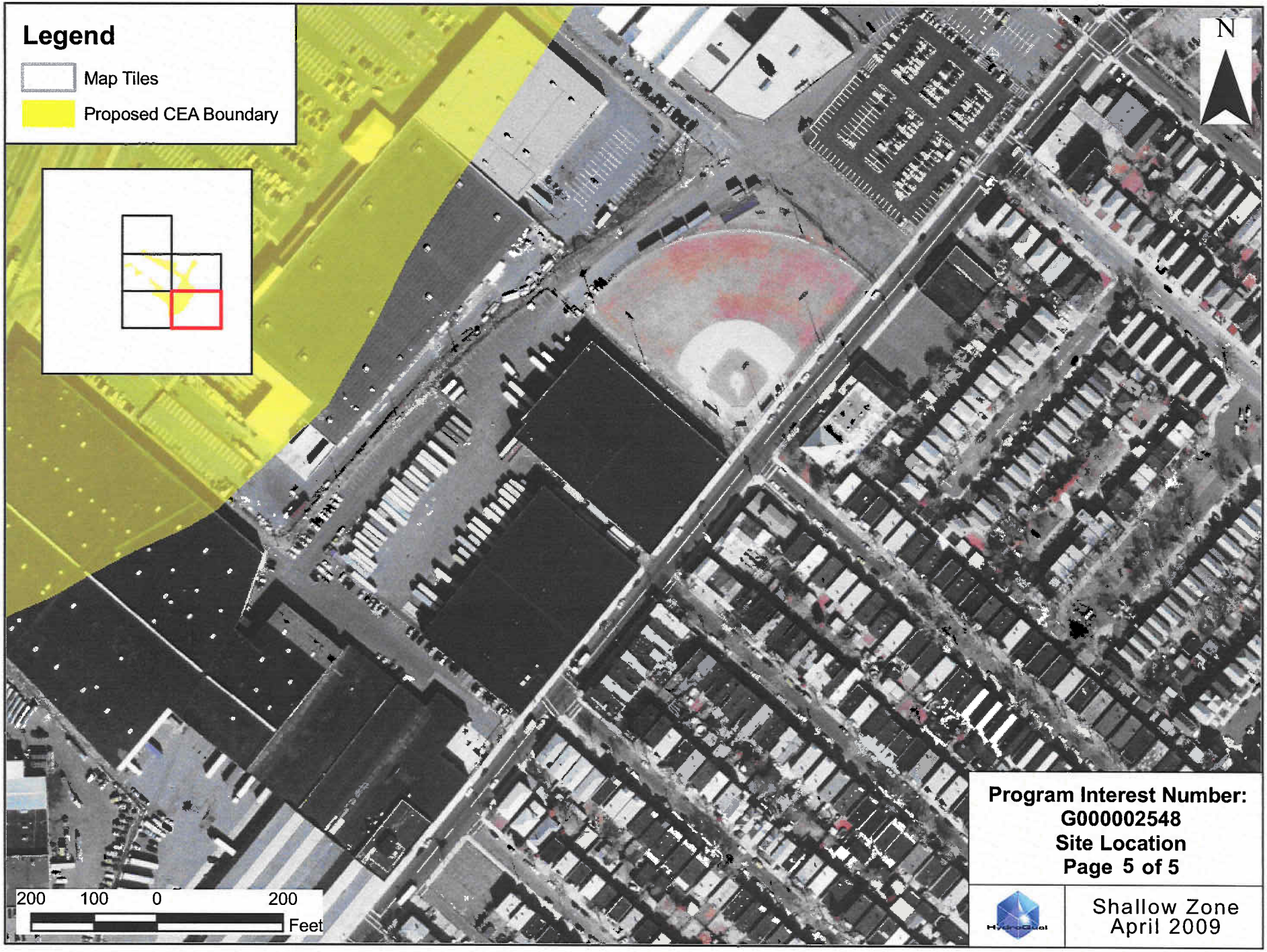
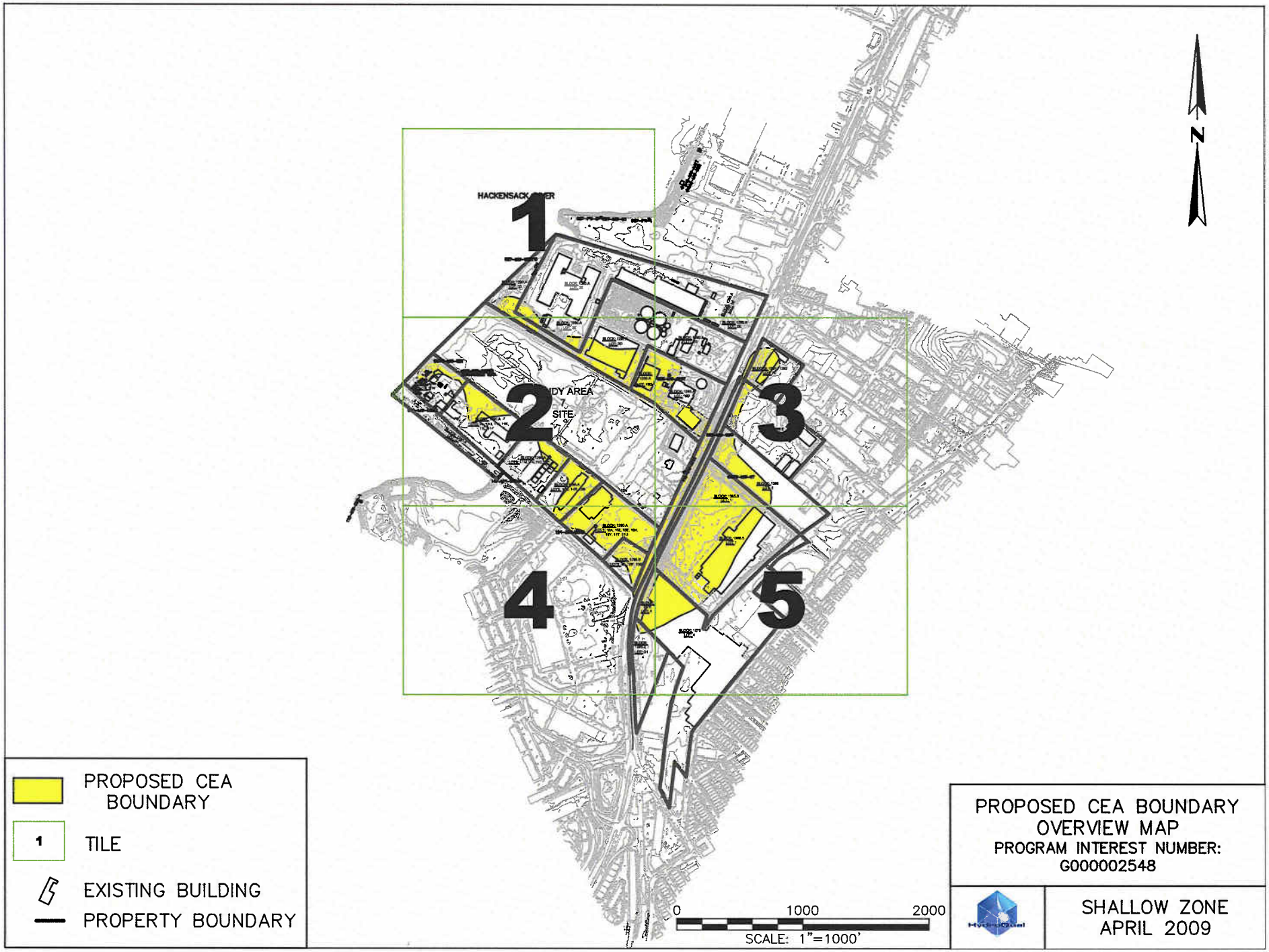
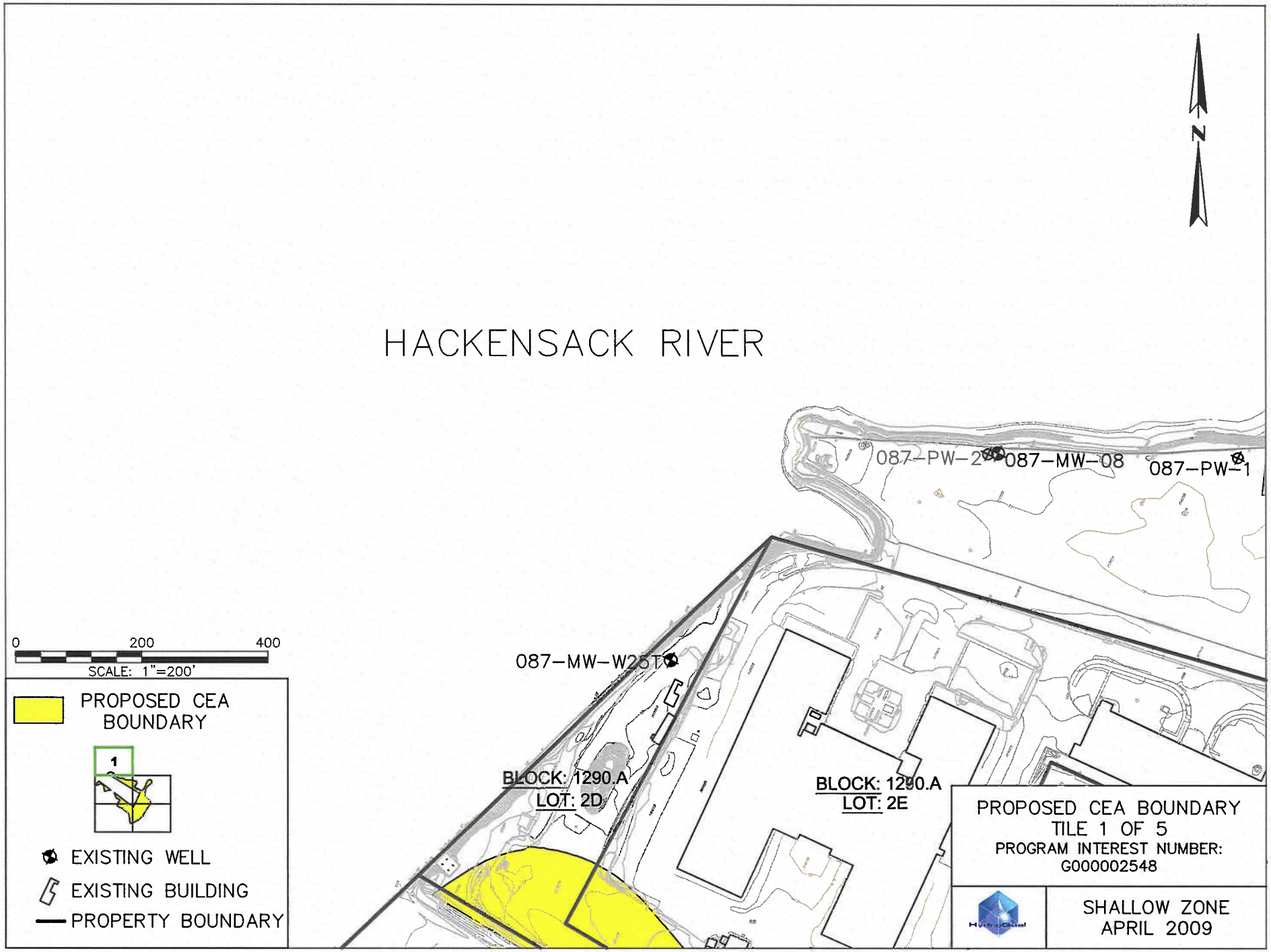


Aerial Source: State of New Jersey Office of Information Technology, Office of Geographic Information Systems, 2002

CEA BOUNDARY

EXISTING CONDITIONS AND BLOCK & LOT INFORMATION MAPS


HACKENSACK RIVER
1
2
3
4
5
SITE
N
PROPOSED CEA BOUNDARY
1
TILE
EXISTING BUILDING
PROPERTY BOUNDARY
0
1000
2000
SCALE: 1"=1000'
PROPOSED CEA BOUNDARY
OVERVIEW MAP
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009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N
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087-MW-08
087-PW-1
087-MW-W25T
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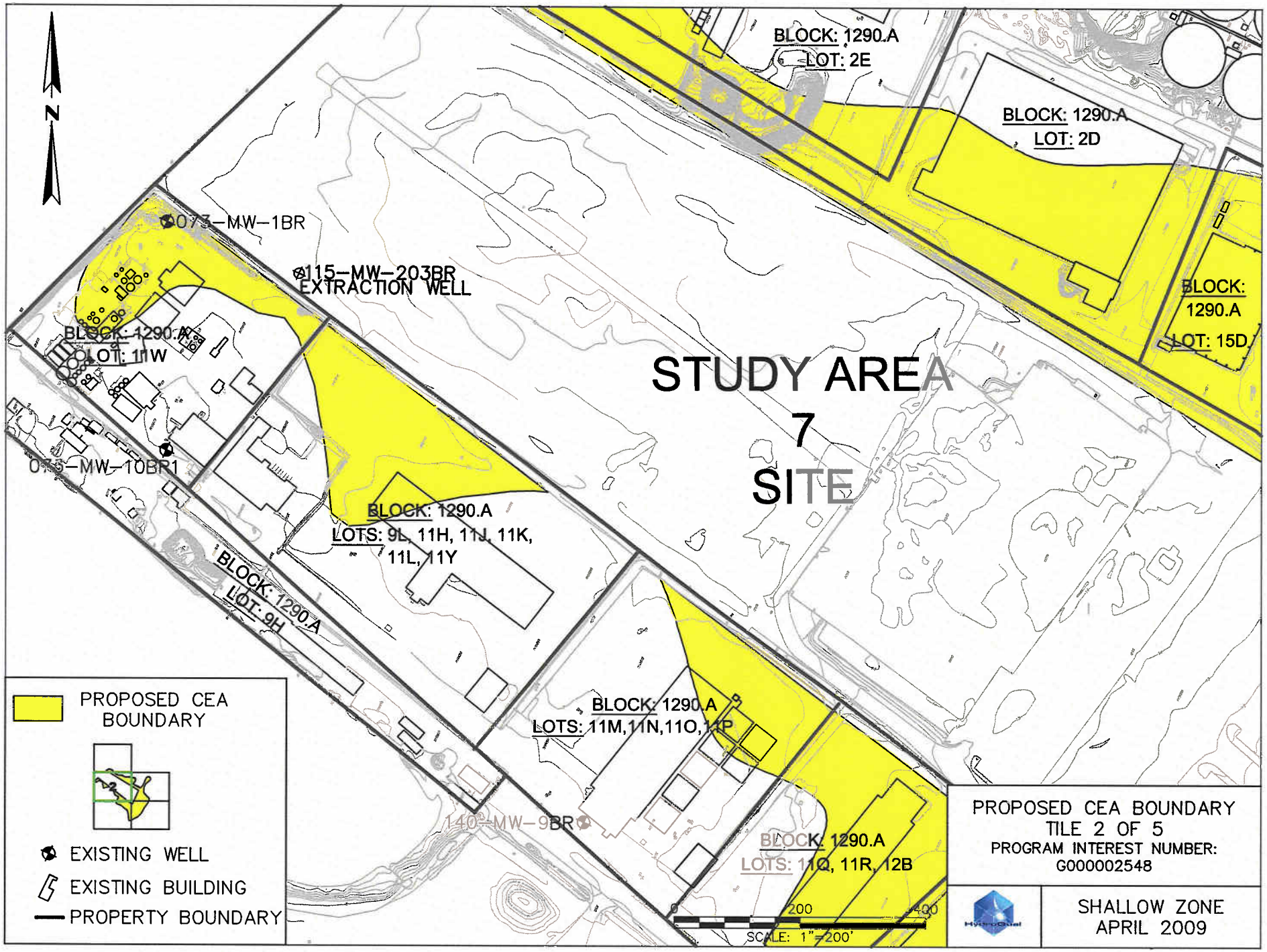
LOT: 2D
BLOCK: 1290.A
LOT: 2E
0
200
400
SCALE: 1"=200'
PROPOSED CEA BOUNDARY
1
EXISTING WELL
EXISTING BUILDING
PROPERTY BOUNDARY
PROPOSED CEA BOUNDARY
TILE 1 OF 5
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009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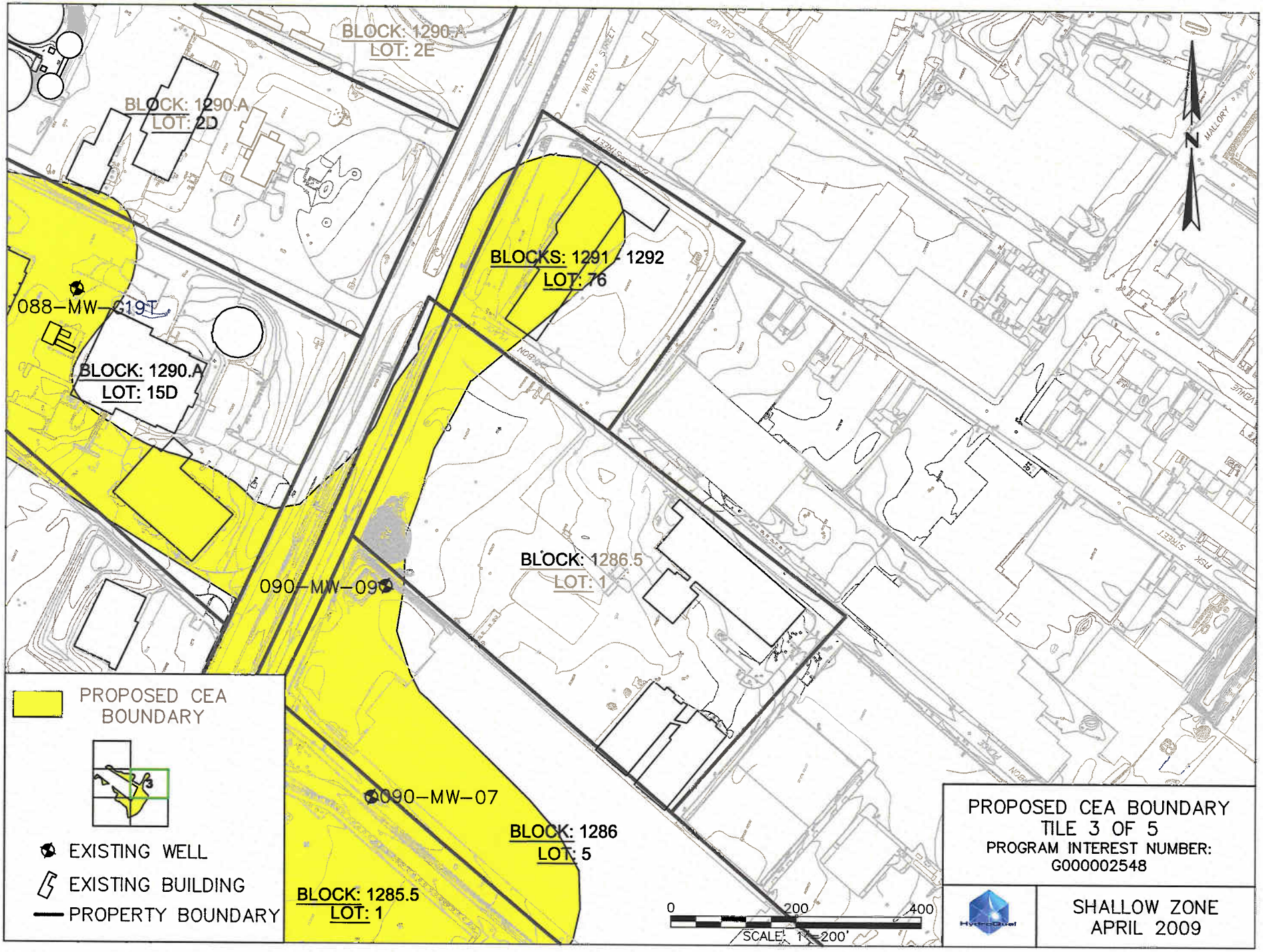
BLOCK: 1290.A
LOT: 2E
BLOCK: 1290.A
LOT: 2D
BLOCK: 1290.A
LOT: 15D
073-MW-1BR
115-MW-203BR
EXTRACTION WELL
BLOCK: 1290.A
LOT: 11W
075-MW-10BR1
STUDY AREA
7
SITE
BLOCK: 1290.A
LOTS: 9L, 11H, 11J, 11K,
11L, 11Y
BLOCK: 1290.A
LOT: 9H
BLOCK: 1290.A
LOTS: 11M,11N,11O,11P
140-MW-9BR
BLOCK: 1290.A
LOTS: 11Q, 11R, 12B
PROPOSED CEA
BOUNDARY
EXISTING WELL
EXISTING BUILDING
PROPERTY BOUNDARY
200
400
SCALE: 1"=200'
PROPOSED CEA BOUNDARY
TILE 2 OF 5
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009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LOT: 2E
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LOT: 2D
088-MW-01T
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LOT: 15D
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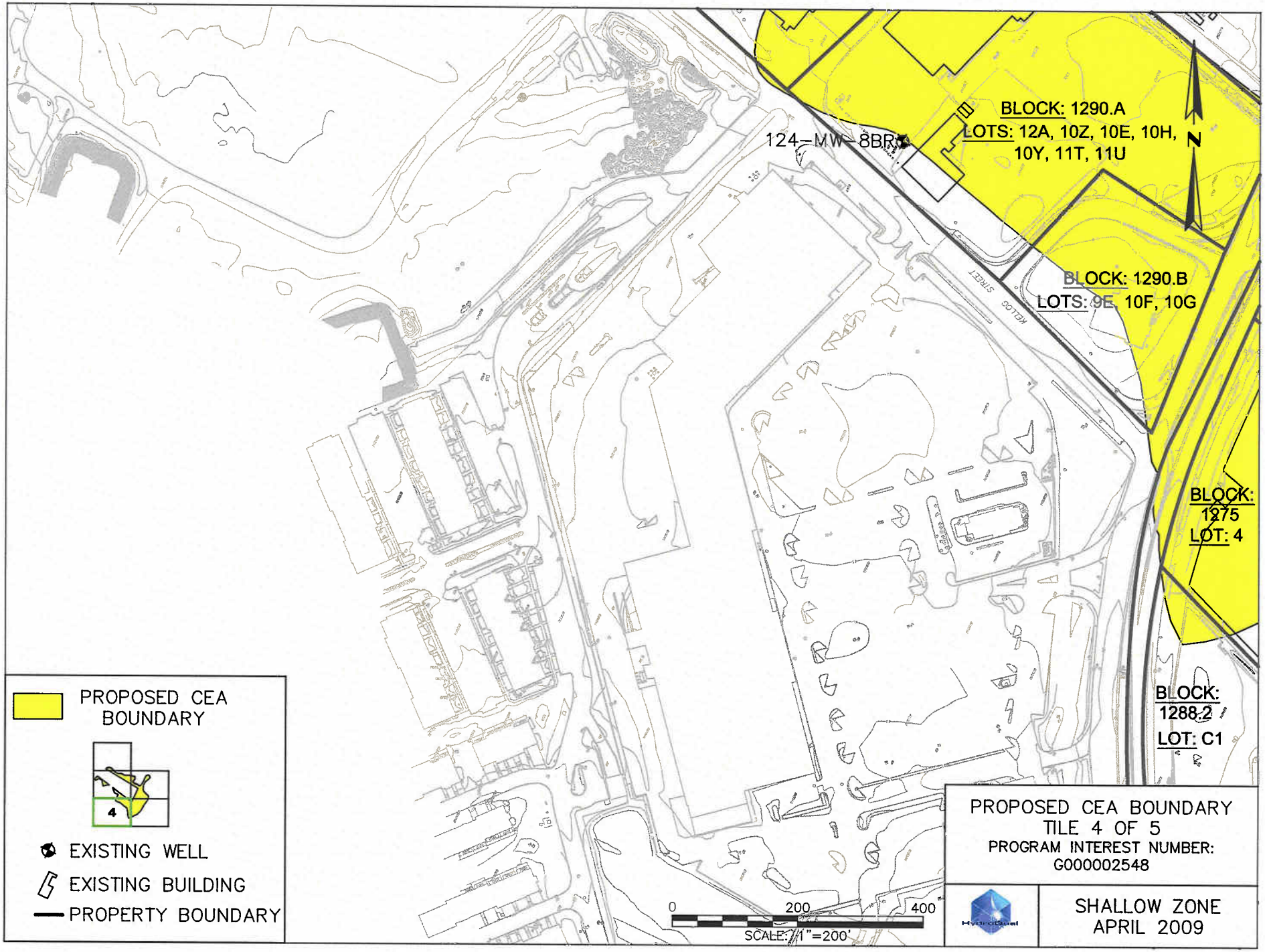
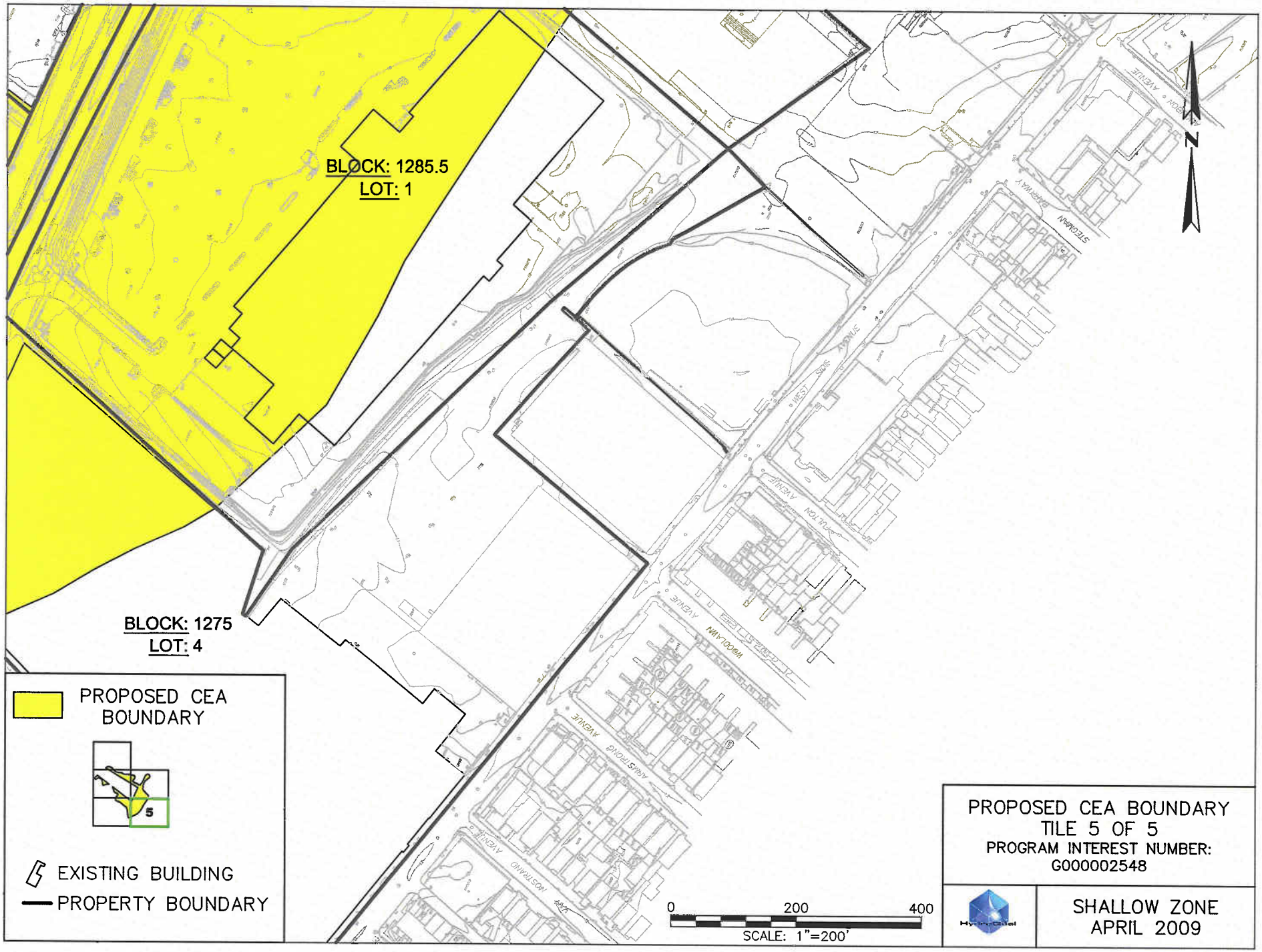
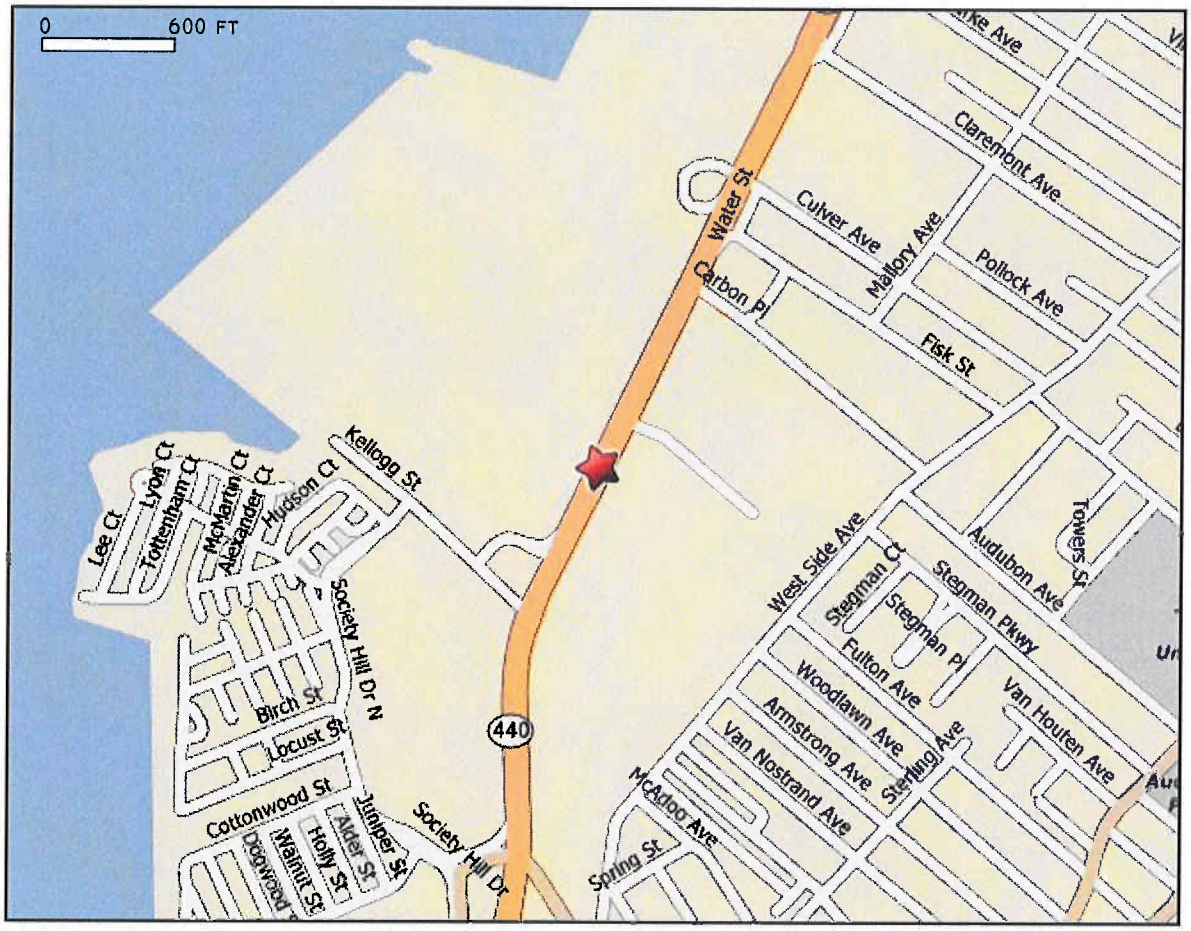
090-MW-09
BLOCK: 1286.5
LOT: 1
090-MW-07
BLOCK: 1286
LOT: 5
BLOCK: 1285.5
LOT: 1
PROPOSED CEA BOUNDARY
EXISTING WELL
EXISTING BUILDING
PROPERTY BOUNDARY
0
200
400
SCALE: 1" = 200'
PROPOSED CEA BOUNDARY
TILE 3 OF 5
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009


BLOCK: 1290.A
LOTS: 12A, 10Z, 10E, 10H, 10Y, 11T, 11U
124–MW–8BR
N
BLOCK: 1290.B
LOTS: 9E, 10F, 10G
KELLOG STREET
BLOCK: 1275
LOT: 4
BLOCK: 1288.2
LOT: C1
PROPOSED CEA BOUNDARY
4
EXISTING WELL
EXISTING BUILDING
PROPERTY BOUNDARY
0
200
400
SCALE: 1"=200'
PROPOSED CEA BOUNDARY
TILE 4 OF 5
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009


BLOCK: 1285.5
LOT: 1
BLOCK: 1275
LOT: 4
PROPOSED CEA BOUNDARY
5
EXISTING BUILDING
PROPERTY BOUNDARY
0
200
400
SCALE: 1"=200'
N
PROPOSED CEA BOUNDARY
TILE 5 OF 5
PROGRAM INTEREST NUMBER:
G000002548
SHALLOW ZONE
APRIL 2009

STREET MAP



© 2008 MAPQUEST, INC.
MAP DATA © 2008NAVTEQ OR TELEATLAS

HydroQual

HYDROQUAL, INC.
1200 MACARTHUR BOULEVARD
MAHWAH, NEW JERSEY 07430
(201) 529-5151 F: 529-5728

STREET MAP
VICINITY OF SITE 115 CEA

PROGRAM INTEREST NUMBER: G000002548

HONEYWELL STUDY AREA 7
JERSEY CITY, NJ

DIGITAL MAP SUBMISSIONS
SITE INFO FILE
AND METADATA FILE

Site Info File:
Site Name – Roosevelt Drive In (Site 115)
CSL ID# - G000002548
Lead Program ID# -
Lead Program – BCM
Street Address – 425, 445 & 465 Route 440
Municipality – Jersey City
County – Hudson
Start Date – 6/1/09
Duration – Indeterminate
Contaminants –Chromium (Total), Chromium (Hexavalent)
CEA Depth – 20 feet

Metadata Information for Groundwater CEA (Shallow Fill)
Program Interest Number: G000002548
Jersey City, New Jersey

1. IDENTIFICATION INFORMATION

1.1. DESCRIPTION

The maps represent the area on and adjacent to the Roosevelt Drive In (Site 115) in Jersey City, New Jersey for which a groundwater Classification Exception Area (CEA) has been proposed for the shallow fill aquifer. The site location and CEA boundary for shallow groundwater is illustrated on the identified maps.

CSL#: G000008742 (from KCSNJ)
Site Name (from KCSNJ): Roosevelt Drive In (Site 115); 425, 445 & 465 Route 440, Jersey City, New Jersey.

1.1.1. ABSTRACT

The "CEA_shallow.xxx" are a set of four (4) ESRI Shapefiles that illustrate the boundaries of the Classification Exception Area (CEA) at Site 115 in Jersey City, New Jersey. The files contain the polygon shapefile and associated files showing the extent of the CEA boundary for groundwater in the shallow water-bearing zone (fill material) that contains total chromium in excess of the NJDEP Class II-A Ground Water Quality Standards (GWQS).

1.1.2. PURPOSE/BRIEF DESCRIPTION

The four (4) ESRI Shapefiles, "CEA_shallow.xxx", illustrate the boundaries of the Classification Exception Area (CEA) for the shallow fill at Site 115 in Jersey City, New Jersey.

1.1.3. SUPPLEMENTAL INFORMATION

The following files are provided on the diskette:

CEA_shallow.shp – ArcView shapefile
CEA_shallow.dbf – ArcView attribute table
CEA_shallow.prj – ArcView projection file
CEA_shallow.shx – ArcView index file

cea_metafile_shallow_final.doc – metadata information for GIS maps.

cea_site_info_file_shallow.doc – support information for CEA

1.1.4. CURRENTNESS REFERENCE

The maps are representative of current conditions as of June 2008.

---

2. DATA QUALITY INFORMATION

2.1. ATTRIBUTE ACCURACY

The shapefile CEA_shallow.shp was digitized using the 2002 orthophotography available from the State of New Jersey Office of Information Technology. The orthophotos and resulting CEA boundary are georeferenced to NJ State Plane, NAD 1983, Feet.

2.2. QUANTITATIVE ATTRIBUTE ACCURACY ASSESSMENT

The CEA boundary has been plotted on the georeferenced USGS topographic map to assess the positional accuracy of the files.

2.3. COMPLETENESS REPORT

There were no known omissions in the construction of the data sets.

2.4. LINEAGE

ESRI ArcGIS was used to view the orthophotos and digitize the CEA boundary based on measured values at sampling wells.

2.5. SOURCE SCALE DENOMINATOR

2400

2.6. TYPE OF SOURCE MEDIA

Online

SOURCE CURRENTNESS REFERENCE

2002

2.7. PROCESS DATE

April 2009

---

3. SPATIAL DATA ORGANIZATION INFORMATION

3.1. DIRECT SPATIAL REFERENCE METHOD

Vector data, with polygons.

---

4. SPATIAL REFERENCE INFORMATION

4.1. GRID COORDINATE SYSTEM

NJ State Plane

4.2. HORIZONTAL DATUM NAME

NAD 83

---

5. ATTRIBUTE INFORMATION

5.1. ATTRIBUTE LABEL: CEA_shallow.shp

---

6. METADATA REFERENCE INFORMATION

6.1. METADATA DATE: 4/20/09

6.2. METADATA CONTACT: William G. Soukup P.G.

---

7. CITATION INFORMATION

7.1. ORIGINATOR

HydroQual Inc. – William G. Soukup P.G.

7.2. TITLE

CEA Boundary for Shallow Fill, Site 115, Jersey City, New Jersey

7.3. AUTHOR'S NOTES

8. CONTACT INFORMATION

8.1. CONTACT PERSON (PRIMARY)

John J. Morris, P.E.

8.2. CONTACT ORGANIZATION

Honeywell International Inc.

8.3. CONTACT ADDRESS

101 Columbia Road
Morristown, NJ 07962

8.4. CONTACT VOICE TELEPHONE

(973) 455-4003
john.morris@honeywell.com

8.5. CONTACT PERSON (SECONDARY)

Brian George
HydroQual, Inc.
1200 MacArthur Boulevard
Mahwah, NJ 07430
(201) 529-5151 x 7203

APPENDIX G

PREVIOUS PIEZOMETER SAMPLING RESULTS

Honeywell

115 Tabor Road
Morris Plains, NJ 07950

November 7, 2016 ***via Electronic Mail***

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: Initiation of Long Term Groundwater Monitoring
Study Area 6 (SA-6) South
Jersey City, New Jersey

Dear Senator Torricelli:

In accordance with the September 1, 2016 Revised Draft SA-6 Long Term Monitoring Plan (LTMP) and the Groundwater Level Monitoring Plan (GWLMP) which was Appendix J of the SA-6 North Chromium Remedy 100% Design Report, Honeywell is hereby providing notice to the Parties that we will initiate long-term groundwater monitoring activities at SA-6 South the week of November 14, 2016. While Honeywell acknowledges the LTMP has not been approved as final by the parties, Honeywell will act to meet the requirements of the current draft to move site activities forward. Since the Chromium Remedy at SA-6 South was substantially complete when the geomembrane liner was installed in October 2015, the 12-month ñtransition periodò for groundwater specified in the LTMP and GWLMP ended in October 2016. We have authorized our environmental consultants, Amec Foster Wheeler and Cornerstone, to implement the following general activities at SA-6 South:

- Install data loggers in piezometers,
- Conduct manual water level gauging, and
- Implement quarterly groundwater sampling of the twelve specified monitoring wells in the Development AOC.

Similarly for SA-6 North, we are monitoring the groundwater level recovery following completion of excavation and geomembrane liner installation, and anticipate that the ñtransition periodòwill be complete in Spring 2017. At that time, we will initiate long-term monitoring at SA-6 North. The Spring 2017 monitoring will include the inspections associated with the cap vegetation.

In response to Plaintiffsô request to establish baseline groundwater quality conditions inside the Open Space Areas, Amec Foster Wheeler collected filtered and unfiltered groundwater samples from each piezometer on the interior of both Sites. The samples were analyzed for total and hexavalent chromium. A summary of this data is provided in the attached Table 1. The location of the piezometers is shown on the attached Figure 1.

Should the Parties wish to discuss this further, we will be prepared to discuss at the next All Parties meeting on November 15th. Should you have any questions in the meantime, please contact the undersigned at (973) 455-2175.

Sincerely,

William J. Hague
Global Director, Remediation
Design and Construction

WJH:dn/sgf

Encl: Table 1: Summary of SA-6 North and South Interior Piezometer Groundwater Sample Data
Figure 1: SA-6 North and South Contingent Groundwater Extraction Trenches and Sampled Monitoring Well Locations

cc: (electronic copy only)
Joe Clifford - Amec Foster Wheeler
Michael Daneker - Arnold & Porter LLP
Jeremy Karpatkin - Arnold & Porter LLP
Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
Jason Watson ï City Hall
Agnieszka Antonian - Connell Foley LLP
Kevin Coakley, Esq. - Connell Foley LLP
Frank Borin - DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella - DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross - Disposal Safety, Inc.
Tom Byrne - Honeywell
Maria Kaouris - Honeywell
John Morris - Honeywell
Alicia Clark Alcorn - Terris, Pravlik & Millian, LLP
Kathleen Millian - Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik - Terris, Pravlik & Millian, LLP
Steve Egnaczyk - The Louis Berger Group, Inc.
Thomas Lewis - The Louis Berger Group, Inc.
Mary Hogan - Walsh Pizzi O'Reilly Falanga LLP
Hector Ruiz - Walsh Pizzi O'Reilly Falanga LLP
Liza Walsh - Walsh Pizzi O'Reilly Falanga LLP

TABLE 1

SUMMARY OF SA-6 NORTH & SOUTH INTERIOR PIEZOMETER GROUNDWATER SAMPLE ANALYTICAL RESULTS
Study Area 6 North & South
Honeywell International Inc.
Honeywell International Inc.

Client Sample ID:	Ground Water Quality Standard (GWQS)	Units	Piezometer 087-PZ-02		Piezometer 087-PZ-04		Piezometer 087-PZ-06		Piezometer 087-PZ-08		Piezometer 087-PZ-10	
	Sample Type:		Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
	Date Sampled:		09/06/2016	09/06/2016	09/06/2016	09/06/2016	10/14/2016	10/14/2016	09/02/2016	09/02/2016	09/02/2016	09/02/2016
Metals Analysis												
CHROMIUM	70	ug/L	**62.2**	<10	**10.2**	<10	**28.4**	<4	**<10**	<10	**29**	12.6
General Chemistry												
HEXAVALENT CHROMIUM	-	ug/L	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5

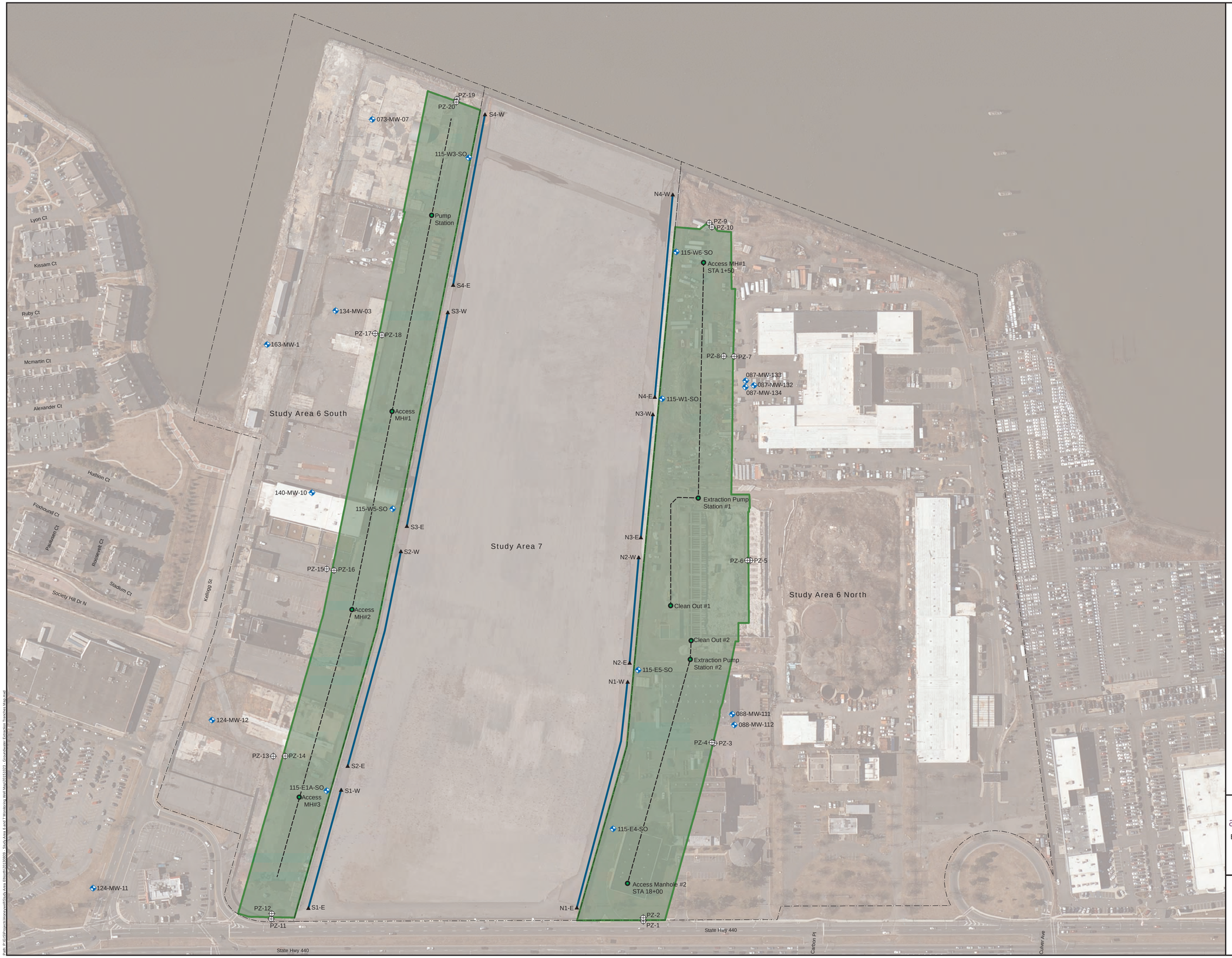
Notes:
GWQS: NJDEP Ground Water Quality Standards (GWQS)
N.J.A.C 7:9C; last amended 7/20/2010
DUP: Duplicate Sample
J: Estimated concentration

TABLE 1

SUMMARY OF SA-6 NORTH & SOUTH INTERIOR PIEZOMETER GROUNDWATER SAMPLE ANALYTICAL RESULTS
Study Area 6 North & South
Honeywell International Inc.
Honeywell International Inc.

Client Sample ID:	Ground Water Quality Standard (GWQS)	Units	Piezometer 124-PZ-12		Piezometer 124-PZ-14		Piezometer 124-PZ-16		Piezometer 124-PZ-18		Piezometer 124-PZ-20	
	Sample Type:		Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
	Date Sampled:		09/06/2016	09/06/2016	09/02/2016	09/02/2016	09/01/2016	09/01/2016	09/01/2016	09/01/2016	09/01/2016	09/01/2016
Metals Analysis												
CHROMIUM	70	ug/L	**24,200**	**23,300**	**37.3**	<10	**1,720**	**1,690**	**83.7**	<4	<4	<4
General Chemistry												
HEXAVALENT CHROMIUM	-	ug/L	**24,500**	**24,500**	<5.5	<5.5	**1,700 J**	**1,900**	<5.5 J	<5.5	<5.5 J	<5.5

Notes:
GWQS: NJDEP Ground Water Quality Standards (GWQS)
N.J.A.C 7:9C; last amended 7/20/2010
DUP: Duplicate Sample
J: Estimated concentration



Legend

- Piezometer Location
- Existing Monitoring Well Location
- Groundwater Collection Manhole (approx.)
- Standpipe Location
- Perimeter Pool Location (approx.)
- Contingent Groundwater Trenches (approx.)
- Cap Area
- Study Area Boundary

Source:
New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tile; NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS): Trenton, NJ; 2013/03.

120 60 0 120 240
SCALE IN FEET

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

Amec Project No.
3480130354

Prepared/Date
WSL 05/28/2014

Checked/Date

Figure 1
SA-6 North & South Contingent Groundwater Extraction Trenches and Sampled Monitoring Well Locations
Study Area 6 & Study Area 7
Jersey City, New Jersey

Path: P:\GIS\Projects\Honeywell\Study Area 6\North\20130909_Study Area 6 and 7 Monitoring Well Mxd\20141023 - Groundwater Extraction Trenches Map.mxd

APPENDIX H

BORING LOGS

Honeywell Jersey City

LOCATION: SA-6 North (EA 2&3)
PROJECT NO: 3480160527
BORING ID: B-1
DATE BEGAN: 8-19-15
DATE FINISHED: 8-19-15
INSPECTOR: Ari Eslaminejad
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 12' bgs
GW DEPTH: Not available
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	SS1	10	1.25		8.0 - 9.3' FILL: Dark brown/black fine to medium SAND, some gravel	NM	Augered to 8' bgs. Starting elevation 9.08'
			13					
	9.0		10					
						9.3 - 10.0' No recovery		
			13					
	10.0	SS2	13	1.25		10.0 - 10.5' FILL: Dark brown/black fine to medium SAND, some gravel		
			8			10.5 - 12.0' PT: PEAT. End of boring at 12.0' bgs.		Elevation of Peat: -1.4'
	11.0		8					
			10					
	12.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North (EA 2&3)
PROJECT NO: 3480160527
BORING ID: B-2
DATE BEGAN: 8-19-15
DATE FINISHED: 8-19-15
INSPECTOR: Ari Eslaminejad
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 12' bgs
GW DEPTH: Not available
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	SS1	3	1.0		8.0 - 9.0' FILL: Dark brown/black fine to medium SAND, some gravel	NM	Augered to 8' bgs. Starting elevation 8.8'
			8					
	9.0		10			9.0 - 10.0' No recovery		
			9					
	10.0	SS2	5	2.0		10.0 - 10.5' FILL: Dark brown/black fine to medium SAND, some gravel		
			7			10.5 - 12.0' PT: PEAT. End of boring at 12.0' bgs.		Elevation of Peat: -1.7'
	11.0		7					
			5					
	12.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North (EA 2&3)
PROJECT NO: 3480160527
BORING ID: B-3
DATE BEGAN: 8-19-15
DATE FINISHED: 8-19-15
INSPECTOR: Ari Eslaminejad
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 10' bgs
GW DEPTH: Not available
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0							
		SS1	4	2.0		8.0 - 9.0' FILL: Dark brown/black fine to medium SAND, some gravel	NM	Augered to 8' bgs. Starting elevation 9.1'
			7					
	9.0		3			9.0 - 10.0' PT: Black to brown PEAT. End of boring at 10.0' bgs.		Elevation of Peat: 0.1'
			2					
	10.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North
PROJECT NO: 3480160527
BORING ID: B-4
DATE BEGAN: 8-20-15
DATE FINISHED: 8-20-15
INSPECTOR: M. Senna
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 14' bgs
GW DEPTH: Not available
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	SS1	19	1.0		8.0 - 9.0' FILL: Black fine to coarse SAND, some fine to coarse gravel slag, trace crushed coal; loose, wet	NM	Augered to 8' bgs. Starting elevation 10.9'
			15					
	9.0		10			9.0 - 10.0' No recovery		
			10					
	10.0	SS2	15	0.75		10.0 - 10.8' FILL: Black fine SAND; medium dense, wet		
			12					
	11.0		15			10.8 - 12.0' No recovery		
			10					
	12.0	SS3	4	1.5		12.0 - 13.5' PT: Dark brown PEAT		Elevation of Peat: -1.1'
			2					
	13.0		2					
			3			13.5 - 14.0' No recovery. End of boring at 14.0' bgs.		
	14.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North
PROJECT NO: 3480160527
BORING ID: B-5
DATE BEGAN: 8-20-15
DATE FINISHED: 8-20-15
INSPECTOR: M. Senna
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 16' bgs
GW DEPTH: 14' bgs
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	SS1	22	1.25		12.0 - 12.8' FILL: Gray and yellow fine to coarse SAND, some fine to coarse gravel; dense, moist	NM	Augered to 12' bgs. Starting elevation 14.0'
			30					
						12.8 - 13.3' FILL: Dark gray fine to coarse SAND, some fine to coarse gravel, some yellow fine to coarse sand, trace wood; dense, moist		
	13.0		33					
						13.3 - 14.0' No recovery		
			33					
	14.0	SS2	8	2.0		14.0 - 15.3' FILL: Dark gray fine to coarse SAND, some fine to coarse gravel, trace yellow nodules (possible COPR); loose, wet		
			13					
	15.0		6					
						15.3 - 15.5' OL: Dark gray SILT with organics		
			3			15.5 - 16.0' PT: Dark brown PEAT. End of boring at 16.0' bgs.		Elevation of Peat: -1.5'
	16.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North
PROJECT NO: 3480160527
BORING ID: B-6
DATE BEGAN: 8-20-15
DATE FINISHED: 8-20-15
INSPECTOR: M. Senna
DRILLING CO: B&B Drilling
DRILLING METHOD: HSA
DRILL EQUIP: Bret 22
SAMPLING TOOL: 2' Split Spoon
COMPLETION DEPTH: 18' bgs
GW DEPTH: 12' bgs
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	SS1	3 5	1.5		10.0 - 11.5' FILL: Dark brown/gray fine to coarse SAND, some fine to coarse gravel, trace glass, plastic, and fiber (possible COPR); loose, moist	NM	Augered to 10' bgs. Starting elevation 15.1'
	11.0		6 6			11.5 - 12.0' No recovery		
	12.0	SS2	3 4	1.0		12.0 - 13.0' FILL: Dark brown/gray fine to coarse SAND, some fine to coarse gravel, trace glass, plastic, and fiber (possible COPR); loose, wet		
	13.0		4 4			13.0 - 14.0' No recovery		
	14.0	SS3	4 3	2.0		14.0 - 16.0' FILL: Dark brown/gray fine to coarse SAND, some fine to coarse gravel, trace glass, plastic, and fiber (possible COPR); loose, wet		
	15.0		1 1					
	16.0	SS4	2 2	2.0		16.0 - 16.2' ML: Black SILT 16.2 - 18.0' PT: Dark brown PEAT. End of boring at 18.0' bgs.		Elevation of Peat: -1.1'
	17.0		4 5					
	18.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: SA-6 North
PROJECT NO:
BORING ID: 088-SB-190
DATE BEGAN: 2-10-16
DATE FINISHED: 2-10-16
INSPECTOR: M. Senna
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 13' bgs
GW DEPTH: Not available
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	9.0	S-1	NA	3.0		9.0 - 9.5' FILL: Reddish brown fine to coarse GRAVEL; loose, wet	NM	Starting elevation 12.0'. Target depth is elevation 1.9'. Will get 4' sleeve from 3' to -1' elevation. Push to 9' bgs. Sleeve from 9-13' bgs.
						9.5 - 12.0' FILL: Black fine to coarse SAND, some fine gravel, trace glass and rubber; loose, wet		
	10.0							Sample 088-SB-190-0201 (1.9-1.4) (Elevation) @ 9:15
	11.0							
	12.0					12.0 - 13.0' No recovery. End of boring at 13.0' bgs.		
	13.0							

PREPARED BY: CR
CHECKED BY: KK

Honeywell Jersey City

LOCATION: Site 087
PROJECT NO:
BORING ID: 087-SB-659
DATE BEGAN: 6-27-16
DATE FINISHED: 6-27-16
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 4' bgs
GW DEPTH: Not encountered
DRILLER: Gordon Blewett
NORTH: 685939.2
EAST: 603445.3

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 1.2' ASPHALT	NM	
	1.0					1.2 - 4.0' FILL: Dark brown/black SAND and GRAVEL, some plastic, glass, and wood. End of boring at 4.0' bgs.		
	2.0							Sample 087-SB-659-0203 (2.0-3.0') at 12:30
	3.0							Sample 087-SB-659-0304 (3.0-4.0') at 12:35
	4.0							

PREPARED BY: CR
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087
PROJECT NO:
BORING ID: 087-SB-660
DATE BEGAN: 6-27-16
DATE FINISHED: 6-27-16
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 4' bgs
GW DEPTH: Not encountered
DRILLER: Gordon Blewett
NORTH: 685945.5
EAST: 603447.3

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	2.5		0.0 - 1.2' No recovery	NM	
	1.0					1.2 - 4.0' FILL: Light brown SAND and GRAVEL, some glass; stiff, dry. End of boring at 4.0' bgs.		
	2.0							Sample 087-SB-660-0203 (2.0-3.0') at 12:15
	3.0							Sample 087-SB-660-0304 (3.0-4.0') at 12:20
	4.0							

PREPARED BY: CR
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 | **PROJECT NO:** | **BORING ID:** 087-SB-661

DATE BEGAN: 6-27-16 | **DATE FINISHED:** 6-27-16 | **INSPECTOR:** J. Desiderio

DRILLING CO: B&B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 18' bgs | **GW DEPTH:** 10' bgs

DRILLER: Gordon Blewett | **NORTH:** 685945.7 | **EAST:** 603439.7

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.5		0.0 - 0.5' No recovery	NM	
	1.0					0.5 - 1.2' ASPHALT		
	2.0					1.2 - 4.0' FILL: Dark brown SAND and GRAVEL, some glass and plastic; stiff, dry		
	3.0							
	4.0	S-2		3.0		4.0 - 5.0' No recovery		
	5.0					5.0 - 6.3' FILL: Brown SAND, some glass, plastic, and gravel; dry		
	6.0							
	7.0					6.3 - 8.0' FILL: Light brown SANDY SILT, some glass, plastic, and gravel; dry		
	8.0	S-3		2.0		8.0 - 10.0' No recovery		
	9.0							
	10.0					10.0 - 12.0' FILL: Black SILTY SAND; wet		
	11.0							
	12.0	S-4		3.0		12.0 - 13.0' No recovery		
	13.0					13.0 - 16.0' FILL: Dark brown/black SANDY SILT		
	14.0							
	15.0							
	16.0	S-5		2.0		16.0 - 17.5' OL: Black organic CLAY		Sample 087-SB-661-1617 (16.0-17.0') at 12:55 Sample 087-SB-661-1718A (17.0-17.5') at 13:00 Sample 087-SB-661-1718B (17.5-18.0') at 13:05
	17.0					17.5 - 18.0' PT: PEAT; End of boring at 18.0' bgs.		
	18.0							

PREPARED BY: CR

CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087
PROJECT NO:
BORING ID: 087-SB-662
DATE BEGAN: 6-27-16
DATE FINISHED: 6-27-16
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 18' bgs
GW DEPTH: 7' bgs
DRILLER: Gordon Blewett
NORTH: 685947.7
EAST: 603453.9

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	2.3		0.0 - 1.7' No recovery	NM	
	1.0					1.7 - 2.0' CONCRETE		
	2.0					2.0 - 3.0' FILL: Gray coarse SAND and GRAVEL, some glass; stiff, dry		
	3.0					3.0 - 4.0' FILL: Dark brown coarse SAND and GRAVEL, some glass; stiff, dry		
	4.0	S-2		2.5		4.0 - 5.5' No recovery		
	5.0					5.5 - 6.0' FILL: Dark brown coarse SAND and GRAVEL, some glass; stiff, dry		
	6.0					6.0 - 7.0' FILL: Light to dark brown medium to coarse SAND and GRAVEL; moist		
	7.0					7.0 - 8.0' FILL: Black medium to coarse SAND and GRAVEL; loose, wet		
	8.0	S-3		2.0		8.0 - 10.0' No recovery		
	9.0							
	10.0					10.0 - 11.0' FILL: Light gray medium to coarse SAND and GRAVEL; loose, wet		
	11.0					11.0 - 11.5' FILL: Black coarse gravel, some wood and glass		
	12.0	S-4		2.5		11.5 - 12.0' FILL: Black CLAY		
	13.0					12.0 - 13.5' No recovery		
	14.0					13.5 - 14.0' FILL: Black CLAY; loose, wet		
	15.0					14.0 - 15.0' FILL: Dark brown CLAY; wet		
	16.0	S-5		2.0		15.0 - 16.0' CL: Black SILTY CLAY; wet		Sample 087-SB-662-1617 (16.0-17.0') at 12:00
	17.0					16.0 - 17.5' OL: Black organic CLAY		Sample 087-SB-662-1718A (17.0-17.5') at 12:05
	18.0					17.5 - 18.0' PT: PEAT. End of boring at 18.0' bgs.		Sample 087-SB-662-1718B (17.5-18.0') at 12:10

PREPARED BY: CR
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087
PROJECT NO:
BORING ID: 087-SB-657A
DATE BEGAN: 6-27-16
DATE FINISHED: 6-27-16
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 12' bgs
GW DEPTH: 9.4' bgs
DRILLER: Gordon Blewett
NORTH: 686421.9
EAST: 603064.7

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 2.0' ASPHALT	NM	Original boring 087-SB-657 decomissioned due to sample recovery issues. Stepouts 087-SB-657A and 087-SB-657B completed to produce required sample volume.
	2.0					2.0 - 3.0' FILL: Black SILT, some gravel and glass; dry		
	3.0					3.0 - 4.0' FILL: Dark gray SANDY SILT, some glass; dry		
	4.0	S-2		3.0		4.0 - 5.0' No recovery		
	5.0					5.0 - 8.0' FILL: Light brown SANDY SILT, some gravel; stiff, moist		
	8.0	S-3		2.6		8.0 - 9.4' No recovery		
	9.0					9.4 - 10.0' FILL: Brown SILTY CLAY; stiff, wet		
	10.0					10.0 - 11.0' FILL: Gray SILTY CLAY; stiff, wet		Sample 087-SB-657A-1011 (10.0-11.0') at 8:10
	11.0					11.0 - 12.0' FILL: Dark brown SAND; stiff, wet. End of boring at 12.0' bgs.		Sample 087-SB-657A-1112 (11.0-12.0') at 8:15
	12.0							

PREPARED BY: CR
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 | **PROJECT NO:** | **BORING ID:** 087-SB-657B

DATE BEGAN: 6-27-16 | **DATE FINISHED:** 6-27-16 | **INSPECTOR:** J. Desiderio

DRILLING CO: B&B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 17.5' bgs | **GW DEPTH:** 9' bgs

DRILLER: Gordon Blewett | **NORTH:** 686421.3 | **EAST:** 603064

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 2.0' ASPHALT	NM	Original boring 087-SB-657 decomissioned due to sample recovery issues. Stepouts 087-SB-657A and 087-SB-657B completed to produce required sample volume.
	1.0							
	2.0					2.0 - 3.0' FILL: Black SILT, some gravel and glass; dry		
	3.0					3.0 - 4.0' FILL: Dark gray SANDY SILT, some glass; dry		
	4.0	S-2		3.0		4.0 - 5.0' No recovery		
	5.0					5.0 - 8.0' FILL: Light brown SANDY SILT, some gravel; stiff, moist		
	6.0							
	7.0							
	8.0	S-3		1.0		8.0 - 9.0' No recovery		
	9.0					9.0 - 10.0' FILL: Black SILTY CLAY; stiff, wet		
	10.0					10.0 - 13.0' No recovery		
	11.0							
	12.0	S-4		3.0				
	13.0					13.0 - 15.0' FILL: Light brown fine SAND; loose, wet		
	14.0							
	15.0					15.0 - 15.5' ML: Black CLAYEY SILT		Sample 087-SB-657B-1516 (15.5-16.5') at 9:35
	16.0	S-5		1.5		15.5 - 16.5' CL: Black SILTY CLAY; moist		Sample 087-SB-657B-1617 (16.5-17.5') at 9:40
	17.0					16.5 - 17.5' CL: Gray SILTY CLAY; moist. Peat at 17.5'. End of boring at 17.5' bgs.		Peat at 17.5' bgs

PREPARED BY: CR

CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087
PROJECT NO:
BORING ID: 087-SB-658
DATE BEGAN: 6-27-16
DATE FINISHED: 6-27-16
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 12' bgs
GW DEPTH: 10' bgs
DRILLER: Gordon Blewett
NORTH: 686426.5
EAST: 603068.5

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.0		0.0 - 1.0' No recovery	NM	
	1.0					1.0 - 2.0' CONCRETE		
	2.0					2.0 - 4.0' FILL: Black SILT, some gravel; stiff, dry		
	3.0							
	4.0	S-2		3.0		4.0 - 5.0' No recovery		
	5.0					5.0 - 8.0' FILL: Gray SANDY SILT, some gravel; stiff, moist		
	6.0							
	7.0							
	8.0	S-3		3.0		8.0 - 9.0' No recovery		
	9.0					9.0 - 10.0' FILL: Dark brown SAND; stiff, moist		
	10.0					10.0 - 11.0' FILL: Gray CLAYEY SILT; stiff, wet		Sample 087-SB-658-1011 (10.0-11.0') at 9:15
	11.0					11.0 - 12.0' FILL: Light brown CLAYEY SILT; stiff, wet. End of boring at 12.0' bgs.		Sample 087-SB-658-1112 (11.0-12.0') at 9:20
	12.0							

PREPARED BY: CR
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 | **PROJECT NO:** | **BORING ID:** 087-SB-663

DATE BEGAN: 6-27-16 | **DATE FINISHED:** 6-27-16 | **INSPECTOR:** J. Desiderio

DRILLING CO: B&B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 17.5' bgs | **GW DEPTH:** 9' bgs

DRILLER: Gordon Blewett | **NORTH:** 686419.4 | **EAST:** 603071.1

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 2.0' ASPHALT	NM	
	1.0							
	2.0					2.0 - 3.0' FILL: Black SILT, some gravel and glass; dry		
	3.0					3.0 - 4.0' FILL: Dark gray SANDY SILT, some glass; dry		
	4.0	S-2		3.0		4.0 - 5.0' No recovery		
	5.0					5.0 - 8.0' FILL: Light brown SANDY SILT, some gravel; stiff, moist		
	6.0							
	7.0							
	8.0	S-3		1.0		8.0 - 9.0' No recovery		
	9.0					9.0 - 10.0' FILL: Black SILTY CLAY; stiff, wet		
	10.0					10.0 - 13.0' No recovery		
	11.0							
	12.0	S-4		2.5				
	13.0					13.0 - 14.0' FILL: Light brown fine SAND; loose, wet		
	14.0					14.0 - 14.5' No recovery		
	15.0					14.5 - 16.5' OL: Black organic CLAY		
	16.0	S-5		1.5				Sample 087-SB-663-1516 (15.5-16.5') at 10:00
	17.0					16.5 - 17.5' CL: Dark gray SILTY CLAY. Peat at 17.5'. End of boring at 17.5' bgs.		Sample 087-SB-663-1617 (16.5-17.5') at 10:05 Peat at 17.5' bgs

PREPARED BY: CR

CHECKED BY: EB

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-647

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.0		0.0 - 1.0' FILL: Dark gray ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					1.0 - 3.0' FILL: Brown fine to coarse SAND, some fine gravel, coal ash; loose, moist		
	2.0							
	3.0					3.0 - 4.0' No recovery		
	4.0	S-2	NA	3.0		4.0 - 6.5' FILL: Brown fine to coarse SAND, some fine to coarse gravel, coal ash and glass; loose, moist to wet at 6.0' bgs.		
	5.0							
	6.0							
						6.5 - 7.0' FILL: Black fine to coarse SAND, some fine to coarse gravel, trace glass and plastic; medium dense, wet		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	2.5		8.0 - 10.5' FILL: Black fine to coarse SAND and GRAVEL, some glass, trace plastic and tile; loose, wet		
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-647

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	2.0		10.5 - 12.0' No recovery		087-SB-647-1213 (12.0-13.0) at 8:40
	11.0					12.0 - 12.2' FILL: Black fine to coarse SAND and GRAVEL, some glass, trace plastic and tile; loose, wet		
	12.0					12.2 - 13.7' OL: Reddish brown/black SILT, trace fine SAND; loose, wet		087-SB-647-1314 (13.0-14.0) at 8:45
	13.0					13.7 - 14.0' OL: Black SILT, trace fine gravel; loose, wet		
	14.0					14.0 - 16.0' No recovery. End of boring at 16.0' bgs.		
	15.0							
	16.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-648

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 8.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.5		0.0 - 1.5' FILL: Gray ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0							
						1.5 - 3.1' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass; medium dense, dry		
	2.0							
	3.0					3.1 - 3.5' FILL: Dark gray/purple fine to medium SAND, trace fine gravel; medium dense, moist		
						3.5 - 4.0' No recovery		
	4.0	S-2	NA	3.0		4.0 - 6.0' FILL: Brown fine to coarse SAND and GRAVEL, some coal ash, wood and glass; medium dense, moist		
	5.0							
	6.0					6.0 - 7.0' FILL: Black fine to coarse SAND and GRAVEL, some coal ash, wood and glass; medium dense, moist		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	2.5		8.0 - 10.5' FILL: Black fine to coarse SAND and GRAVEL, some plastic, wood, glass, rubber and newspaper; medium dense, wet		Hydrocarbon-like odor, sheen throughout
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-648
DATE BEGAN: 3/15/16
DATE FINISHED: 3/15/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 8.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	3.5		10.5 - 12.0' No recovery		087-SB-648-1213 (12.0-13.0) at 9:15
	11.0					12.0 - 12.5' FILL: Black fine to coarse SAND and GRAVEL, some plastic, wood, glass, rubber and newspaper; medium dense, wet		Sheen (12.5-15.5)
	12.0					12.5 - 14.5' SM: Reddish brown/black fine SAND and SILT; medium dense, wet		087-SB-648-1314 (13.0-14.0) at 9:20
	13.0							
	14.0					14.5 - 15.5' OL: Black CLAYEY SILT, some fine sand; medium dense, wet		
	15.0					15.5 - 16.0' No recovery. End of boring at 16.0' bgs.		
	16.0							

PREPARED BY: JA
CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-649

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.5 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.5		0.0 - 0.8' FILL: Light gray ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					0.8 - 3.5' FILL: Brown fine to coarse SAND and GRAVEL, some coal ash and glass, trace rubber, wood, and plastic; medium dense, moist		
	2.0							
	3.0							
						3.5 - 4.0' No recovery		
	4.0	S-2	NA	2.75		4.0 - 6.8' FILL: Brown fine to coarse SAND and GRAVEL, some coal ash and glass, trace rubber, wood, and plastic; medium dense, moist to wet at 6.5' bgs		
	5.0							
	6.0							
	7.0					6.8 - 8.0' No recovery		
	8.0	S-3	NA	1.5		8.0 - 9.5' FILL: Black fine to coarse SAND and GRAVEL, some coal ash, glass, plastic, fabric, and newspaper; loose, wet		
	9.0							
						9.5 - 12.0' No recovery		
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-649

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.5 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0							
	11.0							
	12.0	S-4	NA	3.5		12.0 - 12.3' FILL: Black fine to coarse SAND and GRAVEL, some coal ash, glass, plastic, fabric, and newspaper; loose, wet		087-SB-649-1213 (12.0-13.0) at 9:50
	13.0					12.3 - 14.5' SM: Reddish brown fine SAND and SILT, medium dense, wet		Sheen (12.3-15.5) 087-SB-649-1314 (13.0-14.0) at 9:55
	14.0							
	15.0					14.5 - 15.5' OL: Black SILT, some fine sand, medium dense, wet		
	16.0					15.5 - 16.0' No recovery. End of boring at 16.0' bgs.		

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-650

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.5 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.5		0.0 - 0.8' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel; loose, wet	NM	
	1.0					0.8 - 3.5' FILL: Brown fine to coarse SAND and GRAVEL, some coal ash and glass, trace rubber, plastic, tile and wood; medium dense, moist		
	2.0							
	3.0							
						3.5 - 4.0' No recovery		
	4.0	S-2	NA	3.0		4.0 - 6.5' FILL: Brown fine to coarse SAND and GRAVEL, some coal ash and glass, trace rubber, plastic, tile and wood; medium dense, moist		
	5.0							
	6.0							
						6.5 - 7.0' FILL: Black fine to coarse SAND and GRAVEL, some glass, plastic and rubber; loose, wet		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	2.0		8.0 - 10.0' FILL: Dark brown/black fine to coarse SAND and GRAVEL, some plastic, trace glass, rubber, and tile; loose, wet		
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-650

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 6.5 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	4.0		10.0 - 12.0' No recovery		087-SB-650-1213 (12.0-13.0) at 10:15
	11.0					12.0 - 12.3' FILL: Dark brown/black fine to coarse SAND and GRAVEL, some plastic, trace glass, rubber, and tile; loose, wet		
	12.0					12.3 - 13.8' SM: Reddish brown fine SAND and SILT; medium dense, wet		087-SB-650-1314 (13.0-14.0) at 10:20
	13.0					13.8 - 15.0' OL: Very dark brown SILT; soft, wet		
	14.0					15.0 - 15.5' OL: Very dark brown CLAYEY SILT; soft, wet		
	15.0					15.5 - 16.0' OL: Black SILT, some fine sand; medium dense, wet. End of boring at 16.0' bgs.		
	16.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-651

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 8.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	2.5		0.0 - 0.8' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					0.8 - 2.5' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, plastic, and rubber; medium dense, moist		
	2.0							
						2.5 - 4.0' No recovery		
	3.0							
	4.0	S-2	NA	2.75		4.0 - 6.0' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, plastic, and rubber; medium dense, moist		
	5.0							
	6.0					6.0 - 6.8' FILL: Black fine to coarse SAND, some fine to coarse gravel, trace glass and rubber; medium dense, moist		
	7.0					6.8 - 8.0' No recovery		
	8.0	S-3	NA	2.5		8.0 - 10.5' FILL: Black fine to coarse SAND and GRAVEL, some coal ash and crushed brick, trace glass, rubber, metal, and fabric; medium dense, wet		
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

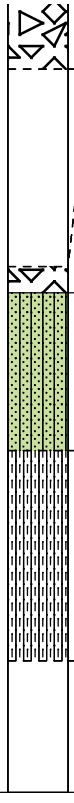
LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-651

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 8.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	3.0		10.5 - 12.0' No recovery 12.0 - 12.2' FILL: Black fine to coarse SAND and GRAVEL, some coal ash and crushed brick, trace glass, rubber, metal, and fabric; medium dense, wet 12.2 - 13.4' SM: Reddish brown fine SAND, some silt; medium dense, wet 13.4 - 15.0' OL: Black SILT, some fine sand, trace clayey silt; medium dense, wet 15.0 - 16.0' No recovery. End of boring at 16.0' bgs.		087-SB-651-1213 (12.0-13.0) at 11:05 087-SB-651-1314 (13.0-14.0) at 11:10
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-652

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 8.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.75		0.0 - 0.8' FILL: Light brown crushed ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					0.8 - 3.8' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, rubber, metal and tile; medium dense, moist		
	2.0							
	3.0							
						3.8 - 4.0' No recovery		
	4.0	S-2	NA	3.0		4.0 - 6.0' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, rubber, metal and tile; medium dense, moist		
	5.0							
	6.0					6.0 - 7.0' FILL: Black fine to coarse SAND, some fine gravel and crushed concrete, trace glass and rubber; medium dense, moist		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	2.5		8.0 - 10.5' FILL: Black fine to coarse SAND and GRAVEL, some wood, trace glass and metal; medium dense, wet		
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-652
DATE BEGAN: 3/15/16
DATE FINISHED: 3/15/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 8.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	3.5		10.5 - 12.0' No recovery		087-SB-652-1213 (12.0-13.0) at 12:50
	11.0					12.0 - 12.2' FILL: Black fine to coarse SAND, some newspaper; medium dense, wet		087-SB-652-1314 (13.0-14.0) at 12:55
	12.0					12.2 - 13.8' SM: Reddish brown fine SAND and SILT; medium dense, wet		Hydrocarbon-like odor and sheen (12.2-14.5' bgs)
	13.0					13.8 - 14.3' OL: Black CLAYEY SILT; soft, wet		
	14.0					14.3 - 14.5' OL: Black SILT; soft, wet		
	15.0					14.5 - 16.0' No recovery. End of boring at 16.0' bgs.		
	16.0							

PREPARED BY: JA
CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-653
DATE BEGAN: 3/15/16
DATE FINISHED: 3/15/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 9.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 1.0' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel, loose, dry	NM	
	1.0					1.0 - 6.0' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace plastic, glass, and rubber; medium dense, moist		
	2.0							
	3.0							
	4.0	S-2	NA	3.0				
	5.0							
	6.0					6.0 - 7.0' FILL: Black fine to coarse SAND, some fine to coarse gravel, trace glass, rubber and newspaper; medium dense, moist		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	2.75		8.0 - 10.8' FILL: Dark brown/black fine to coarse SAND and COAL ASH, some fine to coarse gravel, trace glass and plastic; medium dense, moist to wet at 9.0' bgs		
▽	9.0							
	10.0							

PREPARED BY: JA
CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-653
DATE BEGAN: 3/15/16
DATE FINISHED: 3/15/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 9.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-4	NA	3.5		10.8 - 12.0' No recovery		087-SB-653-1213 (12.0-13.0) at 13:15
	11.0					12.0 - 12.4' FILL: Black fine to coarse SAND, some newspaper and wood; medium dense, wet		087-SB-653-1314 (13.0-14.0) at 13:20
	12.0					12.4 - 15.0' SM: Reddish brown SILT and fine SAND; medium dense, wet		Hydrocarbon-like odor and sheen (12.4-15.0' bgs)
	13.0							
	14.0							
	15.0					15.0 - 15.5' OL: Black SILT, some fine sand; medium dense, wet		
	16.0					15.5 - 16.0' No recovery. End of boring at 16.0' bgs.		

PREPARED BY: JA
CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-654

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 9.25 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	4.0		0.0 - 0.8' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel; loose, wet	NM	
	1.0					0.8 - 6.8' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash, little glass, trace rubber and plastic; medium dense, moist		
	2.0							
	3.0							
	4.0	S-2	NA	3.0				
	5.0							
	6.0					6.8 - 7.0' FILL: Black fine to coarse SAND, some newspaper and glass; medium dense, moist		
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	3.0		8.0 - 9.3' FILL: Brown fine to coarse SAND, some fine to coarse gravel and coal ash; medium dense, moist		
	9.0					9.3 - 11.0' FILL: Black fine to coarse SAND, some fine to coarse gravel and glass, trace newspaper; medium dense, wet		
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-654

DATE BEGAN: 3/15/16 | **DATE FINISHED:** 3/15/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 9.25 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0							
	11.0					11.0 - 12.0' No recovery		
	12.0	S-4	NA	2.75		12.0 - 12.2' FILL: Black fine to coarse SAND, some fine to coarse gravel and glass, trace newspaper; medium dense, wet		087-SB-654-1213 (12.0-13.0) at 14:15
	13.0					12.2 - 14.0' SM: Reddish brown fine SAND and SILT; medium dense, wet		Sheen (12.2-14.0' bgs) 087-SB-654-1314 (13.0-14.0) at 14:20
	14.0					14.0 - 14.7' OL: Black SILT, some fine sand; medium dense, wet		Hydrocarbon-like odor and sheen (14.0-14.7' bgs)
	15.0					14.7 - 16.0' No recovery. End of boring at 16.0' bgs.		
	16.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-655

DATE BEGAN: 3/16/16 | **DATE FINISHED:** 3/16/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 9.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.25		0.0 - 0.8' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					0.8 - 3.3' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, plastic, and newspaper; medium dense, moist		
	2.0							
	3.0							
						3.3 - 4.0' No recovery		
	4.0	S-2	NA	2.75		4.0 - 6.8' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, plastic, and newspaper; medium dense, moist		
	5.0							
	6.0							
						6.8 - 8.0' No recovery		
	7.0							
	8.0	S-3	NA	2.75		8.0 - 8.5' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace glass, plastic, and newspaper; medium dense, moist		
						8.5 - 10.8' FILL: Black fine to coarse SAND, some fine to coarse gravel, trace glass, metal, and wood; loose, wet		
	9.0							
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-655
DATE BEGAN: 3/16/16
DATE FINISHED: 3/16/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 9.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0							
	11.0					10.8 - 12.0' No recovery		
	12.0	S-4	NA	2.0		12.0 - 12.2' FILL: Black fine to coarse SAND, some fine to coarse gravel, trace glass, metal, and wood; loose, wet		087-SB-655-1213 (12.0-13.0) at 8:40
	13.0					12.2 - 14.0' SM: Reddish brown fine SAND and SILT; medium dense, wet		087-SB-655-1314 (13.0-14.0) at 8:45
	14.0					14.0 - 16.0' No recovery. End of boring at 16.0' bgs.		
	15.0							
	16.0							

PREPARED BY: JA
CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10 | **PROJECT NO:** 3480150488 | **BORING ID:** 087-SB-656

DATE BEGAN: 3/16/16 | **DATE FINISHED:** 3/16/16 | **INSPECTOR:** M. Senna

DRILLING CO: B+B Drilling | **DRILLING METHOD:** Direct Push | **DRILL EQUIP:** Geoprobe 6610

SAMPLING TOOL: 4ft Macrocore | **COMPLETION DEPTH:** 16.0 ft bgs | **GW DEPTH:** 9.0 ft bgs

DRILLER: Gordon Blewett | **NORTH:** | **EAST:**

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	NA	3.0		0.0 - 0.8' FILL: Light gray crushed ASPHALT, some fine to coarse sand and gravel; loose, dry	NM	
	1.0					0.8 - 3.0' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace wood, glass, and rubber; medium dense, moist		
	2.0							
	3.0					3.0 - 4.0' No recovery		
	4.0	S-2	NA	3.0		4.0 - 7.0' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace rubber, glass, and wood; medium dense, moist		
	5.0							
	6.0							
	7.0					7.0 - 8.0' No recovery		
	8.0	S-3	NA	3.0		8.0 - 9.2' FILL: Dark brown fine to coarse SAND, some fine to coarse gravel and coal ash, trace rubber, glass, and wood; medium dense, moist to wet at 9.0' bgs		
	9.0					9.2 - 11.0' FILL: Dark gray/black fine to coarse SAND and GRAVEL, some glass, trace plastic, metal, and rubber; loose, wet		
	10.0							

PREPARED BY: JA

CHECKED BY: CR

Honeywell SA-6 North

LOCATION: Site 087 TA-10
PROJECT NO: 3480150488
BORING ID: 087-SB-656
DATE BEGAN: 3/16/16
DATE FINISHED: 3/16/16
INSPECTOR: M. Senna
DRILLING CO: B+B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0 ft bgs
GW DEPTH: 9.0 ft bgs
DRILLER: Gordon Blewett
NORTH:
EAST:

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0							
	11.0					11.0 - 12.0' No recovery		
	12.0	S-4	NA	3.5		12.0 - 12.5' FILL: Dark gray/black fine to coarse SAND and GRAVEL, some glass, trace plastic, metal, and rubber; loose, wet		087-SB-655-1213 (12.0-13.0) at 9:25
	13.0					12.5 - 13.8' SM: Reddish brown fine SAND and SILT; medium dense, wet		087-SB-655-1314 (13.0-14.0) at 9:30
	14.0					13.8 - 15.0' OL: Dark gray CLAYEY SILT, some fine sand; medium dense, wet		
	15.0					15.0 - 15.5' OL: Black fine SAND and SILT; medium dense, wet		
	16.0					15.5 - 16.0' No recovery. End of boring at 16.0' bgs.		

PREPARED BY: JA
CHECKED BY: CR

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-710
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 686000.3
EAST: 602527.5

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 13.5' FILL: Dark brown fine SAND and SILT, trace glass, metal, plastic, and wood; medium dense, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-710 (12.0-13.0') at 8:56
	13.0							087-SB-710 (13.0-14.0') at 8:55
						13.5 - 14.0' FILL: Grayish brown fine SAND and SILT; medium dense, wet		Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-711
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 686006.6
EAST: 602529.1

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 12.8' FILL: Black fine to medium SAND, some wood, trace glass and silt; medium dense, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-711 (12.0-13.0') at 9:22
	13.0					12.8 - 14.0' FILL: Dark brown fine SAND and SILT, trace wood		087-SB-711 (13.0-14.0') at 9:24 Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-712
DATE BEGAN: 12/8/2016
DATE FINISHED: 12/8/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685999.3
EAST: 602535.8

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.5		12.0 - 12.5' FILL: Black fine to medium SAND, some paper, trace glass; loose, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-712 (12.0-13.0') at 9:45
						12.5 - 14.5' FILL: Reddish brown fine SAND and SILT; medium dense, wet		
	13.0							087-SB-712 (13.0-14.0') at 9:47 Green staining and odor from CAPS at 13.0-13.5' bgs
	14.0							
						14.5 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-713
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685992.4
EAST: 602534.7

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 12.5' FILL: Black fine to medium SAND, some wood, trace glass and paper; medium dense, moist	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-713 (12.0-13.0') at 10:00 Hydrocarbon-like odor at 12.0-12.5' bgs
						12.5 - 14.0' FILL: Brown fine SAND and SILT; medium dense, wet		
	13.0							087-SB-713 (13.0-14.0') at 10:02 Green staining and odor from CAPS at 13.25-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-714
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 686002.4
EAST: 602551.9

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 12.5' FILL: Black fine to medium SAND, trace glass, paper, and wood; medium dense, moist	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-714 (12.0-13.0') at 10:16
						12.5 - 14.0' FILL: Brown fine SAND and SILT; medium dense, wet		
	13.0							087-SB-714 (13.0-14.0') at 10:18 Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-715
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685994.1
EAST: 602551.3

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 13.0' FILL: Black fine to medium SAND, some fine to coarse gravel, trace glass; medium dense, moist	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-715 (12.0-13.0') at 10:34
	13.0					13.0 - 14.0' FILL: Brown fine SAND and SILT; medium dense, wet		087-SB-715 (13.0-14.0') at 10:36 Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-716
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685993.2
EAST: 602541.4

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.5		12.0 - 12.5' FILL: Black fine to medium SAND, some fine to medium gravel, trace glass; loose, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-716 (12.0-13.0') at 11:08
						12.5 - 14.0' FILL: Dark reddish brown fine SAND and SILT; medium dense, wet		
	13.0							087-SB-716 (13.0-14.0) at 11:10 Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 14.5' FILL: Gray fine SAND and SILT; medium dense, wet		
						14.5 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-717
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685986.4
EAST: 602542.4

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 13.0' FILL: Black fine to coarse SAND, some glass, paper, and wood, trace fine gravel; loose, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-717 (12.0-13.0') at 11:28
	13.0					13.0 - 14.0' FILL: Dark brown fine SAND and SILT; medium dense, wet		087-SB-717 (13.0-14.0') at 11:30 Green staining and odor from CAPS at 13.5-14.0' bgs
	14.0					14.0 - 16.0' No recovery; End of boring at 16.0' bgs		
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-718
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685985.0
EAST: 602531.3

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	4.0		12.0 - 13.0' FILL: Black fine to coarse SAND, some fine gravel and glass; loose, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-718 (12.0-13.0') at 11:46
	13.0					13.0 - 16.0' FILL: Dark grey fine SAND and SILT; medium dense, wet; End of boring at 16.0' bgs		087-SB-718 (13.0-14.0') at 11:48 Green staining and odor from CAPS at 13.75-15.0' bgs
	14.0							
	15.0							
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell Jersey City

LOCATION: Site 087 (TA-10)
PROJECT NO: 3480160515
BORING ID: 087-SB-719
DATE BEGAN: 12/5/2016
DATE FINISHED: 12/5/2016
INSPECTOR: J. Desiderio
DRILLING CO: B&B Drilling
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 7730
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16.0' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: 685979.7
EAST: 602543.4

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	NA	2.0		12.0 - 13.0' FILL: Black fine to medium SAND, some glass, paper, and wood, trace gravel; loose, wet	NM	Auger 0.0-12.0' bgs. Start logging at 12.0' bgs 087-SB-719 (12.0-13.0') at 12:06
	13.0					13.0 - 14.5' FILL: Gray fine SAND and SILT; medium dense, wet		087-SB-719 (13.0-14.0') at 12:08 Green staining and odor from CAPS at 13.0-14.5' bgs
	14.0							
	15.0					14.5 - 16.0' No recovery; End of boring at 16.0' bgs		
	16.0							

PREPARED BY: RO
CHECKED BY: EB

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-611-B1
DATE BEGAN: 1/6/15
DATE FINISHED: 1/6/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0	S-1	N/A	4.0		12.0 - 13.3' FILL: Light brown/black SILT, some fine sand; wet	0	Starting elevation: 12.80'; direct push to 12' bgs; begin sampling Sample 087-WC-B at 1030
	13.0						0	
						13.3 - 16.0' FILL: Brown CLAYEY SILT; wet; End of boring at 16' bgs	0	
	14.0						0	
							0	
	15.0						0	
							0	
	16.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-612-B2
DATE BEGAN: 1/6/15
DATE FINISHED: 1/6/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	12.0							
		S-1	N/A	4.0		12.0 - 16.0' FILL: Brown/black CLAYEY SILT; loose, wet; End of boring at 16' bgs	0	Starting elevation: 12.55'; direct push to 12' bgs; begin sampling
							0	Sample 087-SB-612-B2 from (14.0-14.5) at 1020
	13.0						0	
							2.5	
	14.0						3.1	
							2.1	
	15.0						0	
							0	
	16.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-613-D
DATE BEGAN: 1/6/15
DATE FINISHED: 1/6/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 14' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-1	N/A	4.0		10.0 - 12.0' FILL: Light gray fine to coarse SAND, trace fine gravel, glass; loose, wet	0	Starting elevation" 15.75'; direct push to 10' bgs; begin sampling
							0	
	11.0						1.2	Sample 087-WC-D at 1145
							1.4	
	12.0						2.2	
						12.0 - 14.0' FILL: Dark gray fine to coarse SAND, trace fine gravel, glass; loose, wet; End of boring at 14' bgs		
							2.7	
	13.0						3.1	Sample 087-SB-613-D2 from (13.0-13.5) at 1150
							3.4	
	14.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-614
DATE BEGAN: 1/6/15
DATE FINISHED: 1/6/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 13' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	9.0	S-1	N/A	4.0		9.0 - 12.0' FILL: Gray fine to coarse SAND, trace fine gravel, glass, metal, and brick; loose, wet		Starting elevation: 14.8'; direct push to 9' bgs; begin sampling
	10.0						0	Sample 087-SB-614-E1 from (10.5-11.0) at 1300
							0	Sample 087-WC-E2 at 1310
	11.0						0.4	
							0.8	
	12.0					12.0 - 13.0' FILL: Black fine to coarse SAND, trace fine gravel, shell, and glass; loose, wet; End of boring at 13' bgs	0.1	
	13.0						0	

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-615
DATE BEGAN: 1/6/15
DATE FINISHED: 1/6/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 18' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	10.0	S-1	N/A	4.0		10.0 - 13.5' FILL: Black fine to medium SAND, trace fine to medium gravel, shells, glass, brick, and wood; loose, wet	0	Starting elevation: 15.2'; direct push to 10' bgs; begin sampling
							1.2	Sample 087-WC-F1 at 1400
	11.0						1.6	
							2.1	
	12.0						3.7	
							1.1	Sample 087-SB-615-F2 from (12.5-13.0) at 1350
	13.0						0.8	
						13.5 - 14.0' FILL: Reddish brown/black fine to medium SAND, trace fine to medium gravel, shells, glass, brick, and wood; loose, wet	1.4	
	14.0	S-2	N/A	4.0		14.0 - 16.0' FILL: Black fine to medium SAND, trace fine to medium gravel, shells, glass, brick, and wood; loose, wet	0.8	
							1.0	Sample 087-SB-615-K1 from (14.5-15.0) at 1425
	15.0						0.4	
							0.2	Sample 087-WC-K2 at 1430
	16.0					16.0 - 16.2' FILL: Tan/light yellow SILT (possible COPR)	0.8	
						16.2 - 16.8' FILL: Black/blue green SILT/COPR	1.0	
						16.8 - 16.9' FILL: Black SILT	1.0	
	17.0					16.9 - 18.0' PEAT: Dark brown PEAT; End of boring at 18' bgs	1.0	
	18.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-616
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	S-1	N/A	4.0		8.0 - 10.0' FILL: Dark gray fine to coarse SAND, trace fine gravel, brick, glass, and metal; loose, wet	0	Starting elevation: 13.5'; direct push to 8' bgs; begin sampling
							0	
	9.0						0	Sample 087-WC-G at 0850
							0	
	10.0					10.0 - 11.0' FILL: Dark brown/green fine SAND, COPR	0	Sample 087-SB-616-G2 from (10.0-10.5) at 0840
							0	
	11.0					11.0 - 12.5' FILL: Gray and white SILT, trace fine sand, possible COPR	0	
							0	
	12.0	S-2	N/A	4.0			0	Sample 087-WC-L at 0920
							0	
	13.0					12.5 - 13.7' FILL: Gray fine to coarse SAND, some fine gravel	1.2	Sample 087-SB-616-L1 from (13.0-13.5) at 0915
							0	
	14.0					13.7 - 14.6' FILL: Black fine to medium SAND, some silt	0	
							0	
						14.6 - 15.0' FILL: Black SILT		
	15.0					15.0 - 16.0' PEAT: Dark brown PEAT; End of boring at 16' bgs	1.0	
							1.0	
	16.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-617
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 16' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	S-1	N/A	4.0		8.0 - 12.5' FILL: Black fine to coarse SAND, trace fine to medium gravel, brick, glass, and shells; loose. wet	0	Starting elevation: 11.6'; direct push to 8' bgs; begin sampling
							2.1	Sample 087-SB-617-I1 from (8.5-9.0) at 0930
	9.0						2.0	
							1.3	Sample 087-WC-I at 0935
	10.0						1.0	
							0	
	11.0						0	
							1.1	
	12.0	S-2	N/A	3.0			1.0	Sample 087-WC-N at 0940
						12.5 - 13.0' FILL: Black SILT	1.2	
	13.0					13.0 - 15.0' PEAT: Dark brown PEAT	1.7	
							2.0	
	14.0						2.4	Sample 087-SB-617-N1 from (14.0-14.5) at 0945
							1.7	
	15.0					15.0 - 16.0' No Recovery; End of boring at 16' bgs	1.0	
							1.1	
	16.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-618
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 18' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	S-1	N/A	4.0		8.0 - 13.0' FILL: Dark brown/black fine to coarse SAND, some glass, brick, and shells, trace fine gravel; loose, wet	0	Starting elevation: 14.325'; direct push to 8' bgs; begin sampling
							0	
	9.0						1.0	Sample 087-WC-H at 1015
							0	Sample 087-SB-618-H1 from (9.0-9.5) at 1005
	10.0						0	
							0	
	11.0						0	
							0	
	12.0	S-2	N/A	3.5			0	
							0	
	13.0					13.0 - 15.0' FILL: Light gray fine SAND, some fine gravel, silt, and green COPR	0	
							0	
	14.0						1.2	
							1.8	
	15.0					15.0 - 15.5' FILL: Dark brown fine SAND, some silt, trace glass	1.1	Sample 087-SB-618-M1 from (15.0-15.5) at 1030
						15.5 - 16.0' No Recovery	0	
	16.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-618
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 18' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	16.0	S-3	N/A	1.0		16.0 - 17.0' FILL: Dark brown fine SAND, some silt, trace glass	0	Sample 087-WC-M at 1035
	17.0					17.0 - 18.0' No Recovery; End of boring at 18' bgs		
	18.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-619
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4ft Macrocore
COMPLETION DEPTH: 12' bgs
GW DEPTH: -
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	8.0	S-1	N/A	3.0		8.0 - 9.5' FILL: Black fine to coarse SAND, trace fine to coarse gravel and glass	0	Starting elevation: 9.5'; direct push to 8' bgs; begin sampling
							1.0	
	9.0						0	Sample 087-SB-619-J1 from (8.5-9.0) at 1110
						9.5 - 10.0' FILL: Dark brown SILT, some organics	0	
	10.0					10.0 - 11.0' PEAT: Dark brown PEAT	0	Sample 087-WC-J2 at 1115
							0	
	11.0					11.0 - 12.0' No Recovery; End of boring at 12' bgs	0	The rest of WC-N composited from J2
							0	
	12.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-620
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: N/A
SAMPLING TOOL: Hand Auger
COMPLETION DEPTH: 4' bgs
GW DEPTH: Not Encountered
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	0.0	S-1	N/A	3.0		0.0 - 3.0' FILL: Dark brown fine to coarse SAND, some glass and brick, trace fine to coarse gravel; loose, dry	0	Starting elevation: 11.0'; Hand auger used
							0	
	1.0							Sample 087-SB-620-A from (1.0-1.5) at 1300
								Sample 087-WC-A at 1310
							0.8	
	2.0							
							0	
	3.0					3.0 - 4.0' No Revocery; End of boring at 4' bgs		
							0.4	
	4.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-621
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4' Macrocore
COMPLETION DEPTH: 8' bgs
GW DEPTH: Not Encountered
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	4.0	S-1	N/A	4.0		4.0 - 8.0' FILL: Dark brown fine to coarse SAND, trace fine to medium gravel, glass, brick, fabric, and wood; loose, dry; End of boring at 8'	0	Starting elevation: 16.0'; Direct push to 4', begin sampling
							0	
	5.0						0	Sample 087-SB-621-C1 from (2.5-3.0) at 1325
							0	
	6.0						1.0	
							1.2	
	7.0						0	
							0	
	8.0							

PREPARED BY: KK
CHECKED BY: JA

Honeywell SA-6 North

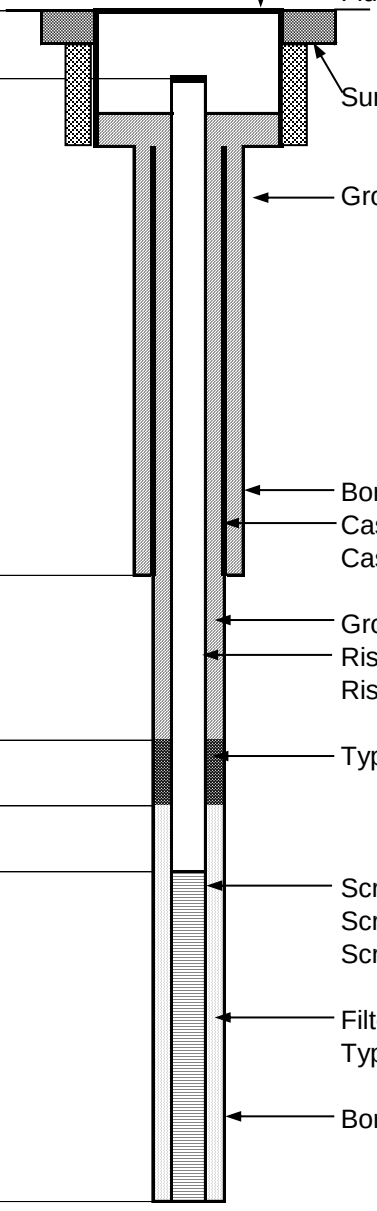
LOCATION: SA-6 North
PROJECT NO: 3480
BORING ID: 087-SB-622
DATE BEGAN: 1/7/15
DATE FINISHED: 1/7/15
INSPECTOR: M. Senna
DRILLING CO: B&B
DRILLING METHOD: Direct Push
DRILL EQUIP: Geoprobe 6610
SAMPLING TOOL: 4' Macrocore
COMPLETION DEPTH: 8' bgs
GW DEPTH: Not Encountered
DRILLER: Ed Blewett
NORTH: -
EAST: -

ELEV (FT.)	DEPTH (FT.)	RUN NO.	SPT BLOWS PER 0.5'	REC (FT.)	PROFILE	DESCRIPTION	VOLATILE ORGANIC VAPORS (PPM)	REMARKS
	4.0							
		S-1	N/A	4.0		4.0 - 8.0' FILL: Dark brown fine to coarse SAND, trace fine to medium gravel, glass, brick, fabric, and wood; loose, dry; End of boring at 8'	0	Starting elevation: 16.5'; Direct push to 4', begin sampling
							0	
	5.0						0	Sample 087-WC-C taken at 1350
							0	
	6.0						0	
							0.2	Sample 087-SB-622-C2 from (6.5-7.0) at 1345
	7.0						0.4	
							0	
	8.0							

PREPARED BY: KK
CHECKED BY: JA

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN MULTICASED WELL/PIEZOMETER DW-6
Project:	Honeywell Jersey City SA-6 North	**Number:** 3480160527	
Client:	Honeywell	**Date:** 10/28/2015	**Subcontractor:** B&B Drilling
Drilling Method:	Mud Rotary		**Measuring Point**
Development Method:	Air Lift		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

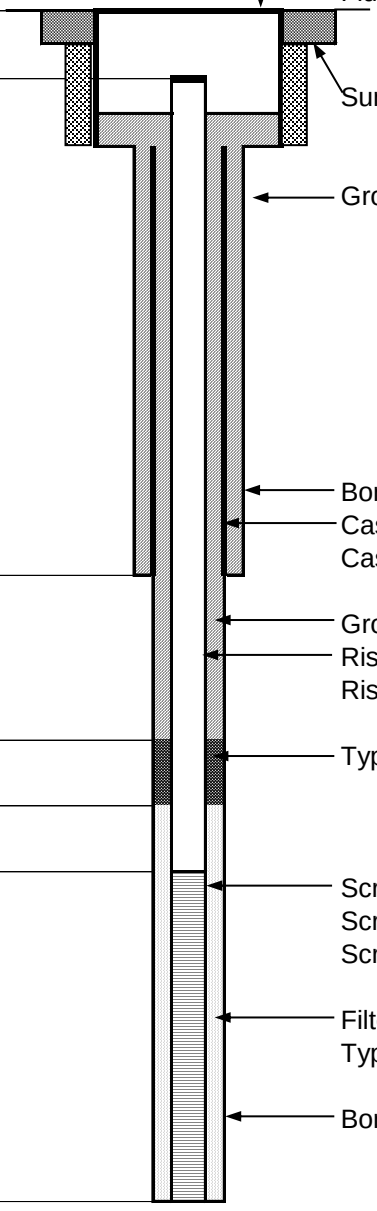
Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	xxx		Flushmount Diameter:
Riser Pipe	xxx		Surface Seal Type: Concrete
			Grout Type: Bentonite Grout
			Borehole Diameter: 14 inch
			Casing Type: Steel
Base of Casing	12		Casing ID: 10 inch
			Grout Type: Bentonite Grout
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 6 inch
Top of Seal.	16		Type of Seal: #00 Sand
Top of Filter Pack.	18		
Top of Screen.	20		Screen Type: Schedule 40 PVC
			Screen ID: 6 inch
			Screen Slot Size: .020"
			Filter/Sand Pack Type: # 1 Sand
			Borehole Diameter: 10 inch
Base of Screen/ Drilled Depth	45		



Notes: Date Well Started- 9/21/2015
Date Well Finished- 10/28/2015

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN MULTICASED WELL/PIEZOMETER DW-7
Project:	Honeywell Jersey City SA-6 North	**Number:** 3480160527	
Client:	Honeywell	**Date:** 10/28/2015	**Subcontractor:** B&B Drilling
Drilling Method:	Mud Rotary		**Measuring Point**
Development Method:	Air Lift		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Grade	xxx	
Riser Pipe	xxx	
Base of Casing	17	
Top of Seal.	20	
Top of Filter Pack.	22	
Top of Screen.	23	
Base of Screen/ Drilled Depth	48	



Description

Flushmount Diameter:	
Surface Seal Type:	Concrete
Grout Type:	Bentonite Grout
Borehole Diameter:	14 inch
Casing Type:	Steel
Casing ID:	10 inch
Grout Type:	Bentonite Grout
Riser Pipe Type:	Schedule 40 PVC
Riser Pipe ID:	6 inch
Type of Seal:	#00 Sand
Screen Type:	Schedule 40 PVC
Screen ID:	6 inch
Screen Slot Size:	.020"
Filter/Sand Pack Type:	# 1 Sand
Borehole Diameter:	10 inch

Notes: Date Well Started- 9/24/2015
Date Well Finsihed- 10/28/2015

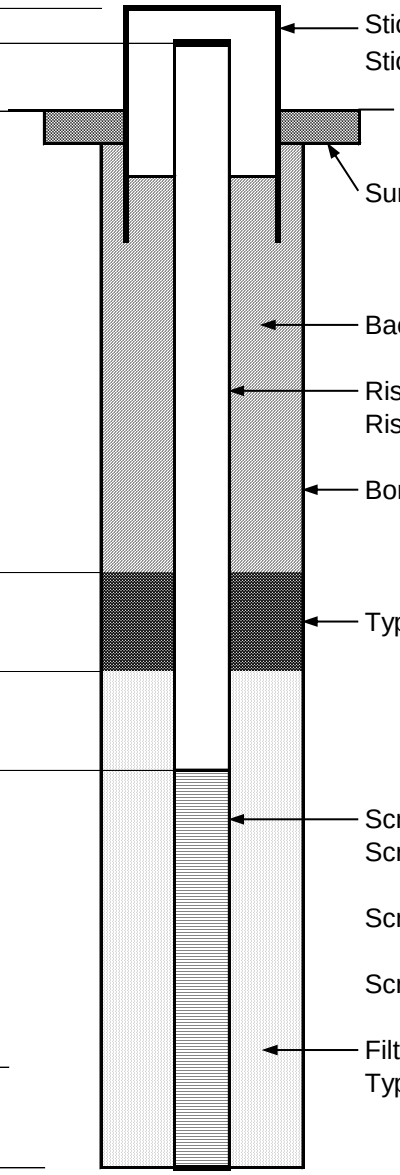
Amec Foster Wheeler Environment & Infrastructure

STICKUP OVERBURDEN WELL/PIEZOMETER

PZ-1

Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	
Client:	Honeywell	**Date:** 6/20/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	6.5
Top of Seal	1	5.5
Top of Filter Pack	2	4.5
Top of Screen	3	3.5
Drilled Depth	8	-1.5
Total Depth	8	-1.5

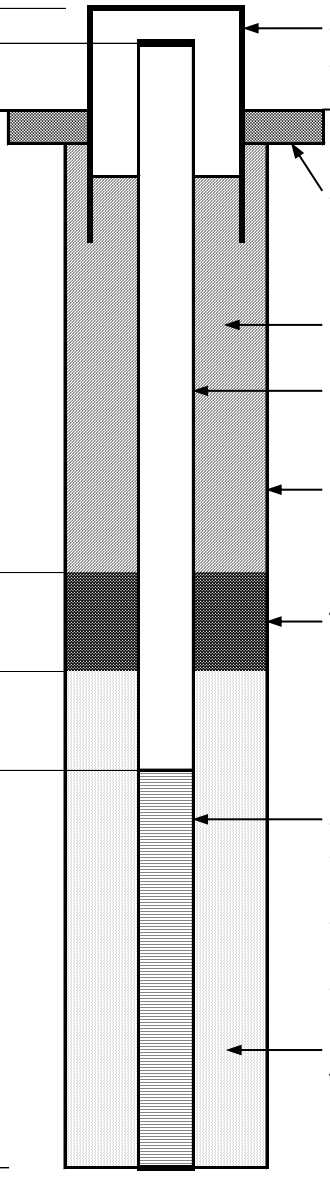


Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			STICKUP OVERBURDEN WELL/PIEZOMETER
Project: Honeywell Jersey City SA-6 North	**Number:** 3480130377		PZ-2
Client: Honeywell	**Date:** 6/17/2016	**Subcontractor:**	B&B Drilling
Drilling Method: Hollow Stem Auger		**Measuring Point**	
Development Method: Submersible		**Type:**	Top Of Riser
Bucking Posts:		**Elevation (ft):**	xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	10.5
Top of Seal	3.5	7
Top of Filter Pack	5.5	5
Top of Screen	6.6	4
Drilled Depth	11.5	-1
Total Depth	11.5	-1



Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

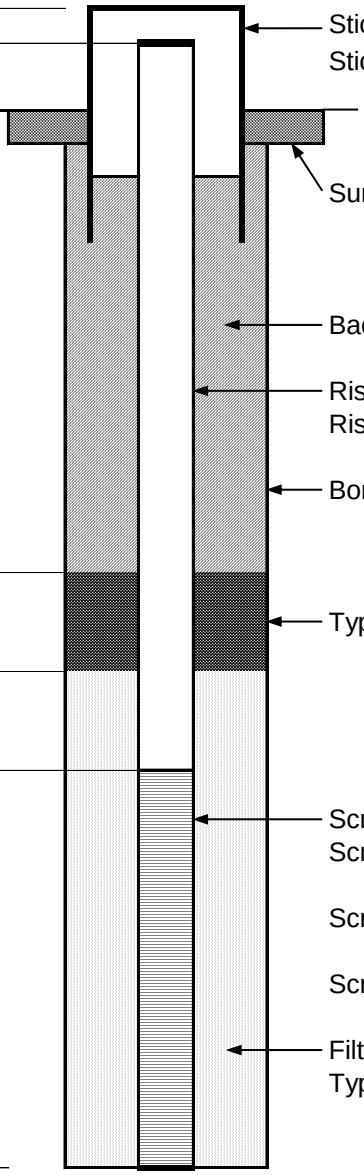
Notes:

Amec Foster Wheeler Environment & Infrastructure

STICKUP OVERBURDEN WELL/PIEZOMETER

Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	PZ-3
Client:	Honeywell	**Date:** 6/16/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	12.2
Top of Seal	5	7.2
Top of Filter Pack	7	5.2
Top of Screen	8	4.2
Drilled Depth	13	-1.2
Total Depth	13	-1.2



Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

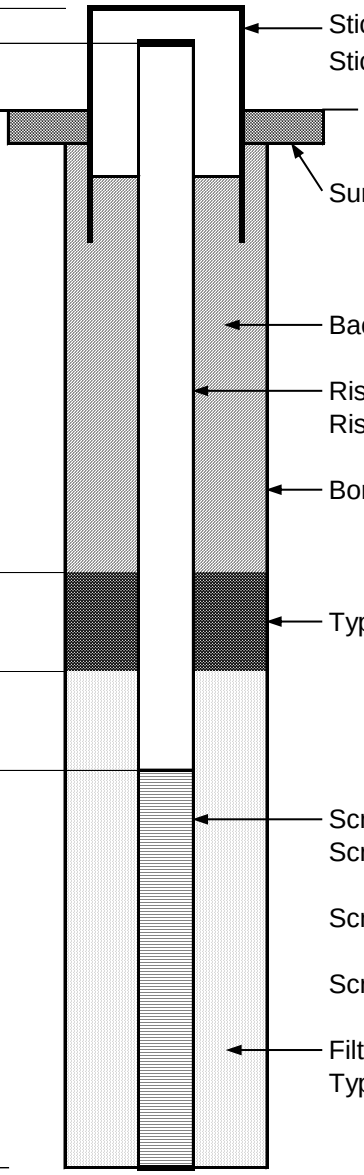
Notes:

Amec Foster Wheeler Environment & Infrastructure

STICKUP OVERBURDEN WELL/PIEZOMETER

Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	PZ-4
Client:	Honeywell	**Date:** 6/16/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	11
Top of Seal	4	7
Top of Filter Pack	6	5
Top of Screen	7	4
Drilled Depth	12	-1
Total Depth	12	-1

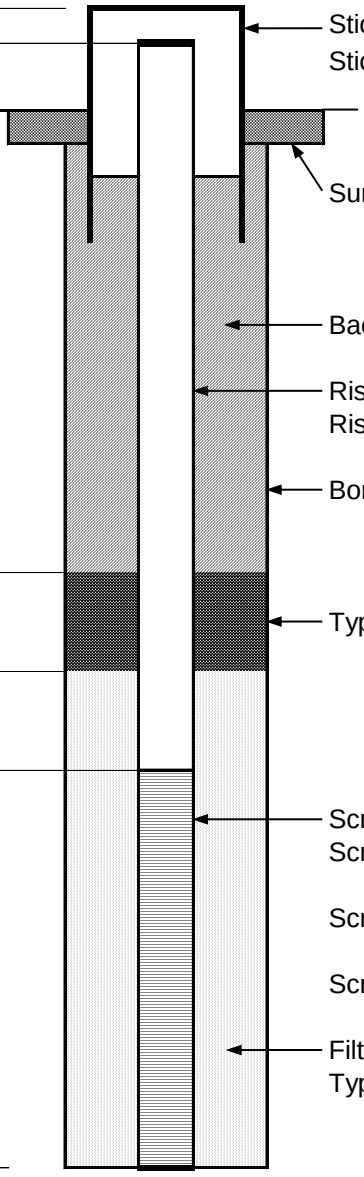


Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			STICKUP OVERBURDEN WELL/PIEZOMETER
Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	PZ-5
Client:	Honeywell	**Date:** 6/20/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	11.7
Top of Seal	5	6.7
Top of Filter Pack	7	4.7
Top of Screen	8	3.7
Drilled Depth	13	-1.3
Total Depth	13	-1.3



Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

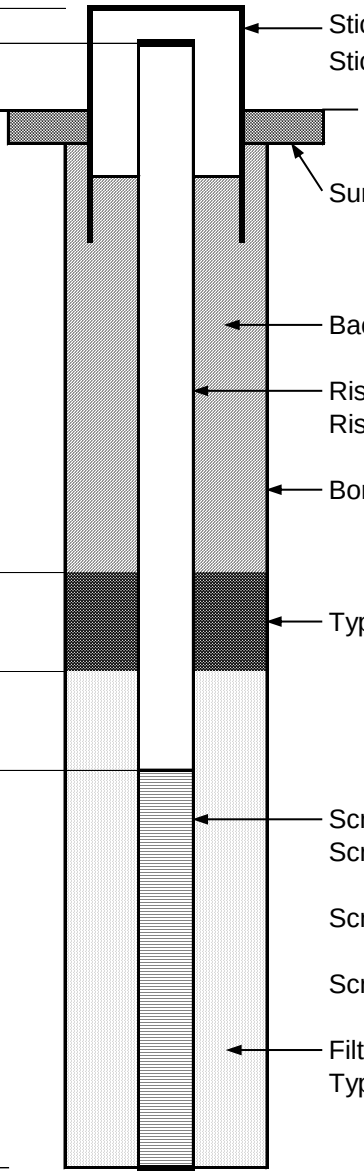
Notes: Install location moved north 2' to facilitate cap construction. Location checked with RJR to verify no no conflict with future roadways or utilities.

Amec Foster Wheeler Environment & Infrastructure

STICKUP OVERBURDEN WELL/PIEZOMETER

Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	PZ-6
Client:	Honeywell	**Date:** 6/20/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	11.9
Top of Seal	5	6.9
Top of Filter Pack	7	4.9
Top of Screen	8	3.9
Drilled Depth	13	-1.1
Total Depth	13	-1.1

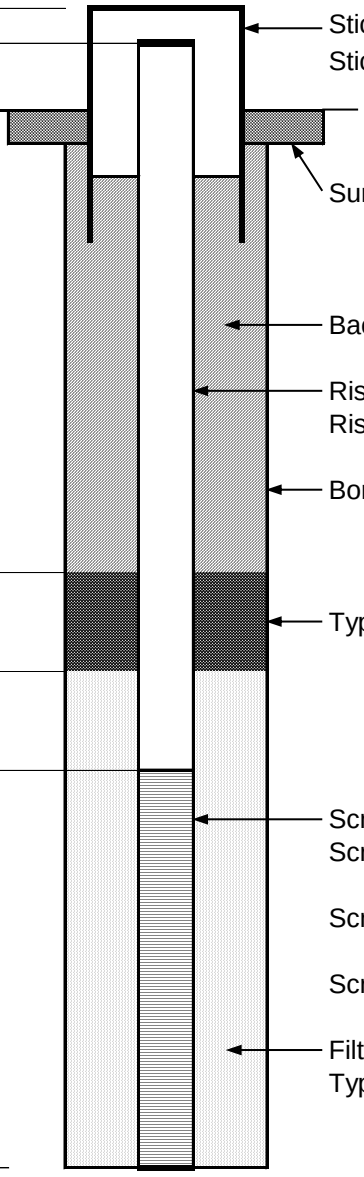


Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			STICKUP OVERBURDEN WELL/PIEZOMETER
Project: Honeywell Jersey City SA-6 North	**Number:** 3480130377		PZ-7
Client: Honeywell	**Date:** 6/14/2016	**Subcontractor:**	B&B Drilling
Drilling Method: Hollow Stem Auger		**Measuring Point**	
Development Method: Submersible		**Type:**	Top Of Riser
Bucking Posts:		**Elevation (ft):**	xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	14.5
Top of Seal	12	2.5
Top of Filter Pack	14	0.5
Top of Screen	15	-0.5
Drilled Depth	26	-11.5
Total Depth	26	-11.5

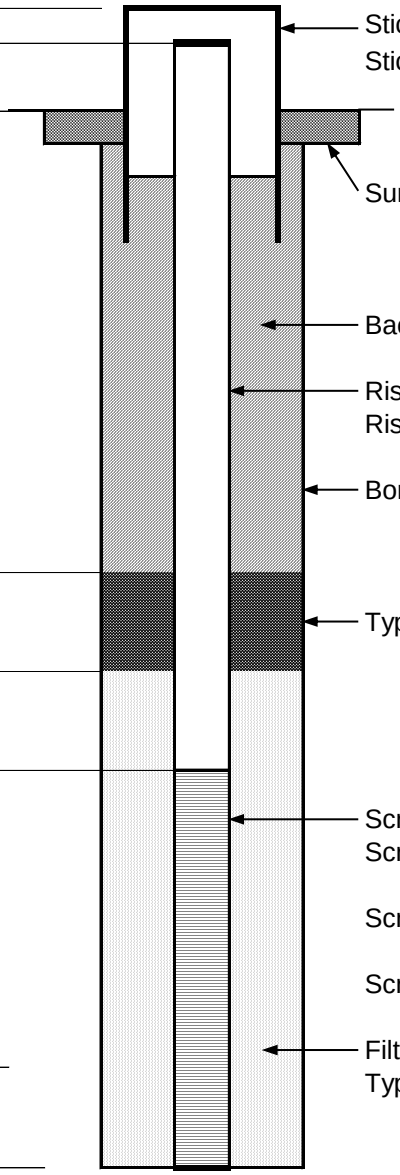


Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			STICKUP OVERBURDEN WELL/PIEZOMETER
Project: Honeywell Jersey City SA-6 North	**Number:** 3480130377		PZ-8
Client: Honeywell	**Date:** 6/15/2016	**Subcontractor:**	B&B Drilling
Drilling Method: Hollow Stem Auger		**Measuring Point**	
Development Method: Submersible		**Type:**	Top Of Riser
Bucking Posts:		**Elevation (ft):**	xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	13
Top of Seal	7	7
Top of Filter Pack	9	5
Top of Screen	10	4
Drilled Depth	14	-1
Total Depth	14	-1



Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

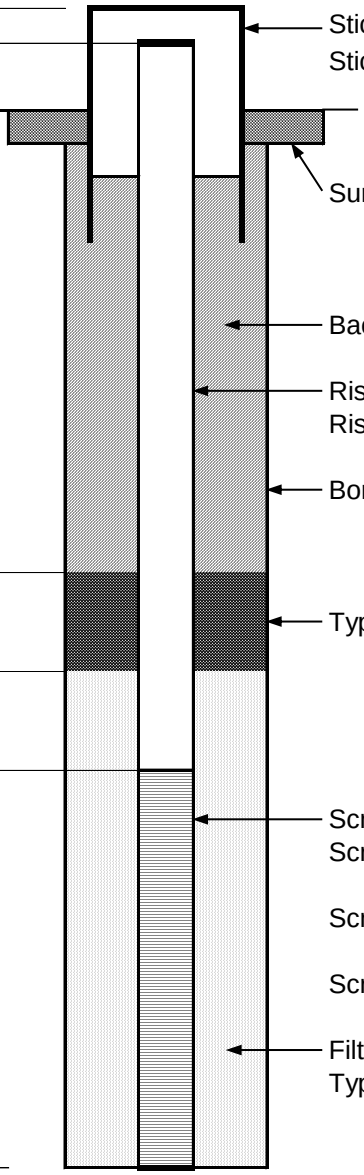
Notes:

Amec Foster Wheeler Environment & Infrastructure

STICKUP OVERBURDEN WELL/PIEZOMETER

Project:	Honeywell Jersey City SA-6 North	**Number:** 3480130377	PZ-9
Client:	Honeywell	**Date:** 6/15/2016	**Subcontractor:** B&B Drilling
Drilling Method:	Hollow Stem Auger		**Measuring Point**
Development Method:	Submersible		**Type:** Top Of Riser
Bucking Posts:			**Elevation (ft):** xxx

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	10.5
Top of Seal	4	6.5
Top of Filter Pack	6	4.5
Top of Screen	7	3.5
Drilled Depth	14	-1.5
Total Depth	14	-1.5



Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			STICKUP OVERBURDEN WELL/PIEZOMETER
Project: Honeywell Jersey City SA-6 North	**Number:** 3480130377		PZ-10
Client: Honeywell	**Date:** 6/15/2016	**Subcontractor:**	B&B Drilling
Drilling Method: Hollow Stem Auger		**Measuring Point**	
Development Method: Submersible		**Type:**	Top Of Riser
Bucking Posts:		**Elevation (ft):**	xxx

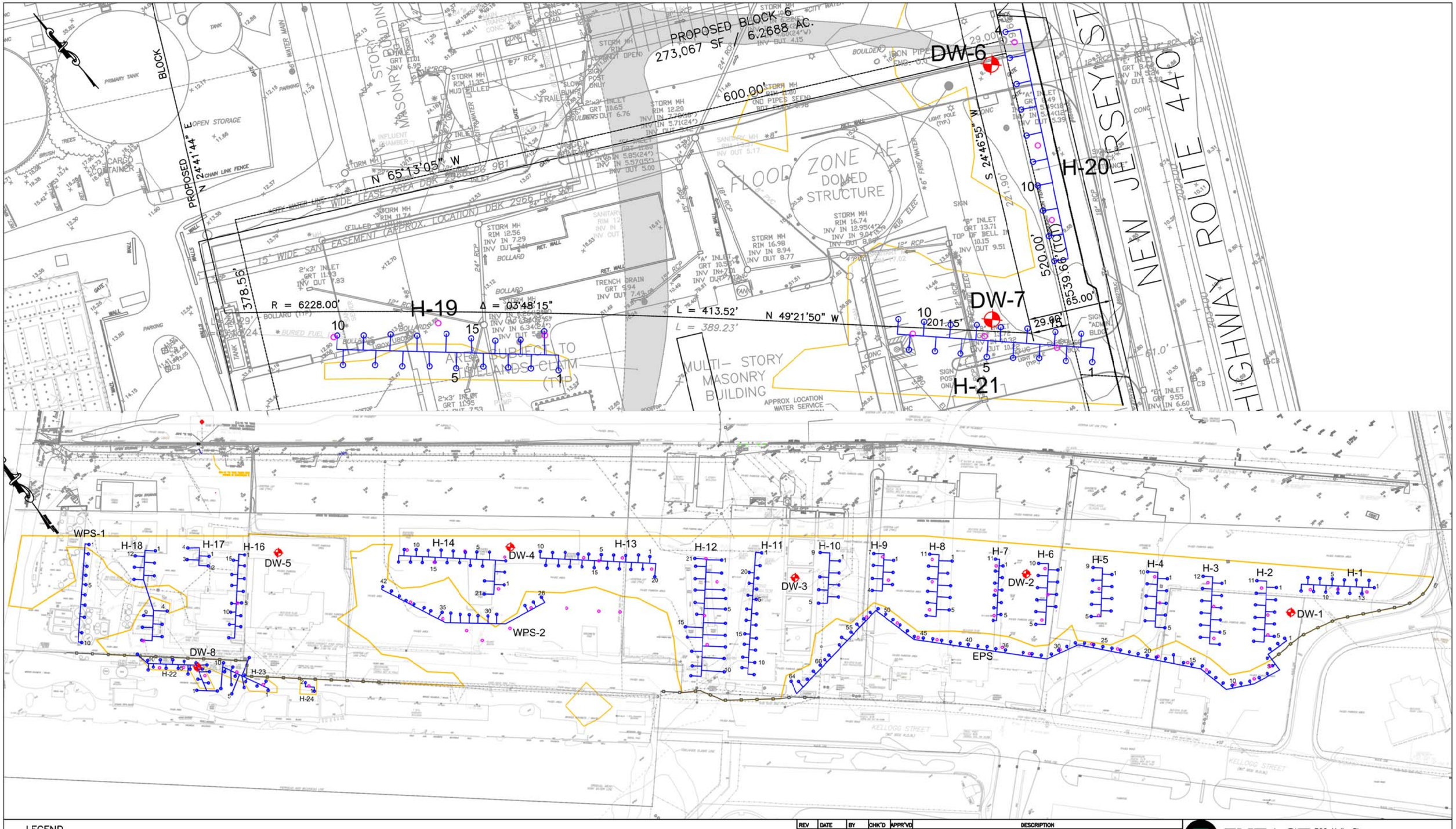
Item	Depth, below Measuring Point (ft)	Elevation (ft)
Stickup	xxx	
Riser Pipe	xxx	
Grade	0	10.5
Top of Seal	4	6.5
Top of Filter Pack	6	4.5
Top of Screen	7	3.5
Drilled Depth	12	-1.5
Total Depth	12	-1.5

Description	
Stickup Type:	
Stickup Diameter:	
Surface Seal Type:	
Backfill/Grout Type:	Bentonite Grout
Riser Pipe Type:	Stainless Steel
Riser Pipe ID:	4"
Borehole Diameter:	9"
Type of Seal:	#00 Sand
Screen Type:	Stainless Steel
Screen ID:	4"
Screen Slot Size:	0.03"
Screen Length:	5
Filter/Sand Pack Type:	#1 Sand

Notes:

APPENDIX I

DEWATERING LOGS



LEGEND

- EXCAVATION LIMITS
- DE-WATERING WELLPOINT LOCATION
- SPLIT SPOON SOIL BORING
- TEMPORARY SHEETPILE ALIGNMENT
- DEEP WELL LOCATION

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME: HONEYWELL SA-6 EXCAVATION DE-WATERING LAYOUT 03/15/16

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ

SA6 -SOUTH

		Design			Field Verified											Proposed Per Field Observation		Installation	
								Organic Silt/Clay				Peat (ft. bgs)		End of Boring					
Header #	Point #	Existing Grade at Point (ft. Elev)	Assumed Depth of Meadowmat (ft. bgs)	Split Spoon	Existing Grade at Point (ft. Elev)	Northing	Easting	Top (ft. bgs)	Top (ft. Elev)	Bottom (ft. bgs)	Bottom (ft. Elev)	Top (ft. bgs)	Top (ft. Elev.)	Bottom (ft. bgs)	Bottom (ft. Elev.)	Proposed Well Point Depth (ft. bgs)	Proposed Well Point Depth (ft. Elev.)	Date Installed	Well Point Depth Installed (ft. bgs)
H1	1	9.2	9.9		9.4	684167.4	603150.6									9.7	-0.3	9/3/13	9.7
	1-B	9.2	9.9	X	9.2	684169.0	603136.6	NE	NE	NE	NE	10.8	-1.6	12.0	-2.8	9.5	-0.3	N/A	N/A
	2	9.2	10.0		9.3	684182.4	603150.5									9.6	-0.3	9/3/13	9.6
	3	9.2	10.0		9.4	684194.8	603134.6									9.6	-0.3	9/3/13	9.6
	4	9.3	10.1		9.5	684206.4	603118.9									9.8	-0.3	9/3/13	9.8
	4-B	9.3	10.1	X	9.4	684200.5	603101.1	10.2	-0.8	10.4	-1.0	10.4	-1.0	12.0	-2.6	9.7	-0.3	N/A	N/A
	5	9.4	9.9		9.4	684219.6	603103.7									9.8	-0.3	9/3/13	9.8
	6	9.6	10.2		9.5	684232.5	603087.5									10.0	-0.3	9/3/13	10.0
	7	9.9	10.4		9.6	684245.5	603072.4									10.8	-0.3	9/3/13	10.0
	8	10.1	10.3		10.5	684234.5	603050.9									9.9	-0.3	9/4/13	9.9
	9	9.9	10.0		9.7	684221.6	603066.4									9.8	-0.3	9/4/13	9.8
	9-B	9.9	10.0	X	9.7	684227.1	603063.7	10.5	-0.8	10.7	-1.0	10.7	-1.0	12.0	-2.3	10.0	-0.3	N/A	N/A
	10	9.6	9.7		9.3	684209.1	603081.8									9.7	-0.3	9/4/13	9.7
	11	9.3	9.7		9.5	684195.8	603097.1									9.6	-0.3	9/4/13	9.6
	12	9.2	9.8		9.3	684183.5	603112.9									9.7	-0.3	9/4/13	9.7
	13	9.1	9.7		9.3	684171.1	603128.4									9.6	-0.3	9/3/13	9.6
H2	1	9.9	10.4		9.7	684262.9	603021.0									9.3	0.4	8/15/13	9.5
	2	9.9	10.1		10.0	684247.2	603008.2									9.6	0.4	8/15/13	9.6
	3	9.9	9.8		10.1	684232.2	602995.0									9.7	0.4	8/15/13	9.7
	3-B	9.9	9.8	X	10.3	684234.6	602983.3	10.8	-0.5	11.5	-1.2	11.5	-1.2	12.0	-1.7	9.9	0.4	N/A	N/A
	4	10.2	10.0		10.2	684216.6	602983.2									9.8	0.4	8/15/13	9.8
	5	10.4	10.2		10.5	684200.2	602970.9									10.1	0.4	9/4/13	10.1
	6	10.3	10.8		10.6	684213.5	602939.5									10.2	0.4	8/16/13	10.2
	6-B	10.3	10.8	X	10.4	684208.3	602964.1	10.5	-0.1	10.8	-0.4	10.8	-0.4	11.7	-1.3	10.0	0.4	N/A	N/A
	7	10.1	10.6		10.3	684228.9	602951.9									9.9	0.4	8/16/13	9.9
	8	9.9	10.4		9.9	684243.6	602964.4									9.5	0.4	8/16/13	9.5
	9	9.8	10.2		9.6	684259.8	602977.0									9.2	0.4	8/15/13	9.2
	10	9.7	10.2		9.7	684274.6	602989.3									9.3	0.4	8/15/13	9.3
	11	9.7	10.6		9.7	684290.5	603002.3									9.3	0.4	9/3/13	9.3
	11-B	9.7	10.6	X	9.7	684276.5	603001.0	11.0	-1.3	11.5	-1.8	11.5	-1.8	12.0	-2.3	9.3	0.4	N/A	N/A
H3	1	9.7	11.1		9.7	684321.0	602953.4									10.6	-0.9	8/15/13	10.6
	2	9.7	10.9		9.4	684305.2	602940.9									10.3	-0.9	8/15/13	10.3
	3	9.8	10.9		9.8	684289.9	602928.1									10.7	-0.9	8/14/13	10.7
	3-B	9.8	10.9	X	9.6	684298.8	602919.7	11.2	-1.6	12.0	-2.4	12.0	-2.4	14.0	-4.4	10.5	-0.9	N/A	N/A
	4	9.9	10.8		9.9	684274.3	602915.6									10.8	-0.9	8/14/13	10.9
	5	10.0	10.8		10.1	684258.6	602903.0									11.0	-0.9	8/14/13	11.0
	6	10.2	10.8		10.7	684243.0	602890.8									11.6	-0.9	8/13/13	11.0
	7	10.1	10.8		10.3	684270.9	602872.2									11.2	-0.9	8/13/13	11.3
	7-B	10.1	10.8	X	10.4	684256.3	602889.0	12.5	-2.1	12.8	-2.4	12.8	-2.4	14.0	-3.6	11.3	-0.9	N/A	N/A
	8	10.0	10.7		9.9	684287.0	602884.5									10.8	-0.9	8/14/13	10.9
	9	9.9	10.8		9.8	684302.4	602897.0									10.7	-0.9	8/14/13	10.8
	10	9.7	10.9		9.6	684317.9	602909.5									10.5	-0.9	8/14/13	10.7
	11	9.7	11.0		9.5	684333.4	602922.2									10.4	-0.9	8/15/13	10.4
	12	9.7	11.1		9.5	684349.1	602934.8									10.4	-0.9	9/3/13	10.4
	12-B	9.7	11.1	X	9.6	684335.6	602935.3	11.0	-1.4	11.6	-2.0	11.6	-2.0	12.0	-2.4	10.5	-0.9	N/A	N/A
H4	1	9.9	11.6		9.5	684380.2	602885.5									11.5	-2.0	8/15/13	11.5
	2	9.8	11.2		9.7	684365.0	602872.9									11.7	-2.0	8/15/13	11.7
	3	9.8	10.8		9.8	684348.9	602860.0									11.8	-2.0	8/14/13	11.9
	3-B	9.8	10.8	X	9.7	684355.8	602852.1	13.0	-3.3	13.2	-3.5	13.2	-3.5	14.0	-4.3	11.7	-2.0	N/A	N/A
	4	9.9	10.7		9.8	684334.1	602847.7									11.8	-2.0	8/14/13	11.9
	5	10.0	10.6		9.8	684317.8	602834.6									11.8	-2.0	8/14/13	11.7
	6	10.0	10.7		9.8	684346.1	602815.5									11.8	-2.0	8/14/13	11.8
	7	10.0	11.1		9.9	684361.9	602829.0									11.9	-2.0	8/14/13	11.8
	8	10.0	11.4		10.0	684377.6	602841.3									12.0	-2.0	8/14/13	12.0
	9	10.1	11.9		10.0	684392.9	602854.3									12.0	-2.0	8/15/13	12.0
	10	10.4	12.5		10.6	684408.2	602866.6									12.6	-2.0	9/3/13	12.6
	10-B	10.4	12.5	X	10.0	684395.1	602870.6	12.5	-2.5	12.7	-2.7	12.7	-2.7	14.0	-4.0	12.0	-2.0	N/A	N/A
H5	1	10.9	12.8		8.3	684439.8	602816.0									8.7	-0.4	8/22/13	8.7
	2	10.9	12.5		8.5	684423.7	602804.1									8.9	-0.4	8/22/13	8.9
	2-B	10.9	12.5	X	8.7	684433.6	602785.3	10.5	-1.8	11.4	-2.7	11.4	-2.7	12.0	-3.3	9.1	-0.4	N/A	N/A
	3	10.9	12.1		8.5	684408.2	602792.6									8.9	-0.4	8/23/13	8.9
	4	11.0	11.7		8.4	684392.8	602780.3									8.8	-0.4	8/23/13	8.8
	5	10.4	10.5		8.9	684403.8	602748.3									9.3	-0.4	8/23/13	9.3
	5-B	10.4	10.5	X	9.1	684398.8	602758.7	10.0	-0.9	10.5	-1.4	10.5	-1.4	12.0	-2.9	9.5	-0.4	N/A	N/A
	6	10.6	10.9		8.9	684420.5	602760.0									9.3	-0.4	8/23/13	9.3
	7	10.6	11.3		8.8	684436.4	602772.6									9.2	-0.4	8/22/13	9.2
	8	10.5	11.7		8.0	684450.8	602785.5									8.4	-0.4	8/22/13	8.4
	9	10.5	12.1		8.1	684467.2	602798.0									8.5	-0.4	8/22/13	8.5
H6	1	9.4	10.1		9.0	684498.0	602749.3									10.8	-1.8	8/19/13	10.8
	2	9.5	9.4		9.2	684482.4	602737.2									11.0	-1.8	8/16/13	11.0
	3	9.9	9.7		9.6	684467.0	602723.8									11.4	-1.8	8/16/13	11.4
	3-B	9.9	9.7	X	9.5	684475.5	602711.9	11.8	-2.3	13.0	-3.5	13.0	-3.5	14.0	-4.5	11.3	-1.8	N/A	N/A
	4	9.8	9.7		9.5	684451.6	602710.9									11.3	-1.8	8/16/13	11.3
	5	9.5	9.6		9.6	684447.6	602667.4									11.4	-1.8	8/16/13	11.4
	5-B	9.5	9.6	X	9.3	684447.5	602679.3	11.8	-2.5	12.3	-3.0	12.3	-3.0	14.0	-4.7	11.1	-1.8	N/A	N/A
	6	9.3	9.4		9.5	684464.4	602679.8									11.3	-1.8	8/16/13	11.3
	7	9.3	9.2		9.4	684479.2	602692.5									11.2	-1.8	8/16/13	11.2
	8	9.2	9.1		9.3	684494.5	602705.1									11.1	-1.8	8/16/13	11.1
	9	9.1	9.2		9.3	684509.9	602717.9									11.1	-1.8	8/16/13	11.1
	10	9.1	10.1		9.2	684525.5	602730.1									11.0	-1.8	9/4/13	11.0
	10-B	9.1	10.1	X	9.4	684512.6	602733.4	12.8	-3.4	13.0	-3.6	13.0	-3.6	14.0	-4.6	11.2	-1.8	N/A	N/A
H7	1	9.6	9.9		9.5	684556.9	602680.3									12.5	-3.0	12/12/13	12.5
	2	9.5	9.7		9.5	684542.1	602668.0									12.5	-3.0	12/12/13	12.5
	3	9.4	9.5		9.7	684526.1	602655.5									12.7	-3.0	12/12/13	12.7
	3-B	9.4	9.5	X	10.0	684531.9	602646.9	13.5	-3.5	14.5	-4.5	14.5	-4.5	16.0	-6.0	13.0	-3.0	N/A	N/A
	4	9.3	9.3		9.7	684510.1	602642.6									12.7	-3.0	12/12/13	12.7
	5	9.3	9.4		9.7	684494.7	602630.3									12.7	-3.0	12/11/13	12.7
	6	9.2	9.4		9.9	684494.3	602614.5									12.9	-3.0	12/11/13	12.9
	6-B	9.2	9.4	X	10.0	684499.8	602620.6	13.3	-3.3	13.6	-3.6	13.6	-3.6	14.0	-4.0	13.0	-3.0	N/A	N/A
	7	9.2	9.4		10.0	684510.3	602627.9									13.0	-3.0	12/11/13	13.0
	8	9.3	9.5		9.9	684526.6	602640.7									12.9	-3.0	12/12/13	12.9
	9	9.4	9.7		9.9	684542.0	602653.0									12.9	-3.0	12/12/13	12.9
	10	9.5	9.9		9.7	684557.4	602665.6									12.7	-3.0	12/12/13	12.7
	11	9.6	10.1		9.8	684573.1	602677.2									12.8	-3.0	12/1213	12.8
	11-B	9.6	10.1	X	9.8	684563.4	602671.6	NE	NE	NE	NE	13.5	-3.7	14.0	-4.2	12.8	-3.0	N/A	N/A
H8	1	9.5	10.2		9.5	684616.1	602612.4									11.0	-1.5	12/12/13	11.0
	2	9.3	10.0		9.5	684600.7	602600.4									11.0	-1.5	12/12/13	11.0
	3	9.2	9.8		9.3	648585.2	602587.6									10.8	-1.5	12/12/13	10.8
	3-B	9.2	9.8	X	9.2	684604.7	602571.2	11.7	-2.5	11.8	-2.6	11.8	-2.6	12.0	-2.8	10.7	-1.5	N/A	N/A
	4	9.1	9.6		9.3	684569.4	602575.9									10.8	-1.5	12/12/13	10.8
	5	9.1	9.5		9.3	684553.8	602563.3									10.8	-1.5	12/13/13	10.8
	6	9.1	9.6		9.2	684566.0	602530.5									10.7	-1.5	12/13/13	10.7
	6-B	9.1	9.6	X	9.3	684570.5	602540.5	NE	NE	NE	NE	12.0	-2.7	14.0	-4.7	10.8	-1.5	N/A	N/A
	7	9.1	9.7		9.1	684581.9	602544.6									10.6	-1.5	12/13/13	10.6
	8	9.1	9.8		9.1	684596.7	602556.0									10.6	-1.5	12/13/13	10.6
	9	9.2	10.0		9.2	684612.8	602569.6									10.7	-1.5	12/13/13	10.7

	10	9.3	10.2		9.2	684629.1	602581.5								10.7	-1.5	12/13/13	10.7
	11	9.4	10.4		9.2	684643.7	602594.7								10.7	-1.5	12/13/13	10.7
	11-B	9.4	10.4	X	9.2	684634.3	602592.9	11.2	-2.0	11.4	-2.2	11.4	-2.2	12.0	-2.8	10.7	-1.5	N/A	N/A
H9	1	9.2	10.4		9.1	684670.5	602541.2									11.6	-2.5	12/16/13	11.6
	2	9.1	10.2		9.1	684655.0	602528.8									11.6	-2.5	12/16/13	11.6
	3	9.0	10.0		9.1	684639.6	602516.2									11.6	-2.5	12/16/13	11.6
	3-B	9.0	10.0	X	9.2	684649.2	602515.2	12.5	-3.3	12.8	-3.6	12.8	-3.6	14.0	-4.8	11.7	-2.5	N/A	N/A
	4	9.0	10.1		9.0	684651.1	602484.1									11.5	-2.5	12/13/13	11.5
	5	9.0	10.2		9.3	684666.8	602496.1									11.8	-2.5	12/13/13	11.8
	6	9.0	10.3		9.2	684683.2	602510.0									11.7	-2.5	12/13/13	11.7
	7	9.1	10.8		9.3	684698.3	602521.9									11.8	-2.5	12/13/13	11.8
	7-B	9.1	10.8	X	9.1	684685.8	602530.0	12.1	-3.0	12.4	-3.3	12.4	-3.3	14.0	-4.9	11.6	-2.5	N/A	N/A
H10	1	11.0	13.1		8.5	684722.0	602469.3									11.0	-2.5	7/29/14	11.0
	2	8.9	10.7		8.5	684706.7	602456.8									11.0	-2.5	7/29/14	11.0
	3	8.1	9.6		8.4	684691.0	60244.9									10.9	-2.5	7/29/14	10.9
	4	8.1	9.4		8.2	684675.6	602432.6									10.7	-2.5	7/29/14	10.7
	5	9.0	10.4		8.4	684686.8	602400.3									10.9	-2.5	7/29/14	10.9
	6	9.0	10.7		8.5	684704.3	602413.7									11.0	-2.5	7/29/14	11.0
	7	9.0	11.1		8.5	684720.3	602427.5									11.0	-2.5	7/29/14	11.0
	8	9.2	11.0		8.5	684733.3	602444.5									11.0	-2.5	N/A	Not Installed
	9	10.5	11.7		8.5	684752.1	602451.5									11.0	-2.5	7/29/14	11.0
H11	1	8.7	10.9		12.1	684808.2	602374.2									14.6	-2.5	8/1/14	14.6
	2	8.8	10.8		12.3	684793.1	602359.5									14.8	-2.5	8/1/14	14.8
	3	8.8	10.8		12.2	684778.6	602344.6									14.7	-2.5	8/1/14	14.7
	4	8.8	10.6		12.2	684765.3	602332.4									14.7	-2.5	8/1/14	14.7
	5	8.7	10.6		12.2	684752.2	602321.9									14.7	-2.5	8/1/14	14.7
	6	9.0	10.6		12.2	684732.5	602308.6									14.7	-2.5	7/24/14	14.7
	7	9.0	10.3		12.2	684718.4	602296.7									14.7	-2.5	7/24/14	14.7
	8	9.0	10.3		12.1	684700.6	602284.3									14.6	-2.5	7/24/14	14.6
	9	8.8	10.1		12.1	684685.7	602271.6									14.6	-2.5	7/24/14	14.6
	10	8.4	9.7		12.1	684670.0	602258.7									14.6	-2.5	7/24/14	14.6
	11	8.2	9.5		12.1	684654.7	602246.1									17.3	-5.2	7/24/14	17.3
	12	8.5	9.8		12.1	684675.8	602236.7									17.3	-5.2	7/24/14	17.3
	13	8.8	10.1		12.1	684689.0	602247.8									17.3	-5.2	7/25/14	17.3
	14	8.8	10.4		12.2	684704.6	602262.4									17.4	-5.2	7/25/14	17.4
	15	8.9	10.6		12.2	684717.8	602273.1									17.4	-5.2	7/25/14	17.4
	16	9.0	10.7		12.2	684734.4	602287.9									17.4	-5.2	7/25/14	17.4
	17	8.8	10.7		12.3	684748.6	602299.6									17.5	-5.2	7/25/14	17.5
	18	8.9	10.8		12.2	684765.6	602314.9									17.4	-5.2	7/25/14	17.4
	19	9.0	11.0		12.2	684780.3	602328.2									17.4	-5.2	7/25/14	17.4
	20	9.0	11.1		12.2	684794.6	602338.8									17.4	-5.2	7/25/14	17.4
	21	9.2	11.3		12.3	684808.6	602348.7									17.5	-5.2	N/A	Not Installed
H12	1	10.2	12.9		10.0	684837.7	602314.1									15.2	-5.2	7/21/14	15.2
	2	8.9	11.5		9.2	684820.6	602301.4									14.4	-5.2	7/12/14	14.4
	3	8.8	11.4		8.7	684796.5	602287.9									13.9	-5.2	7/23/14	13.9
	3-B	8.8	11.4	X	8.8	684813.7	602286.6	14.5	-5.7	15.5	-6.7	15.5	-6.7	16.0	-7.2	14.0	-5.2	N/A	N/A
	4	8.8	11.2		8.8	684783.2	602282.0									14.0	-5.2	7/24/14	14.0
	5	9.1	11.4		8.9	684769.3	602271.5									14.1	-5.2	7/22/14	14.1
	6	10.0	12.1		8.7	684750.6	602257.6									13.9	-5.2	7/22/14	13.9
	7	9.0	11.0		8.7	684734.9	602245.6									13.9	-5.2	7/22/14	13.9
	8	8.6	10.5		8.8	684719.4	602234.6									14.0	-5.2	7/22/14	14.0
	8-B	8.6	10.5	X	8.8	684739.9	602213.1	NE	NE	NE	NE	14.5	-5.7	15.0	-6.2	14.0	-5.2	N/A	N/A
	9	8.1	9.9		8.5	684705.3	602221.9									13.7	-5.2	7/22/14	13.7
	10	7.8	9.4		7.8	684687.5	602208.9									13.0	-5.2	7/22/14	13.0
	11	7.8	9.7		7.7	68474.6	602161.4									12.9	-5.2	7/23/14	12.9
	12	7.9	10.1		8.0	684726.3	602172.8									13.2	-5.2	7/23/14	13.2
	13	8.2	10.6		8.1	684746.2	602186.3									13.5	-5.4	7/23/14	13.5
	14	8.8	11.3		8.7	684769.3	602194.0									14.1	-5.4	7/23/14	14.1
	15	9.0	11.7		8.6	684784.9	602201.4									14.0	-5.4	7/23/14	14.0
	16	9.0	11.9		8.7	684790.3	602228.6									14.1	-5.4	7/23/14	14.1
	16-B	9.0	11.9	X	8.6	684780.8	602237.7	NE	NE	NE	NE	14.5	-5.9	15.0	-6.4	14.0	-5.4	N/A	N/A
	17	8.6	11.6		8.6	684807.5	602238.0									14.0	-5.4	7/23/14	14.0
	18	8.8	11.9		8.6	684823.7	602250.2									14.0	-5.4	7/22/14	14.0
	19	8.7	11.9		8.7	684838.7	602261.1									14.1	-5.4	7/23/14	14.1
	20	9.9	13.4		10.0	684854.8	602273.8									16.1	-6.1	7/23/14	16.1
	21	10.6	13.7		10.5	684865.9	602280.3									16.6	-6.1	7/23/14	16.6
	21-B	10.6	13.7	X	10.4	684854.9	602295.1	NE	NE	NE	NE	17.0	-6.6	18.0	-7.6	16.5	-6.1	N/A	N/A
H13	1	9.3	13.1		9.1	684911.9	602222.7									15.2	-6.1	6/16/14	15.2
	2	9.0	12.9		9.1	684925.2	602209.1									15.2	-6.1	6/16/14	15.2
	3	8.8	12.9		8.8	684937.0	602191.6									15.8	-7.0	6/16/14	15.8
	3-B	8.8	12.9	X	8.5	684937.1	602184.7	NE	NE	NE	NE	16.0	-7.5	17.0	-8.5	15.5	-7.0	N/A	N/A
	4	8.7	12.8		8.5	684949.2	602176.1									15.5	-7.0	6/16/14	15.5
	5	8.5	12.7		8.3	684961.8	602160.4									15.3	-7.0	6/16/14	15.3
	6	8.8	13.1		8.5	684974.6	602144.1									15.5	-7.0	6/16/14	15.5
	7	9.0	13.4		12.3	684985.4	602129.8									17.7	-5.4	6/13/14	17.7
	8	9.0	13.6		12.4	684999.9	602114.5									17.8	-5.4	6/13/14	17.8
	8-B	9.0	13.6	X	8.6	684974.6	602134.2	14.5	-5.9	17.5	-8.9	17.5	-8.9	17.7	-9.1	14.0	-5.4	N/A	N/A
	9	9.0	13.7		12.3	685012.0	602097.8									17.7	-5.4	6/13/14	17.7
	10	9.0	13.8		12.0	685025.2	602082.7									17.4	-5.4	6/13/14	17.4
	11	9.0	14.0		8.9	685001.7	602076.0									14.3	-5.4	6/13/14	14.3
	12	9.0	13.9		8.8	684988.8	602092.5									14.2	-5.4	6/13/14	14.2
	13	9.0	13.8		8.7	684976.1	602106.8									14.2	-5.5	6/13/14	14.2
	14	9.0	13.6		8.7	684964.6	602123.0									14.2	-5.5	6/16/14	14.2
	15	8.7	13.2		8.6	684951.4	602138.0									14.1	-5.5	6/16/14	14.1
	15-B	8.7	13.2	X	8.5	684955.8	602151.2	14.5	-6.0	15.5	-7.0	15.5	-7.0	16.0	-7.5	14.0	-5.5	N/A	N/A
	16	8.5	12.9		8.5	684938.4	602154.7									14.0	-5.5	6/16/14	14.0
	17	8.7	12.9		8.5	684925.4	602170.0									14.0	-5.5	6/16/14	14.0
	18	8.8	12.9		8.7	684913.4	602185.0									14.9	-6.2	6/16/14	14.9
	19	8.9	12.9		8.9	684902.1	602200.9									15.1	-6.2	6/16/14	15.1
	20	8.7	12.7		8.8	684880.6	602209.4									15.0	-6.2	6/16/14	15.0
	20-B	8.7	12.7	X	8.8	684893.7	602213.0	NE	NE	NE	NE	15.5	-6.7	16.0	-7.2	15.0	-6.2	N/A	N/A
H14	1	8.6	14.3		8.5	685016.3	602002.3									16.7	-8.2	5/22/14	16.7
	2	8.9	14.2		8.7	685032.6	602015.2									20.0	-8.2	5/22/14	20.0
	3	9.0	14.0		11.8	685046.5	602027.6									20.0	-8.2	5/22/14	20.0
	3-B	9.0	14.0	X	11.8	685052.4	602029.9	NE	NE	NE	NE	20.5	-8.7	21.0	-9.2	20.0	-8.2	N/A	N/A
	4	9.0	13.8		11.8	685073.6	602015.0									20.0	-8.2	5/20/14	20.0
	5	9.0	13.9		12.1	685086.0	601998.5									19.4	-7.3	5/20/14	19.4
	6	9.0	14.0		12.1	685096.9	601982.6									19.4	-7.3	5/20/14	19.4
	6-B	9.0	14.0	X	12.0	685098.7	601983.3	19.0	-7.0	19.8	-7.8	19.8	-7.8	21.0	-9.0	19.3	-7.3	N/A	N/A
	7	9.0	14.1		12.4	685110.7	601967.6									19.7	-7.3	5/20/14	19.7
	8	9.0	14.3		12.5	685123.6	601952.4									19.8	-7.3	5/20/14	19.8
	9	9.0	14.6		12.6	685135.5	601935.5									19.9	-7.3	5/20/14	19.9
	10	9.0	15.0		12.5	685148.0	601920.6									19.9	-7.4	5/19/14	19.9
	11	9.0	15.3		12.4	685159.9	601904.5									19.8	-7.4	5/16/14	19.8
	11-B	9.0	15.3	X	12.1	685156.6	601907.7	19.0	-6.9	20.0	-7.8	20.0	-7.9	20.5	-8.4	19.5	-7.4	N/A	N/A
	12	9.0	16.0		12.2	685149.2	601884.6									19.6	-7.4	5/16/14	19.6
	13	9.0	15.6		12.0	685137.4	601900.4									19.4	-7.4	5/19/14	19.4
	14	9.0	15.1		12.3	685125.2	601915.9									20.0	-7.7	5/20/14	20.0
	15	9.0	14.7		12.3	685113.3	601932.9									20.0	-7.7	5/20/14	20.0
	15-B	9.0	14.7	X	12.3	685113.9	601932.0	NE	NE	NE	NE	20.5	-8.2	21.0	-8.7	20.0	-7.7	N/A	N/A
	16	9.0	14.6		12.2	685101.1	601948.4									19.9	-7.7	5/20/14	19.9
	17	9.0	14.4		12.3	685088.9	601965.0									20.0	-7.7	5/20/14	20.0
	18	9.0	14.3		12.3	685074.6	601976.4									20.0	-7.7	5/20/14	20.0

	19	9.0	14.1		12.1	685061.8	601992.1								18.5	-6.4	5/21/14	18.5
	20	9.0	14.6		12.2	685040.5	601980.4								18.6	-6.4	5/21/14	18.6
	21	9.0	14.9		12.2	685023.5	601967.1								18.6	-6.4	5/21/14	18.6
	21-B	9.0	14.9	X	8.6	685016.4	601991.0	15.5	-6.9	16.5	-7.9	16.5	-7.9	17.0	-8.4	15.0	-6.4	N/A	N/A
	1	7.3	14.9		8.1	685229.0	601776.9									19.1	-11.0	N/A	Not Installed
	2	7.7	15.5		8.0	685213.5	601764.3									19.0	-11.0	N/A	Not Installed
	3	8.0	16.0		8.0	685197.9	601751.7									19.0	-11.0	N/A	Not Installed
	4	8.0	16.2		8.0	685182.4	601739.1									19.0	-11.0	N/A	Not Installed
	5	8.0	16.4		7.8	685166.9	601726.5									18.8	-11.0	N/A	Not Installed
	6	8.0	16.6		7.6	685151.3	601713.9									18.6	-11.0	N/A	Not Installed
	7	7.6	16.3		7.6	685135.8	601701.3									18.6	-11.0	N/A	Not Installed
	8	7.4	16.0		7.6	685120.2	601688.8									18.6	-11.0	N/A	Not Installed
	9	7.4	16.0		7.6	685112.2	601700.3									18.6	-11.0	N/A	Not Installed
	10	7.4	15.9		7.6	685099.6	601715.8									18.6	-11.0	N/A	Not Installed
	11	7.7	16.2		7.6	685087.0	601731.3									18.6	-11.0	N/A	Not Installed
	12	7.7	16.0		7.6	685063.6	601725.3									18.6	-11.0	N/A	Not Installed
H15	13	7.6	16.0		7.6	685076.2	601709.7									18.6	-11.0	N/A	Not Installed
	14	7.6	16.0		7.6	685088.1	601693.8									18.6	-11.0	N/A	Not Installed
	15	7.2	15.7		7.6	685101.4	601678.6									18.6	-11.0	N/A	Not Installed
	16	7.4	16.0		7.7	685114.0	601663.1									18.7	-11.0	N/A	Not Installed
	17	7.2	15.7		7.7	685132.6	601657.6									18.7	-11.0	N/A	Not Installed
	18	7.3	15.6		7.8	685148.1	601670.2									18.8	-11.0	N/A	Not Installed
	19	7.6	15.8		7.8	685163.7	601682.8									18.8	-11.0	N/A	Not Installed
	20	7.9	15.9		8.0	685179.2	601695.3									19.0	-11.0	N/A	Not Installed
	21	8.1	15.9		8.0	685194.8	601707.9									19.0	-11.0	N/A	Not Installed
	22	8.1	15.8		8.0	685210.3	601720.5									19.0	-11.0	N/A	Not Installed
	23	8.0	15.6		8.1	685225.9	601733.1									19.1	-11.0	N/A	Not Installed
	24	7.6	15.1		8.1	685241.4	601745.7									19.1	-11.0	N/A	Not Installed
	25	7.2	14.5		8.1	685256.9	601758.3									19.1	-11.0	N/A	Not Installed
	1	7.2	15.1		6.7	685307.9	601688.2									17.7	-11.0	3/4/14	5.5
	2	7.6	15.6		6.8	685293.5	601677.5									17.8	-11.0	3/4/14	5.5
	3	8.0	16.0		6.8	685276.8	601664.7									17.8	-11.0	3/4/14	5.5
	3-B	8.0	16.0	X	7.5	685251.1	601632.0	15.0	-7.5	19.0	-11.5	19.0	-11.5	20.5	-13.0	18.5	-11.0	N/A	N/A
	4	8.1	16.2		7.0	685261.2	601650.6									18.0	-11.0	3/4/14	5.5
	5	8.0	16.2		7.5	685247.6	601637.4									18.5	-11.0	3/4/14	5.5
	6	7.8	16.0		7.5	685231.3	601623.8									18.5	-11.0	3/4/14	5.5
H16	7	7.6	15.9		7.3	685216.9	601613.2									18.3	-11.0	3/5/14	5.5
	8	7.9	16.4		7.1	685214.0	601586.6									18.1	-11.0	3/5/14	5.5
	9	7.6	16.0		7.6	685230.8	601600.4									18.6	-11.0	3/5/14	5.5
	10	7.6	15.9		7.5	685245.7	601614.1									18.5	-11.0	3/5/14	5.5
	11	7.7	15.9		7.7	685256.6	601623.7									18.7	-11.0	3/5/14	5.5
	12	7.1	15.3		7.4	685268.3	601632.6									18.4	-11.0	N/A	Not Installed
	13	7.0	15.2		6.7	685280.0	601641.5									17.7	-11.0	3/5/14	5.5
	14	7.0	15.1		6.5	685294.4	601652.2									17.5	-11.0	3/5/14	5.5
	15	6.9	14.9		6.9	685311.7	601668.2									17.9	-11.0	3/5/14	5.5
	1	6.4	14.6		6.6	685340.4	601639.9									17.6	-11.0	3/6/14	7.5
H17	2	6.2	14.5		6.3	685328.6	601629.5									17.3	-11.0	3/6/14	7.5
	3	6.4	14.7		6.5	685357.4	601607.6									17.5	-11.0	3/6/14	7.5
	4	6.6	14.8		6.6	685372.1	601619.8									17.6	-11.0	3/6/14	7.5
	1	6.6	15.3		6.3	685399.3	601574.3									15.0	-8.7	3/6/14	12.0
	2	6.5	15.2		6.2	685384.6	601561.2									14.9	-8.7	3/6/14	12.0
	3	6.1	14.9		6.1	685367.9	601548.5									14.8	-8.7	3/6/14	12.0
	4	6.7	15.5		6.6	685309.0	601530.9									15.3	-8.7	3/7/14	15.0
	5	7.0	16.0		7.0	685296.3	601511.6									15.7	-8.7	3/7/14	15.0
	6	7.2	16.2		7.2	685280.0	601499.5									15.9	-8.7	3/7/14	15.0
H18	7	7.8	16.8		7.2	685294.8	601469.5									15.9	-8.7	3/7/14	15.0
	7-B	7.8	16.8	X	7.1	685292.5	601471.1	NE	NE	NE	NE	16.3	-9.2	17.5	-10.4	15.8	-8.7	N/A	N/A
	8	7.6	16.6		7.6	685311.4	601482.9									16.3	-8.7	3/8/14	15.0
	9	7.4	16.4		7.3	685325.7	601496.0									16.0	-8.7	3/8/14	15.0
	10	6.1	15.1		6.1	685383.1	601517.8									14.8	-8.7	3/11/14	12.0
	11	6.2	15.2		6.2	685398.8	601530.2									14.9	-8.7	3/11/14	12.0
	12	6.8	15.7		6.4	685413.0	601542.3									15.1	-8.7	3/11/14	12.0
	1	10.5	10.0		10.6	684187.5	602983.1									10.7	-0.1	9/4/13	10.7
	2	10.5	10.2		10.7	684187.5	602968.4									10.8	-0.1	9/4/13	10.8
	3	10.6	10.5		10.5	684187.9	602953.0									10.6	-0.1	9/4/13	10.6
	4	10.8	10.8		10.6	684178.2	602940.4									10.7	-0.1	9/4/13	10.7
	4-B	10.8	10.8	X	11.1	684164.8	602936.6	12.0	-0.9	12.3	-1.2	12.3	-1.2	14.0	-2.9	11.2	-0.1	N/A	N/A
	5	11.0	10.8		10.8	684163.1	602940.1									10.9	-0.1	8/21/13	10.9
	6	11.1	11.0		11.1	684158.1	602925.6									11.2	-0.1	8/21/13	11.2
	7	11.0	11.0		11.0	684160.3	602911.0									11.1	-0.1	8/21/13	11.1
	7-B	11.0	11.2	X	11.4	684163.3	602903.6	12.0	-0.6	12.5	-1.1	12.5	-1.1	14.0	-2.6	11.5	-0.1	N/A	N/A
	8	11.0	11.2		11.1	684164.5	602895.3									11.2	-0.1	8/21/13	11.2
	9	10.9	11.1		11.0	684170.6	602881.8									12.2	-1.2	8/21/13	12.2
	10	10.8	10.0		10.7	684176.4	602867.8									11.9	-1.2	8/21/13	11.9
	10-B	10.8	10.9	X	10.8	684175.2	602872.8	12.5	-1.7	12.8	-2.0	12.8	-2.0	14.0	-3.2	12.0	-1.2	N/A	N/A
	11	10.7	10.8		10.8	684188.2	602858.3									12.0	-1.2	8/20/13	12.0
	12	10.7	10.9		10.9	684202.8	602853.6									11.5	-0.6	8/20/13	11.5
	13	10.7	10.9		10.9	684216.0	602850.5									11.5	-0.6	8/20/13	11.5
	13-B	10.7	10.9	X	11.1	684221.9	602848.5	12.2	-1.1	13.0	-1.9	13.0	-1.9	14.0	-2.9	11.7	-0.6	N/A	N/A
	14	10.7	10.9		10.8	684231.3	602846.8									11.4	-0.6	8/20/13	11.4
	15	10.7	11.0		10.9	684243.5	602835.4									11.1	-0.2	8/20/13	11.1
	16	10.7	11.0		11.0	684253.5	602825.7									11.2	-0.2	8/20/13	11.2
	16-B	10.7	11.0	X	11.1	684249.8	602831.0	11.8	-0.7	12.2	-1.1	12.2	-1.1	14.0	-2.9	11.3	-0.2	N/A	N/A
	17	10.6	10.8		11.5	684265.5	602815.6									11.7	-0.2	8/21/13	10.5
	18	10.3	10.6		11.0	684276.4	602805.5									11.2	-0.2	8/20/13	11.2
	19	10.0	10.3		10.1	684287.3	602794.8									10.3	-0.2	8/20/13	10.3
	19-B	10.0	10.3	X	10.5	684287.1	602797.5	NE	NE	NE	NE	14.0	-3.5	16.0	-5.5	10.7	-0.2	N/A	N/A
	20	10.0	10.4		10.1	684298.1	602785.0									10.3	-0.2	8/20/13	10.3
	21	10.0	10.4		10.5	684309.4	602774.4									10.7	-0.2	8/20/13	10.7
	22	10.1	10.5		10.6	684320.4	602764.5									12.0	-1.4	8/20/13	12.0
	23	10.4	10.7		10.5	684331.4	602754.5									11.9	-1.4	8/20/13	11.9
	23-B	10.4	10.7	X	10.7	684335.5	602751.7	12.6	-1.9	12.9	-2.2	12.9	-2.2	14.0	-3.3	12.1	-1.4	N/A	N/A
	24	10.0	10.2		10.2	684342.5	602744.6									11.6	-1.4	8/19/13	11.6
	25	9.9	10.1		9.7	684353.2	602734.4									10.7	-1.0	8/19/13	10.7
	26	9.8	9.9		9.4	684364.8	602724.0									10.4	-1.0	8/19/13	10.4
	26-B	9.8	9.9	X	9.5	684367.2	602722.4	11.0	-1.5	11.5	-2.0	11.5	-2.0	12.0	-2.5	10.5	-1.0	N/A	N/A
	27	9.7	9.8		9.4	684375.4	602713.8									10.4	-1.0	8/19/13	10.4
	28	9.6	9.7		9.3	684384.8	602701.7									10.3	-1.0	8/19/13	10.3
	29	9.2	9.4		9.0	684388.3	602686.7									10.0	-1.0	8/19/13	10.0
	30	9.2	9.4		9.4	684391.4	602672.4									10.4	-1.0	8/19/13	10.4
	30-B	9.2	9.4	X	9.3	684390.6	602674.7	NE	NE	NE	NE	12.6	-3.3	14.0	-4.7	10.3	-1.0	N/A	N/A
EPS	31	9.7	9.9		9.4	684393.6	602658.7									11.6	-2.2	8/19/13	11.6
	32	9.8	10.1		9.7	684401.7	602644.6									11.9	-2.2	8/19/13	11.9
	33	9.6	9.9		9.7	684412.3	602633.8									11.9	-2.2	8/19/13	11.9
	33-B	9.6	9.9	X	9.9	684414.8	602630.6	12.6	-2.7	12.8	-2.9	12.8	-2.9	14.0	-4.1	12.1	-2.2	N/A	N/A
	34	9.5	9.8		9.7	684422.7	602623.5									11.9	-2.2	12/11/13	11.9
	35	9.5	9.8		9.7	684433.6	602613.0									12.1	-2.4	N/A	Not Installed
	36	9.5	9.8		9.7	684443.5	602602.1									12.1	-2.4	12/13/13	12.1
	36-B	9.5	9.8	X	9.9	684449.9	602600.5	12.8	-2.9	12.9	-3.0	12.9	-3.0	14.0	-4.1	12.3	-2.4	N/A	N/A
	37	9.4	9.8		9.8	684454.3	602590.7									12.2	-2.4	12/11/13	12.2
	38	9.4	9.7		12.4	684465.7	602581.2									14.8	-2.4	12/17/13	14.8
	39	9.3	9.7		12.9	684475.5	602570.3									15.3	-2.4	12/17/13	15.3
	40	9.3	9.7		12.8	684486.6	602558.8									15.2	-2.4	12/17/13	15.2

	41	9.2	9.6		12.7	684496.2	6025487.6									15.1	-2.4	12/17/13	15.1
	42	9.2	9.6		9.6	684507.5	602537.8									13.2	-3.6	12/16/13	13.2
	43	9.1	9.5		9.5	684518.3	602527.0									13.1	-3.6	12/16/13	13.1
	43-B	9.1	9.5	X	9.4	684523.3	602521.6	NE	NE	NE	NE	13.5	-4.1	15.5	-6.1	13.0	-3.6	N/A	N/A
	44	9.0	9.5		9.4	684528.7	602516.9									13.0	-3.6	12/16/13	13.0
	45	9.0	9.4		9.1	684538.9	602505.2									12.7	-3.6	12/16/13	12.7
	46	9.0	9.4		8.9	684549.7	602494.9									12.2	-3.3	12/6/13	12.2
	46-B	9.0	9.4	X	8.9	684544.5	602499.1	12.7	-3.8	12.9	-4.0	12.9	-4.0	14.0	-5.1	12.2	-3.3	N/A	N/A
	47	8.9	9.5		8.9	684563.7	602491.4									12.2	-3.3	12/16/13	12.2
	48	8.9	9.6		9.0	684578.7	602487.2									12.3	-3.3	12/16/13	12.3
	49	8.9	9.7		9.0	684592.9	602483.0									13.1	-4.1	12/17/13	13.1
	49-B	8.9	9.7	X	8.9	684584.1	602485.2	NE	NE	NE	NE	13.5	-4.6	14.0	-5.1	13.0	-4.1	N/A	N/A
	50	8.9	9.7		9.0	684607.2	602478.6									13.1	-4.1	12/17/13	13.1
	51	9.0	9.9		8.9	684621.5	602473.9									13.0	-4.1	12/17/13	13.0
	52	9.0	10.0		9.3	684624.3	602460.0									11.7	-2.4	12/17/13	11.7
	53	9.0	10.0		8.9	684621.8	602445.2									11.3	-2.4	7/30/14	11.3
	53-B	9.0	10.0	X	9.1	684621.6	602450.7	12.0	-2.9	12.1	-3.0	12.1	-3.0	14.0	-4.9	11.5	-2.4	N/A	N/A
	54	8.7	9.7		8.6	684621.5	602431.0									11.0	-2.4	7/30/14	11.0
	55	8.6	9.5		8.5	684617.1	602415.3									10.9	-2.4	7/30/14	10.9
	56	8.4	9.4		8.5	684619.1	602397.9									10.9	-2.4	7/30/14	10.9
	57	8.3	9.3		8.5	684611.6	602387.4									10.9	-2.4	7/30/14	10.9
	58	8.2	9.2		8.4	684608.0	602363.6									10.8	-2.4	7/30/14	10.8
	59	8.2	9.1		8.4	684606.0	602353.6									10.8	-2.4	7/30/14	10.8
	60	8.3	9.2		8.2	684603.4	602342.4									10.6	-2.4	7/30/14	10.6
	61	8.0	8.9		7.9	684601.7	602327.7									10.3	-2.4	7/30/14	10.3
	62	7.9	8.9		7.8	684597.2	602311.6									10.2	-2.4	7/29/14	10.2
	63	8.0	9.0		7.8	684602.5	602298.2									10.2	-2.4	7/29/14	10.2
	64	8.0	9.0		7.8	684610.2	602288.3									10.2	-2.4	7/29/14	10.2
WPS-1	1	8.3	17.4		6.7	685472.8	601492.2									15.4	-8.7	3/11/14	15.0
	2	8.7	17.9		7.0	685461.1	601482.2									15.7	-8.7	3/11/14	15.0
	3	8.5	17.6		6.9	685445.9	601468.5									15.6	-8.7	3/11/14	15.0
	4	8.3	17.5		6.9	685435.1	601458.4									15.6	-8.7	3/11/14	15.0
	5	8.7	18.0		7.2	685422.7	601449.2									15.9	-8.7	3/11/14	15.0
	6	9.3	18.5		6.5	685410.0	601438.3									15.2	-8.7	3/11/14	15.0
	7	9.5	18.6		6.9	685396.6	601428.3									15.6	-8.7	3/11/14	15.0
	8	9.6	18.7		7.6	685381.0	601415.7									16.3	-8.7	3/11/14	15.0
	9	9.7	18.7		7.5	685363.1	601397.3									16.2	-8.7	3/11/14	15.0
	10	9.8	18.9		8.1	685350.1	601387.8									16.8	-8.7	3/11/14	15.0
	1	7.3	9.7		8.2	685256.9	601758.3									15.5	-7.3	N/A	Not Installed
	2	7.6	10.1		8.2	684714.1	602126.4									15.5	-7.3	N/A	Not Installed
	3	7.9	10.6		8.3	684728.1	602131.8									15.6	-7.3	N/A	Not Installed
	4	9.0	11.9		8.3	684742.1	602137.3									15.6	-7.3	N/A	Not Installed
	5	8.9	12.0		8.2	684756.1	602142.7									15.5	-7.3	N/A	Not Installed
	6	8.7	12.0		8.2	684770.1	602148.1									15.5	-7.3	N/A	Not Installed
	7	8.5	12.0		8.2	684784.1	602153.5									15.5	-7.3	N/A	Not Installed
	8	8.3	12.0		8.2	684798.1	602158.9									15.5	-7.3	N/A	Not Installed
	9	8.5	12.4		8.2	684812.0	602164.3									15.5	-7.3	N/A	Not Installed
	10	8.4	12.6		8.2	684837.6	602150.4									15.5	-7.3	N/A	Not Installed
	11	8.4	12.9		8.2	684848.2	602139.7									15.5	-7.3	N/A	Not Installed
	12	8.4	13.2		8.2	684860.5	602128.0									15.5	-7.3	N/A	Not Installed
	12-B	8.5	13.2	X	8.2	684867.9	602129.2	NE	NE	NE	NE	16.0	-7.8	17.0	-8.8	15.5	-7.3	N/A	N/A
	13	8.5	13.4		8.2	684870.9	602118.9									15.5	-7.3	N/A	Not Installed
	14	8.5	13.7		7.9	684880.6	602106.9									13.6	-5.7	N/A	Not Installed
	15	8.5	13.9		8.2	684891.7	602096.6									13.9	-5.7	N/A	Not Installed
	15-B	8.6	13.9	X	8.3	684889.2	602102.4	14.5	-6.2	16.5	-8.2	16.5	-8.2	17.2	-8.9	14.0	-5.7	N/A	N/A
	16	8.6	14.0		8.2	684901.1	602086.0									13.9	-5.7	N/A	Not Installed
	17	8.6	14.1		8.2	684911.8	602076.0									13.9	-5.7	N/A	Not Installed
	18	8.3	13.9		8.1	684922.6	602065.3									14.3	-6.2	N/A	Not Installed
	19	8.2	13.8		8.1	684932.2	602055.2									14.3	-6.2	N/A	Not Installed
	19-B	8.2	13.8	X	8.3	684924.7	602062.4	15.0	-6.7	16.7	-8.4	16.7	-8.4	17.0	-8.7	14.5	-6.2	N/A	N/A
	20	8.1	13.9		8.0	684944.4	602044.5									14.2	-6.2	N/A	Not Installed
	21	8.1	13.9		8.0	684955.0	602033.9									15.1	-7.1	N/A	Not Installed
	22	8.0	14.0		7.9	684961.6	602019.7									15.0	-7.1	N/A	Not Installed
WPS-2	22-B	7.9	14.0	X	8.1	684959.7	602015.7	15.7	-7.6	16.2	-8.1	16.2	-8.1	17.0	-8.9	15.2	-7.1	N/A	N/A
	23	7.9	14.0		7.8	684959.4	602006.6									14.9	-7.1	N/A	Not Installed
	24	7.8	14.2		7.6	684955.4	601990.0									15.2	-7.6	N/A	Not Installed
	25	7.7	14.2		7.6	684953.9	601976.2									15.2	-7.6	N/A	Not Installed
	25-B	7.6	14.2	X	7.5	684953.1	601967.8	15.6	-8.1	15.9	-8.4	15.9	-8.4	17.0	-9.5	15.1	-7.6	N/A	N/A
	26	7.6	14.3		8.1	684963.7	602039.7									15.7	-7.6	5/23/14	15.7
	27	7.6	14.5		8.0	684965.0	602024.3									15.6	-7.6	5/23/14	15.6
	28	7.6	14.7		7.9	684968.6	602010.0									15.4	-7.5	5/23/14	15.4
	29	7.7	14.8		8.2	684984.5	601964.0									15.7	-7.5	5/23/14	15.7
	29-B	7.8	14.8	X	7.5	684963.9	601919.6	NE	NE	NE	NE	15.5	-8.0	17.0	-9.5	15.0	-7.5	N/A	N/A
	30	7.8	14.9		8.4	684990.6	601950.9									15.9	-7.5	5/23/14	15.9
	31	7.8	14.9		8.6	685000.7	601938.1									15.5	-6.9	5/23/14	15.5
	32	7.9	14.9		8.4	685010.6	601927.2									15.3	-6.9	5/23/14	15.3
	32-B	8.0	14.8	X	7.8	684992.1	601908.4	NE	NE	NE	NE	15.2	-7.4	16.2	-8.4	14.7	-6.9	N/A	N/A
	33	8.0	14.9		8.3	685019.9	601915.6									15.2	-6.9	5/23/14	15.2
	34	8.0	14.9		8.2	685030.8	601904.2									15.4	-7.2	5/23/14	15.4
	35	8.0	14.9		8.1	685040.6	601893.3									15.2	-7.2	5/23/14	15.2
	35-B	7.9	14.9	X	8.1	685031.2	601888.1	NE	NE	NE	NE	15.8	-7.7	16.0	-7.9	15.3	-7.2	N/A	N/A
	36	7.9	15.0		8.1	685053.0	601880.5									15.2	-7.2	5/23/14	15.2
	37	7.9	15.2		8.0	685063.7	601874.3									15.2	-7.2	5/23/14	15.2
	38	7.9	15.4		7.9	685078.4	601864.5									15.7	-7.9	5/23/14	15.7
	39	8.0	15.7		7.8	685091.0	601857.2									15.6	-7.9	5/23/14	15.6
	39-B	8.1	15.7	X	7.9	685084.3	601861.4	NE	NE	NE	NE	16.3	-8.4	17.0	-9.1	15.8	-7.9	N/A	N/A
	40	8.1	16.0		7.8	685103.2	601852.8									15.7	-7.9	5/23/14	15.7
	41	8.1	16.2		8.1	685117.6	601847.3									16.0	-7.9	5/23/14	16.0
	42	8.1	16.4		8.3	685131.6	601840.3									16.1	-7.9	5/23/14	16.1
	1	8.8	18.0		8.8	685175.5	601493.4									8.3	0.5	12/10/15	14.0
	2	8.8	18.0		8.8	685189.1	601505.6									8.3	0.5	12/10/15	14.0
	2-B	8.4	18.0	X	8.4	685186.7	601518.6	18.0	-9.6	18.5	-10.1	18.5	-10.1	20.0	-11.6	7.9	0.5	N/A	N/A
	3	8.5	18.0		8.5	685209.9	601505.3									8.0	0.5	12/10/15	14.0
	4	7.9	18.0		7.9	685205.4	601497.8									7.4	0.5	12/10/15	14.0
	4-B	8.5	18.0	X	8.5	685218.5	601498.2	16.0	-7.5	16.5	-8.0	17.5	-9.0	20.0	-11.5	8.0	0.5	N/A	N/A
	5	8.6	18.0		8.6	685222.5	601490.0									8.1	0.5	12/10/15	14.0
	6	8.7	18.0		8.7	685234.6	601473.9									8.2	0.5	12/15/15	14.0
	7	8.8	18.0		8.8	685248.2	601458.7									8.3	0.5	12/15/15	14.0
	8	8.1	18.0		8.1	685249.5	601449.0									7.6	0.5	12/15/15	14.0
H22	9	8.6	18.0		8.6	685281.0	601449.7									8.1	0.5	12/15/15	14.0
	10	8.4	18.0		8.4	685262.5	601457.6									7.9	0.5	12/15/15	14.0
	11	8.0	18.0		8.0	685250.9	601474.9									7.5	0.5	12/16/15	14.0
	11-B	8.9	18.0	X	8.9	685241.3	601466.2	16.0	-7.1	16.5	-7.6	16.5	-7.6	20.0	-11.1	8.4	0.5	N/A	N/A
	12	7.8	18.0		7.8	685238.9	601491.2									7.3	0.5	12/16/15	14.0
	13	7.9	18.0		7.9	685226.1	601504.7									7.4	0.5	12/16/15	14.0
	14	7.9	18.0		7.9	685212.3	601519.0									7.4	0.5	12/16/15	14.0
	15	7.5	18.0		7.5	685198.9	601531.7									7.0	0.5	12/16/15	14.0
	16	8.1	18.0		8.1	685198.0	601521.7									7.6	0.5	12/16/15	14.0
	17	7.8	18.0		7.8	685187.7	601528.3									7.3	0.5	12/16/15	14.0
	18	8.3	18.0		8.3	685173.6	601516.2									7.8	0.5	12/16/15	14.0
	19	7.7	18.0		7.7	685154.2	601520.4									7.2	0.5	12/16/15	14.0
	1	7.0	18.0		7.0	685105.7	601588.0									6.5	0.5	12/17/15	13.5
	1-B	7.2	18.0	X	7.2	685118.2	601587.2	16.0	-8.8	17.4	-10.2	17.4	-10.2	20.0	-12.8	6.7	0.5	N/A	N/A

	2	6.9	18.0		6.9	685122.5	601577.2									6.4	0.5	12/17/15	13.5
	3	6.9	18.0		6.9	685139.3	601566.5									6.4	0.5	12/17/15	13.5
	4	8.1	18.0		8.1	685133.0	601558.7									7.6	0.5	12/18/15	13.5
	5	8.0	18.0		8.0	685136.8	601536.5									7.5	0.5	12/18/15	13.5
	6	7.0	18.0		7.0	685156.8	601557.9									6.5	0.5	12/18/15	13.5
H23	6-B	7.1	18.0	X	7.1	685160.7	601564.0	16.0	-8.9	16.1	-9.0	16.1	-9.0	20.0	-12.9	6.6	0.5	N/A	N/A
	7	8.0	18.0		8.0	685149.3	601544.6									7.5	0.5	12/18/15	13.5
	8	7.0	18.0		7.0	685173.0	601548.0									6.5	0.5	12/18/15	13.5
	9	8.2	18.0		8.2	685154.1	601527.1									7.7	0.5	12/18/15	13.5
	10	7.6	18.0		7.6	685185.7	601555.4									7.1	0.5	12/18/15	13.5
	11	7.3	18.0		7.3	685171.2	601563.6									6.8	0.5	12/18/15	13.5
	12	8.1	18.0		8.1	685167.5	601594.8									7.6	0.5	12/18/15	13.5
	13	6.6	18.0		6.6	685149.0	601571.5									6.1	0.5	12/18/15	13.5
	14	6.9	18.0		6.9	685120.1	601594.2									6.4	0.5	12/18/15	13.5
	1	7.2	18.0		7.2	685060.1	601648.2									6.7	0.5	12/18/15	10.0
H24	1-B	7.2	18.0	X	7.2	685072.0	601646.3	14.7	-7.5	15.8	-8.6	15.8	-8.6	20.0	-12.8	6.7	0.5	N/A	N/A
	2	7.8	18.0		7.8	685079.9	601644.6									7.3	0.5	12/18/15	10.0

SA6 NORTH

		Design			Field Verified											Proposed Per Field Observation		Installation	
								Organic Silt/Clay				Peat (ft. bgs)		End of Boring					
Header #	Point #	Existing Grade at Point (ft. Elev)	Assumed Depth of Meadowmat (ft. bgs)	Split Spoon	Existing Grade at Point (ft. Elev)	Northing	Easting	Top (ft. bgs)	Top (ft. Elev)	Bottom (ft. bgs)	Bottom (ft. Elev)	Top (ft. bgs)	Top (ft. Elev.)	Bottom (ft. bgs)	Bottom (ft. Elev.)	Proposed Well Point Depth (ft. bgs)	Proposed Well Point Depth (ft. Elev.)	Date Installed	Well Point Depth Installed (ft. bgs)
	1	11.8	14.5		11.8	685453.1	603410.1									14.7	-3.0	8/18/15	14.5
	2	11.9	14.5		11.9	685467.1	603394.5									14.8	-3.0	8/18/15	14.5
	3	12.2	14.5		12.2	685478.3	603381.3									15.2	-3.0	8/18/15	14.5
	4	12.2	14.5		12.2	685490.4	603366.8									15.2	-3.0	8/18/15	14.5
	5	12.1	14.5		12.1	685502.2	603349.5									15.1	-3.0	8/18/15	14.5
	6	12.8	14.5		12.8	685515.7	603334.7									15.9	-3.1	8/18/15	14.5
	7	12.4	14.5		12.4	685528.5	603318.2									15.5	-3.1	8/18/15	14.5
	8	12.6	14.5		12.6	685541.9	603302.5									15.7	-3.1	8/18/15	14.5
	9	12.4	14.5		12.4	685557.1	603283.2									15.6	-3.1	8/18/15	14.5
	10	12.6	14.5		12.6	685577.5	603293.4									15.7	-3.1	8/18/15	14.5
H19	10-B	12.5	14.5	X	12.4	685578.2	603290.5	16.0	-3.6	17.0	-4.6	17.5	-5.1	20.0	-7.6	15.5	-3.1	N/A	N/A
	11	12.2	14.5		12.2	685565.1	603309.5									15.4	-3.1	8/19/15	14.5
	12	12.5	14.5		12.5	685553.1	603326.2									15.7	-3.1	8/19/15	14.5
	13	12.6	14.5		12.6	685539.9	603341.5									14.6	-2.1	8/19/15	14.5
	14	12.9	14.5		12.9	685527.4	603359.8									15.0	-2.1	8/19/15	14.5
	14-B	12.8	14.5	X	12.9	685537.6	603359.9	15.5	-2.6	16.7	-3.8	17.1	-4.2	20.0	-7.1	15.0	-2.1	N/A	N/A
	15	12.7	14.5		12.7	685513.0	603372.6									15.0	-2.3	8/19/15	14.5
	16	12.6	14.5		12.6	685500.4	603386.1									15.0	-2.4	8/19/15	14.5
	17	12.5	14.5		12.5	685489.1	603401.7									15.6	-3.2	8/19/15	14.5
	18	12.3	14.5		12.3	685483.2	603419.7									15.6	-3.3	8/19/15	14.5
	18-B	12.3	14.5	X	12.6	685480.5	603418.2	16.1	-3.5	17.2	-4.6	17.5	-4.9	20.0	-7.4	15.6	-3.0	N/A	N/A
	1	9.3	10.5		9.3	685500.6	603863.0									10.0	-0.7	N/A	Not Installed
	2	9.3	10.5		9.3	685482.7	603854.2									10.0	-0.7	N/A	Not Installed
	3	9.3	10.5		9.3	685464.7	603845.4									9.9	-0.7	N/A	Not Installed
	4	9.3	10.5		9.3	685447.0	603836.7									9.9	-0.7	10/12/15	9.5
	4-B	9.3	10.5	X	9.1	685436.6	603837.4	10.3	-1.2	10.5	-1.4	10.5	-1.4	12.0	-2.9	9.8	-0.7	N/A	N/A
	5	9.1	10.5		9.1	685429.4	603827.2									9.7	-0.7	10/12/15	9.5
	6	8.9	10.5		8.9	685410.5	603819.1									9.6	-0.7	10/12/15	9.5
H20	7	9.0	10.5		9.0	685393.0	603810.0									9.6		10/12/15	9.5
	8	8.9	10.5		8.9	685374.9	603801.1									9.5	-0.6	10/12/15	9.5
	8-B	10.3	10.5	X	8.9	685363.8	603803.1	10.0	-1.1	10.5	-1.6	10.5	-1.6	12.0	-3.1	9.5	-0.6	N/A	N/A
	9	9.1	10.5		9.1	685356.1	603792.6									9.7	-0.6	10/12/15	9.5
	10	9.3	10.5		9.3	685339.7	603784.3									9.9	-0.6	10/12/15	8.0
	11	9.2	10.5		9.2	685322.2	603775.7									7.6	1.6	10/12/15	7.5
	11-B	9.7	10.5	X	9.1	685312.5	603776.6	8.0	1.1	9.0	0.1	9.0	0.1	10.0	-0.9	7.5	1.6	N/A	N/A
	12	8.9	10.5		8.9	685304.2	603767.3									7.3	1.6	10/12/15	7.5
	13	9.4	10.5		9.4	685286.8	603758.8									7.7	1.6	10/12/15	7.5
	1	10.5	12.0		10.5	685208.3	603734.4									12.0	-1.5	10/13/15	10.6
	2	11.2	12.0		11.2	685221.4	603719.2									12.7	-1.5	10/13/15	10.3
	2-B	9.8	12.0	X	10.9	685233.3	603720.0	10.0	0.9	12.0	-1.1	12.0	-1.1	14.0	-3.1	12.4	-1.5	N/A	N/A
	3	11.8	12.0		11.8	685235.5	603704.4									10.4	1.4	10/13/15	10.0
	4	12.6	12.0		12.6	685247.8	603688.9									11.2	1.4	10/13/15	10.5
	5	13.2	12.0		13.2	685260.8	603673.5									11.8	1.4	10/13/15	10.5
	6	14.1	12.0		14.1	685275.1	603659.4									13.8	0.3	10/13/15	10.5
	7	14.6	12.0		14.6	685288.4	603645.1									14.3	0.3	10/13/15	14.0
	8	14.9	12.0		14.9	685301.4	603630.2									14.6	0.3	10/13/15	14.0
H21	8-B	10.1	12.0	X	15.1	685309.3	603640.0	15.3	-0.2	15.5	-0.4	15.5	-0.4	16.0	-0.9	14.8	0.3	N/A	N/A
	9	15.0	12.0		15.0	685324.8	603638.1									14.7	0.3	10/13/15	14.0
	10	14.7	21.0		14.7	685311.2	603652.3									14.3	0.3	10/13/15	14.0
	11	14.3	12.0		14.3	685296.9	603667.0									15.8	-1.5	10/13/15	15.0
	12	14.1	12.0		14.1	685284.6	603682.7									15.6	-1.5	10/13/15	15.0
	12-B	9.7	12.0	X	14.0	685274.2	603681.9	16.0	-2.0	16.2	-2.2	16.2	-2.2	18.0	-4.0	15.5	-1.5	N/A	N/A
	13	13.6	12.0		13.6	685272.0	603695.8									15.1	-1.5	10/13/15	15.0
	14	12.7	12.0		12.7	685258.6	603711.4									14.2	-1.5	10/13/15	14.0
	15	11.0	12.0		11.0	685243.7	603726.4									12.5	-1.5	10/13/15	12.0
	16	10.1	12.0		10.1	685230.4	603741.2									11.6	-1.5	10/13/15	11.0

SA6 SPLIT SPOON																	
		Design			Field Verified											Proposed Per Field	
								Organic Silt/Clay				Peat (ft. bgs)		End of Boring			
Header #	Point #	Existing Grade at Point	Assumed Depth of Meadow	Split Spoon	Existing Grade at Point	Northing	Easting	Top (ft. bgs)	Top (ft. Elev)	Bottom (ft. bgs)	Bottom (ft. Elev)	Top (ft. bgs)	Top (ft. Elev.)	Bottom (ft. bgs)	Bottom (ft. Elev.)	Proposed Well Point	Proposed Well Point
H-1	1-B	9.2	9.9	X	9.2	684169.0	603136.6	NE	NE	NE	NE	10.8	-1.6	12.0	-2.8	10.3	-1.1
	4-B	9.3	10.1	X	9.4	684200.5	603101.1	10.2	-0.8	10.4	-1.0	10.4	-1.0	12.0	-2.6	9.7	-0.3
	9-B	9.9	10.0	X	9.7	684227.1	603063.7	10.5	-0.8	10.7	-1.0	10.7	-1.0	12.0	-2.3	10.0	-0.3
H-2	3-B	9.9	9.8	X	10.3	684234.6	602983.3	10.8	-0.5	11.5	-1.2	11.5	-1.2	12.0	-1.7	10.3	0.0
	6-B	10.3	10.8	X	10.4	684208.3	602964.1	10.5	-0.1	10.8	-0.4	10.8	-0.4	11.7	-1.3	10.0	0.4
	11-B	9.7	10.6	X	9.7	684276.5	603001.0	11.0	-1.3	11.5	-1.8	11.5	-1.8	12.0	-2.3	10.5	-0.8
H-3	3-B	9.8	10.9	X	9.6	684298.8	602919.7	11.2	-1.6	12.0	-2.4	12.0	-2.4	14.0	-4.4	10.7	-1.1
	7-B	10.1	10.8	X	10.4	684256.3	602889.0	12.5	-2.1	12.8	-2.4	12.8	-2.4	14.0	-3.6	12.0	-1.6
	12-B	9.7	11.1	X	9.6	684335.6	602935.3	11.0	-1.4	11.6	-2.0	11.6	-2.0	12.0	-2.4	10.5	-0.9
H-4	3-B	9.8	10.8	X	9.7	684355.8	602852.1	13.0	-3.3	13.2	-3.5	13.2	-3.5	14.0	-4.3	12.5	-2.8
	10-B	10.4	12.5	X	10.0	684395.1	602870.6	12.5	-2.5	12.7	-2.7	12.7	-2.7	14.0	-4.0	12.0	-2.0
H-5	2-B	10.9	12.5	X	8.7	684433.6	602785.3	10.5	-1.8	11.4	-2.7	11.4	-2.7	12.0	-3.3	10.0	-1.3
	5-B	10.4	10.5	X	9.1	684398.8	602758.7	10.0	-0.9	10.5	-1.4	10.5	-1.4	12.0	-2.9	9.5	-0.4
H-6	3-B	9.9	9.7	X	9.5	684475.5	602711.9	11.8	-2.3	13.0	-3.5	13.0	-3.5	14.0	-4.5	11.3	-1.8
	5-B	9.5	9.6	X	9.3	684447.5	602679.3	11.8	-2.5	12.3	-3.0	12.3	-3.0	14.0	-4.7	11.3	-2.0
	10-B	9.1	10.1	X	9.4	684512.6	602733.4	12.8	-3.4	13.0	-3.6	13.0	-3.6	14.0	-4.6	12.3	-2.9
H-7	3-B	9.4	9.5	X	10.0	684531.9	602646.9	13.5	-3.5	14.5	-4.5	14.5	-4.5	16.0	-6.0	9.5	0.5
	6-B	9.2	9.4	X	10.0	684499.8	602620.6	13.3	-3.3	13.6	-3.6	13.6	-3.6	14.0	-4.0	9.5	0.5
	11-B	9.6	10.1	X	9.8	684563.4	602671.6	NE	NE	NE	NE	13.5	-3.7	14.0	-4.2	9.3	0.5
H-8	3-B	9.2	9.8	X	9.2	684604.7	602571.2	11.7	-2.5	11.8	-2.6	11.8	-2.6	12.0	-2.8	11.2	-2.0
	6-B	9.1	9.6	X	9.3	684570.5	602540.5	NE	NE	NE	NE	12.0	-2.7	14.0	-4.7	8.8	0.5
	11-B	9.4	10.4	X	9.2	684634.3	602592.9	11.2	-2.0	11.4	-2.2	11.4	-2.2	12.0	-2.8	10.7	-1.5
H-9	3-B	9.0	10.0	X	9.2	684649.2	602515.2	12.5	-3.3	12.8	-3.6	12.8	-3.6	14.0	-4.8	12.0	-2.8
	7-B	9.1	10.8	X	9.1	684685.8	602530.0	12.1	-3.0	12.4	-3.3	12.4	-3.3	14.0	-4.9	11.6	-2.5
H-12	3-B	8.8	11.4	X	8.8	684813.7	602286.6	14.5	-5.7	15.5	-6.7	15.5	-6.7	16.0	-7.2	14.0	-5.2
	8-B	8.6	10.5	X	8.8	684739.9	602213.1	NE	NE	NE	NE	14.5	-5.7	15.0	-6.2	14.0	-5.2
	16-B	9.0	11.9	X	8.6	684780.8	602237.7	NE	NE	NE	NE	14.5	-5.9	15.0	-6.4	14.0	-5.4
	21-B	10.6	13.7	X	10.4	684854.9	602295.1	NE	NE	NE	NE	17.0	-6.6	18.0	-7.6	16.5	-6.1
H-13	3-B	8.8	12.9	X	8.5	684937.1	602184.7	NE	NE	NE	NE	16.0	-7.5	17.0	-8.5	15.5	-7.0
	8-B	9.0	13.6	X	8.6	684974.6	602134.2	14.5	-5.9	17.5	-8.9	17.5	-8.9	17.7	-9.1	14.0	-5.4
	15-B	8.7	13.2	X	8.5	684955.8	602151.2	14.5	-6.0	15.5	-7.0	15.5	-7.0	16.0	-7.5	14.0	-5.5
	20-B	8.7	12.7	X	8.8	684893.7	602213.0	NE	NE	NE	NE	15.5	-6.7	16.0	-7.2	15.0	-6.2
H-14	3-B	9.0	14.0	X	11.8	685052.4	602029.9	NE	NE	NE	NE	20.5	-8.7	21.0	-9.2	11.3	0.5
	6-B	9.0	14.0	X	12.0	685098.7	601983.3	19.0	-7.0	19.8	-7.8	19.8	-7.8	21.0	-9.0	11.5	0.5
	11-B	9.0	15.3	X	12.1	685156.6	601907.7	19.0	-6.9	20.0	-7.7	20.0	-7.9	20.5	-8.4	11.6	0.5
	15-B	9.0	14.7	X	12.3	685113.9	601932.0	NE	NE	NE	NE	20.5	-8.2	21.0	-8.7	11.8	0.5
	21-B	9.0	14.9	X	8.6	685016.4	601991.0	15.5	-6.9	16.5	-7.9	16.5	-7.9	17.0	-8.4	8.1	0.5
EPS	4-B	10.8	10.8	X	11.1	684164.8	602936.6	12.0	-0.9	12.3	-1.2	12.3	-1.2	14.0	-2.9	10.6	0.5
	7-B	11.0	11.2	X	11.4	684163.3	602903.6	12.0	-0.6	12.5	-1.1	12.5	-1.1	14.0	-2.6	10.9	0.5
	10-B	10.8	10.9	X	10.8	684175.2	602872.8	12.5	-1.7	12.8	-2.0	12.8	-2.0	14.0	-3.2	10.3	0.5
	13-B	10.7	10.9	X	11.1	684221.9	602848.5	12.2	-1.1	13.0	-1.9	13.0	-1.9	14.0	-2.9	10.6	0.5
	16-B	10.7	11.0	X	11.1	684249.8	602831.0	11.8	-0.7	12.2	-1.1	12.2	-1.1	14.0	-2.9	10.6	0.5
	19-B	10.0	10.3	X	10.5	684287.1	602797.5	NE	NE	NE	NE	14.0	-3.5	16.0	-5.5	10.0	0.5
	23-B	10.4	10.7	X	10.7	684335.5	602751.7	12.6	-1.9	12.9	-2.2	12.9	-2.2	14.0	-3.3	10.2	0.5
	26-B	9.8	9.9	X	9.5	684367.2	602722.4	11.0	-1.5	11.5	-2.0	11.5	-2.0	12.0	-2.5	9.0	0.5
	30-B	9.2	9.4	X	9.3	684390.6	602674.7	NE	NE	NE	NE	12.6	-3.3	14.0	-4.7	8.8	0.5
	33-B	9.6	9.9	X	9.9	684414.8	602630.6	12.6	-2.7	12.8	-2.9	12.8	-2.9	14.0	-4.1	9.4	0.5
	36-B	9.5	9.8	X	9.9	684449.9	602600.5	12.8	-2.9	12.9	-3.0	12.9	-3.0	14.0	-4.1	9.4	0.5
	43-B	9.1	9.5	X	9.4	684523.3	602521.6	NE	NE	NE	NE	13.5	-4.1	15.5	-6.1	8.9	0.5
	46-B	9.0	9.4	X	8.9	684544.5	602499.1	12.7	-3.8	12.9	-4.0	12.9	-4.0	14.0	-5.1	8.4	0.5
	49-B	8.9	9.7	X	8.9	684584.1	602485.2	NE	NE	NE	NE	13.5	-4.6	14.0	-5.1	8.4	0.5
	53-B	9.0	10.0	X	9.1	684621.6	602450.7	12.0	-2.9	12.1	-3.0	12.1	-3.0	14.0	-4.9	8.6	0.5
WPS-2	12-B	8.5	13.2	X	8.2	684867.9	602129.2	NE	NE	NE	NE	16.0	-7.8	17.0	-8.8	15.5	-7.3
	15-B	8.6	13.9	X	8.3	684889.2	602102.4	14.5	-6.2	16.5	-8.2	16.5	-8.2	17.2	-8.9	14.0	-5.7
	19-B	8.2	13.8	X	8.3	684924.7	602062.4	15.0	-6.7	16.7	-8.4	16.7	-8.4	17.0	-8.7	14.5	-6.2
	22-B	7.9	14.0	X	8.1	684959.7	602015.7	15.7	-7.6	16.2	-8.1	16.2	-8.1	17.0	-8.9	15.2	-7.1
	25-B	7.6	14.2	X	7.5	684953.1	601967.8	15.6	-8.1	15.9	-8.4	15.9	-8.4	17.0	-9.5	15.1	-7.6
	29-B	7.8	14.8	X	7.5	684963.9	601919.6	NE	NE	NE	NE	15.5	-8.0	17.0	-9.5	15.0	-7.5
	32-B	8.0	14.8	X	7.8	684992.1	601908.4	NE	NE	NE	NE	15.2	-7.4	16.2	-8.4	14.7	-6.9
	35-B	7.9	14.9	X	8.1	685031.2	601888.1	NE	NE	NE	NE	15.8	-7.7	16.0	-7.9	15.3	-7.2
	39-B	8.1	15.7	X	7.9	685084.3	601861.4	NE	NE	NE	NE	16.3	-8.4	17.0	-9.1	15.8	-7.9
H-19	10-B	12.5	14.5	X	12.4	685578.2	603290.5	16.0	-3.6	17.0	-4.6	17.5	-5.1	20.0	-7.6	15.5	-3.1
	14-B	12.8	14.5	X	12.9	685537.6	603359.9	15.5	-2.6	16.7	-3.8	17.1	-4.2	20.0	-7.1	15.0	-2.1
	18-B	12.3	14.5	X	12.6	685480.5	603418.2	16.1	-3.5	17.2	-4.6	17.5	-4.9	20.0	-7.4	15.6	-3.0
H-20	4-B	9.3	10.5	X	9.1	685436.6	603837.4	10.3	-1.2	10.5	-1.4	10.5	-1.4	12.0	-2.9	9.8	-0.7
	8-B	10.3	10.5	X	8.9	685363.8	603803.1	10.0	-1.1	10.5	-1.6	10.5	-1.6	12.0	-3.1	9.5	-0.6
	11-B	9.7	10.5	X	9.1	685312.5	603776.6	8.0	1.1	9.0	0.1	9.0	0.1	10.0	-0.9	7.5	1.6
H-21	2-B	9.8	12.0	X	10.9	685233.3	603720.0	10.0	0.9	12.0	-1.1	12.0	-1.1	14.0	-3.1	9.5	1.4
	8-B	10.1	12.0	X	15.1	685309.3	603640.0	15.3	-0.2	15.5	-0.4	15.5	-0.4	16.0	-0.9	14.8	0.3
	12-B	9.7	12.0	X	14.0	685274.2	603681.9	16.0	-2.0	16.2	-2.2	16.2	-2.2	18.0	-4.0	15.5	-1.5
H-22	2-B	8.4	18.0	X	8.4	685186.7	601518.6	18.0	-9.6	18.5	-10.1	18.5	-10.1	20.0	-11.6	17.5	-9.1
	4-B	8.5	18.0	X	8.5	685218.5	601498.2	16.0	-7.5	16.5	-8.0	17.5	-9.0	20.0	-11.5	15.5	-7.0
	11-B	8.9	18.0	X	8.9	685241.3	601466.2	16.0	-7.1	16.5	-7.6	16.5	-7.6	20.0	-11.1	15.5	-6.6
H-23	1-B	7.2	18.0	X	7.2	685118.2	601587.2	16.0	-8.8	17.4	-10.2	17.4	-10.2	20.0	-12.8	15.5	-8.3
	6-B	7.1	18.0	X	7.1	685160.7	601564.0	16.0	-8.9	16.1	-9.0	16.1	-9.0	20.0	-12.9	15.5	-8.4
H-24	1-B	7.2	18.0	X	7.2	685072.0	601646.3	14.7	-7.5	15.8	-8.6	15.8	-8.6	20.0	-12.8	14.2	-7.0

CONSTRUCTION WATER DISCHARGE DATA (TO PVSC)

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

DATE	SHIFT START TIME	SHIFT END TIME	HOURS OF OPERATION	DISCHARGE FLOW METER SHIFT START (KGal)	DISCHARGE FLOW METER SHIFT END (KGal)	DISCHARGED VOLUME (Gal) PUMPING DURATION	DISCHARGED VOLUME (Gal) TOTAL	COMMENTS
03/01/16	7:00	15:30	8:30	41,400.89	41,493.59	92,700	41,493,140	
03/02/16	7:00	14:00	7:00	41,493.59	41,607.89	114,300	41,607,440	
03/03/16	7:30	12:15	4:45	41,607.89	41,671.38	63,490	41,670,930	
03/04/16	7:30	15:00	7:30	41,671.38	41,722.53	51,150	41,722,080	
03/05/16	9:00	15:00	6:00	41,722.53	41,782.88	60,350	41,782,430	
03/07/16	8:30	15:30	7:00	41,782.88	41,826.70	43,820	41,826,250	
03/10/16	9:00	15:00	6:00	41,826.70	41,955.66	128,960	41,955,210	
03/11/16	9:00	14:45	5:45	41,955.66	42,015.16	59,500	42,014,710	
03/15/16	8:00	16:00	8:00	42,015.16	42,113.22	98,060	42,112,770	
03/16/16	10:15	13:15	3:00	42,113.22	42,181.63	68,410	42,181,180	
03/17/16	7:30	15:00	7:30	42,181.63	42,268.80	87,170	42,268,350	
03/18/16	8:00	12:30	4:30	42,268.80	42,308.01	39,210	42,307,560	
03/21/16	7:30	13:00	5:30	42,308.01	42,352.43	44,420	42,351,980	
03/22/16	7:30	14:00	6:30	42,352.43	42,406.76	54,330	42,406,310	
03/23/16	12:00	15:15	3:15	42,406.76	42,437.75	30,990	42,437,300	
03/24/16	7:30	13:00	5:30	42,437.75	42,475.64	37,890	42,475,190	
03/28/16	7:30	15:30	8:00	42,475.64	42,517.63	41,990	42,517,180	
03/30/16	7:30	14:00	6:30	42,517.63	42,566.76	49,130	42,566,310	
03/31/16	10:00	13:30	3:30	42,566.76	42,598.54	31,780	42,598,090	
04/01/16	10:00	14:00	4:00	42,598.54	42,638.28	39,740	42,637,830	
04/08/16	8:00	12:00	4:00	42,638.28	42,688.87	50,590	42,688,420	
04/13/16	12:00	15:00	3:00	42,688.87	42,734.89	46,020	42,734,440	
04/19/16	8:00	13:00	5:00	42,734.89	42,802.71	67,820	42,802,260	
04/22/16	11:00	15:00	4:00	42,802.71	42,847.64	44,930	42,847,190	
04/29/16	10:00	14:15	4:15	42,847.64	42,912.90	65,260	42,912,450	
05/06/16	10:00	15:00	5:00	42,912.90	42,965.49	52,590	42,965,040	
05/13/16	11:00	15:00	4:00	42,965.49	43,019.78	54,290	43,019,330	
05/20/16	11:00	15:00	4:00	43,019.78	43,071.32	51,540	43,070,870	
05/27/16	10:00	14:00	4:00	43,071.32	43,130.78	59,460	43,130,330	
05/31/16	11:00	14:30	3:30	43,130.78	43,178.93	48,150	43,178,480	
06/01/16	6:30	13:30	7:00	43,178.93	43,268.97	90,040	43,268,520	
06/06/16	7:30	13:30	6:00	43,268.97	43,338.94	69,970	43,338,490	
06/08/16	7:30	12:00	4:30	43,338.94	43,402.10	63,160	43,401,650	
06/13/16	9:00	13:00	4:00	43,402.10	43,464.75	62,650	43,464,300	
06/21/16	8:00	14:00	6:00	43,464.75	43,543.94	79,190	43,543,490	
06/24/16	9:00	14:00	5:00	43,543.94	43,596.37	52,430	43,595,920	
07/07/16	7:30	12:00	4:30	43,596.37	43,642.93	46,560	43,642,480	
07/15/16	10:00	14:00	4:00	43,642.93	43,692.98	50,050	43,692,530	
07/26/16	9:00	14:00	5:00	43,692.98	43,794.27	101,290	43,793,820	
07/27/16	7:00	15:00	8:00	43,794.27	43,826.36	32,090	43,825,910	
07/28/16	9:00	15:00	6:00	43,826.36	43,860.98	34,620	43,860,530	
08/01/16	9:00	15:00	6:00	43,860.98	43,896.38	35,400	43,895,930	

CONSTRUCTION WATER DISCHARGE DATA (TO PVSC)

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

DATE	SHIFT START TIME	SHIFT END TIME	HOURS OF OPERATION	DISCHARGE FLOW METER SHIFT START (KGal)	DISCHARGE FLOW METER SHIFT END (KGal)	DISCHARGED VOLUME (Gal) PUMPING DURATION	DISCHARGED VOLUME (Gal) TOTAL	COMMENTS
08/11/16	9:00	16:00	7:00	43,896.38	43,958.93	62,550	43,958,480	
08/12/16	9:30	13:45	4:15	43,958.93	43,998.63	39,700	43,998,180	
08/19/16	8:00	13:30	5:30	43,998.63	44,062.58	63,950	44,062,130	
09/08/16	7:00	13:00	6:00	44,062.58	44,120.80	58,220	44,120,350	
10/05/16	8:00	11:00	3:00	44,120.80	44,158.46	37,660	44,158,010	
11/01/16	8:00	10:00	2:00	44,158.46	44,204.91	46,450	44,204,460	Final reading; system disassembled 11/1/16

Notes:
Gal = gallons
KGal = thousands of gallons

PROPOSED BLOCK 6
273,067 SF / 6.2688 AC.

PROPOSED BLOCK

N 24°41'44" E

600.00'

N 65°13'05" W

S 24°46'55" W

378.56'

520.00'

65.00'

29.90'

201.15'

R = 6228.00'

Δ = 03°48'15"

L = 413.52'

N 49°21'50" W

L = 389.23'

DW-6

DW-7

H-19

H-20

H-21

DW-1

DW-2

DW-3

DW-4

DW-5

DW-8

WPS-1

WPS-2

EPS

H-1

H-2

H-3

H-4

H-5

H-6

H-7

H-8

H-9

H-10

H-11

H-12

H-13

H-14

H-16

H-17

H-18

H-22

H-23

H-24

FLOOD ZONE AE
DOMED STRUCTURE

1 STORY MASONRY BUILDING

MULTI- STORY MASONRY BUILDING

APPROX LOCATION WATER SERVICE

CARGO CONTAINER

OPEN STORAGE

PRIMARY TANK

TANK

15' WIDE SAN EASEMENT (APPROX. LOCATION) DBK 2966 PG 981

WIDE LEASE AREA DBK 2966 PG 981

CHAIN LINK FENCE

CITY WATER LINE

6" WATER MAIN

6" FIRE/WATER

STORM MH

INLET

CONC

RET. WALL

BOLLARD

TRENCH DRAIN

GATE

SIGN

LIGHT POLE (TYP.)

TOP OF BELL IN

"A" INLET

"B" INLET

"C" INLET

2'x3' INLET

BOULDERS

TREES

BRUSH

PARKING

FENCE

WALLS

HIGHWAY ROUTE 440

NEW JERSEY ST

LEGEND

- EXCAVATION LIMITS
- DE-WATERING WELLPOINT LOCATION
- SPLIT SPOON SOIL BORING
- TEMPORARY SHEETPILE ALIGNMENT
- DEEP WELL LOCATION

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION

ENTACT
302 Unity Plaza
Latrobe, PA 15650

DRAWING NAME
HONEYWELL SA-6
EXCAVATION DE-WATERING LAYOUT
03/15/16

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

APPENDIX J

ITEMS ENCOUNTERED DURING REMEDIAL ACTIVITIES

DEMOLITION

The former JCIA facility was located at 501 Route 440 in Jersey City, NJ. After JCIA relocated to a new Municipal Services Complex on Linden Avenue, Jersey City, New Jersey in September of 2014, the structures were readied for demolition.

Demolition included:

- mobilization and setup; work plans and submittal preparation;
- utility (water, sewer, gas, and electric) termination;
- asbestos containing material abatement and disposal;
- hazardous materials and universal waste removal and disposal;
- Waste Management Garage demolition and debris disposal;
- JCIA Garage demolition and debris disposal;
- Salt Dome demolition and debris disposal;
- JCIA Incinerator and Administrator Building demolition and debris disposal (including concrete and wood debris from inside building);
- management of stockpiles and testing of concrete and wood;
- demobilization and final submittals;
- a credit for recyclable materials;
- a performance and payment bond; and
- removal of miscellaneous items.

Gramercy, under contract to the JCRA, mobilized to the site and began setup activities on October 9, 2014. Asbestos abatement activities began on November 7, 2014 and were performed by Gramercy. The friable and non-friable asbestos waste was transported by Horwith Trucks, Inc. (Northampton, Pa.) to the Cumberland County Landfill in Shippensburg, PA. Gramercy removed a total of 113.49 tons of non-friable asbestos containing material, and 7.23 tons of friable asbestos containing material. Abatement was completed according to federal, state, local, EPA, and OSHA requirements. Gramercy collected ten 55 gallon drums of bird droppings from the third and fourth floors of the Incinerator Building and transported them offsite for disposal at Cycle Chem Facility in Elizabeth, NJ on March 16, 2015. Demolition activities were completed on March 18, 2015. Site cleanup and demobilization was completed on March 23, 2015.

UNDERGROUND STORAGE TANKS ENCOUNTERED

The UST in discovered in EA-5 was approximately 6 feet in diameter and 16 feet long and was approximately 1 to 3 feet bgs. Based upon the measured tank dimensions, the estimated volume of the tank is nominally 3,500 gallons. This tank was encountered near the northeast corner of the former "Waste Management Garage" on the JCIA site and in the vicinity of previously abandoned-in-place USTs in that area. This area is AOC "JCIA-1B, Abandoned USTs" in the non-chromium RAWP.

The 550-gallon capacity second JCIA UST was found adjacent to and south of the southern wall of the former JCIA Maintenance Garage. Due to the location of an oil/water separator previously located within the JCIA Maintenance Garage proximate to the UST location, it was surmised that the UST was likely associated with the former oil/water separator system. This oil/water separator was identified as AOC "JCIA-9B Oil Water Separators" in the non-chromium RAWP.

Since both tanks were previously unregistered, the LSRP registered the tanks with NJDEP. Upon consultation and oversight by the LSRP, Honeywell authorized Entact to remove the USTs. Due to leakage of the EA-5 tank contents and the presence of a strong gasoline-type odor from the liquid, Amec Foster Wheeler contacted the NJDEP Spill Hot Line and NJDEP Case No. 15-09-03-1258-48 was assigned. Additional details concerning the USTs' removal and samples collected will be included in the SA-6 North Non-Chromium Remedy RAR report.

APPENDIX K

DISPOSAL MANIFESTS
(CD ONLY)

AND

WASTE CLASSIFICATION DATA TABLE

Waste Classification Table - VOCs

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-SB-612-1416		087-SB-613-D2-1214		087-SB-614-E1		087-SB-615-F2-1214		087-SB-615-K1-1416		087-SB-616-G2-1012		087-SB-616-L1-1214		087-SB-617-I-0810		087-SB-617-N1-1012		087-SB-618-H-0810		087-SB-618-M1-1416		087-SB-619-J1-0810	
		Client Sample ID																										
		Lab Sample ID			JB85847-2		JB85847-4		JB85847-6		JB85847-8		JB85847-10		JB85847-12		JB85847-14		JB85847-16		JB85847-18		JB85847-20		JB85847-22		JB85847-24	
		Date Sampled			01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015	
		Sample Purpose	NJ 2012 MOST	NJ 2013 IGW	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analytical Method	Parameter Name	Units	STRINGENT SRS	SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SW8260	1,1,1-TRICHLOROETHANE	mg/kg	290	0.3	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	1,1,2,2-TETRACHLOROETHANE	mg/kg	1	0.007	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	NC	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	1,1,2-TRICHLOROETHANE	mg/kg	2	0.02	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	1,1-DICHLOROETHANE	mg/kg	8	0.2	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,1-DICHLOROETHENE	mg/kg	11	0.008	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,2,3-TRICHLOROBENZENE	mg/kg	NC	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	1,2,4-TRICHLOROBENZENE	mg/kg	73	0.7	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.08	0.005	*0.0084*	*U*	*0.0076*	*U*	*0.008*	*U*	*0.0092*	*U*	*0.0074*	*U*	*0.0087*	*U*	*0.0089*	*U*	*0.007*	*U*	*0.013*	*U*	*0.0066*	*U*	*0.0098*	*U*	*0.012*	*U*
SW8260	1,2-DIBROMOETHANE	mg/kg	0.008	0.005	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,2-DICHLOROBENZENE	mg/kg	5300	17	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,2-DICHLOROETHANE	mg/kg	0.9	0.005	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,2-DICHLOROPROPANE	mg/kg	2	0.005	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	*0.0051*	*U*	0.0026	U	0.0039	U	0.0049	U
SW8260	1,3-DICHLOROBENZENE	mg/kg	5300	19	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	1,4-DICHLOROBENZENE	mg/kg	5	2	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	2-BUTANONE	mg/kg	3100	0.9	0.0066	J	0.015	U	0.0156	J	0.018	U	0.015	U	0.017	U	0.018	U	0.014	U	0.026	U	0.01400		0.02	U	0.03700	
SW8260	2-HEXANONE	mg/kg	NC	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	4-METHYL-2-PENTANONE	mg/kg	NC	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	ACETONE	mg/kg	70000	19	0.05280		0.0129	J	0.07060		0.0159	J	0.0109	J	0.05130		0.02180		0.01430		0.0198	J	0.06660		0.02	U	0.1350	
SW8260	BENZENE	mg/kg	2	0.005	0.00084	U	0.00043	J	0.0008	U	0.00092	U	0.00074	U	0.00087	U	0.00089	U	0.0007	U	0.0013	U	0.00066	U	0.00054	J	0.0012	U
SW8260	BROMOCHLOROMETHANE	mg/kg	NC	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	BROMODICHLOROMETHANE	mg/kg	1	0.005	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	*0.0051*	*U*	0.0026	U	0.0039	U	0.0049	U
SW8260	BROMOFORM	mg/kg	81	0.03	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	BROMOMETHANE	mg/kg	25	0.04	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	CARBON DISULFIDE	mg/kg	7800	6	0.00640		0.0011	J	0.0017	J	0.0013	J	0.003	U	0.0035	U	0.0036	U	0.0012	J	0.00990		0.0026	U	0.0011	J	0.0042	J
SW8260	CARBON TETRACHLORIDE	mg/kg	0.6	0.005	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	*0.0051*	*U*	0.0026	U	0.0039	U	0.0049	U
SW8260	CHLOROBENZENE	mg/kg	510	0.6	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	CHLOROETHANE	mg/kg	220	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	CHLOROFORM	mg/kg	0.6	0.4	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	CHLOROMETHANE	mg/kg	4	NC	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	CIS-1,2-DICHLOROETHENE	mg/kg	230	0.3	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	CIS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	CYCLOHEXANE	mg/kg	NC	NC	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	Dibromochloromethane	mg/kg	3	0.005	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	*0.0051*	*U*	0.0026	U	0.0039	U	0.0049	U
SW8260	DICHLORODIFLUOROMETHANE	mg/kg	490	39	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	ETHYLBENZENE	mg/kg	7800	13	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	ISOPROPYLBENZENE	mg/kg	NC	NC	0.0084	U	0.0076	U	0.00041	J	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	METHYL ACETATE	mg/kg	78000	22	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	METHYL TERT-BUTYL ETHER	mg/kg	110	0.2	0.01200		0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	METHYLCYCLOHEXANE	mg/kg	NC	NC	0.00087	J	0.003	U	0.00099	J	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	METHYLENE CHLORIDE	mg/kg	34	0.01	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	*0.013*	*U*	0.0066	U	0.0098	U	*0.012*	*U*
SW8260	O-XYLENE	mg/kg	NC	NC	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	STYRENE	mg/kg	90	3	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	TETRACHLOROETHENE	mg/kg	2	0.005	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	TOLUENE	mg/kg	6300	7	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.00083	J	0.0025	U
SW8260	TRANS-1,2-DICHLOROETHENE	mg/kg	300	0.6	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	TRANS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	0.0051	U	0.0026	U	0.0039	U	0.0049	U
SW8260	TRICHLOROETHENE	mg/kg	7	0.01	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	TRICHLOROFLUOROMETHANE	mg/kg	23000	34	0.0084	U	0.0076	U	0.008	U	0.0092	U	0.0074	U	0.0087	U	0.0089	U	0.007	U	0.013	U	0.0066	U	0.0098	U	0.012	U
SW8260	VINYL CHLORIDE	mg/kg	0.7	0.005	0.0034	U	0.003	U	0.0032	U	0.0037	U	0.003	U	0.0035	U	0.0036	U	0.0028	U	*0.0051*	*U*	0.0026	U	0.0039	U	0.0049	U
SW8260	XYLENES, M & P	mg/kg	NC	NC	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	XYLENES, TOTAL	mg/kg	12000	19	0.0017	U	0.0015	U	0.0016	U	0.0018	U	0.0015	U	0.0017	U	0.0018	U	0.0014	U	0.0026	U	0.0013	U	0.002	U	0.0025	U
SW8260	TOTAL TICS, ALKANES	mg/kg	NC	NC	0		0		0		0		0		0		0		0		0		0		0		0	
SW8260	TOTAL TICS, VOLATILES	mg/kg	NC	NC	0.011	J	0		0.0094	J	0		0		0		0		0		0		0		0.077	J	0	

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Results with a value of "0" indicates no TICs were detected

VOC: Volatile Organic Compounds

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - VOCs

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-SB-620-A-0002		087-SB-621-C1-0204		087-SB-622-C2-0608		124-WC-100	
					JB85847-26		JB85847-28		JB85847-29		JC29746-1R	
					01/07/2015		01/07/2015		01/07/2015		10/14/2016	
					REG		REG		REG		REG	
Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SW8260	1,1,1-TRICHLOROETHANE	mg/kg	290	0.3	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	1,1,2,2-TETRACHLOROETHANE	mg/kg	1	0.007	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	1,1,2-TRICHLOROETHANE	mg/kg	2	0.02	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	1,1-DICHLOROETHANE	mg/kg	8	0.2	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,1-DICHLOROETHENE	mg/kg	11	0.008	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,2,3-TRICHLOROBENZENE	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	1,2,4-TRICHLOROBENZENE	mg/kg	73	0.7	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.08	0.005	*0.0057*	*U*	*0.0079*	*U*	*0.009*	*U*	0.0018	U
SW8260	1,2-DIBROMOETHANE	mg/kg	0.008	0.005	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,2-DICHLOROBENZENE	mg/kg	5300	17	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,2-DICHLOROETHANE	mg/kg	0.9	0.005	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,2-DICHLOROPROPANE	mg/kg	2	0.005	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	1,3-DICHLOROBENZENE	mg/kg	5300	19	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	1,4-DICHLOROBENZENE	mg/kg	5	2	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	2-BUTANONE	mg/kg	3100	0.9	0.011	U	0.016	U	0.018	U	0.0089	U
SW8260	2-HEXANONE	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	4-METHYL-2-PENTANONE	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	ACETONE	mg/kg	70000	19	0.011	U	0.016	U	0.018	U	0.0089	U
SW8260	BENZENE	mg/kg	2	0.005	0.00057	U	0.00079	U	0.0009	U	0.00044	U
SW8260	BROMOCHLOROMETHANE	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	BROMODICHLOROMETHANE	mg/kg	1	0.005	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	BROMOFORM	mg/kg	81	0.03	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	BROMOMETHANE	mg/kg	25	0.04	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	CARBON DISULFIDE	mg/kg	7800	6	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	CARBON TETRACHLORIDE	mg/kg	0.6	0.005	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	CHLOROBENZENE	mg/kg	510	0.6	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	CHLOROETHANE	mg/kg	220	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	CHLOROFORM	mg/kg	0.6	0.4	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	CHLOROMETHANE	mg/kg	4	NC	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	CIS-1,2-DICHLOROETHENE	mg/kg	230	0.3	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	CIS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	CYCLOHEXANE	mg/kg	NC	NC	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	Dibromochloromethane	mg/kg	3	0.005	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	DICHLORODIFLUOROMETHANE	mg/kg	490	39	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	ETHYLBENZENE	mg/kg	7800	13	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	ISOPROPYLBENZENE	mg/kg	NC	NC	0.0057	U	0.0079	U	0.009	U	0.0018	U
SW8260	METHYL ACETATE	mg/kg	78000	22	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	METHYL TERT-BUTYL ETHER	mg/kg	110	0.2	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	METHYLCYCLOHEXANE	mg/kg	NC	NC	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	METHYLENE CHLORIDE	mg/kg	34	0.01	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	O-XYLENE	mg/kg	NC	NC	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	STYRENE	mg/kg	90	3	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	TETRACHLOROETHENE	mg/kg	2	0.005	0.0011	U	0.00250		0.001	J	0.0018	U
SW8260	TOLUENE	mg/kg	6300	7	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	TRANS-1,2-DICHLOROETHENE	mg/kg	300	0.6	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	TRANS-1,3-DICHLOROPROPENE	mg/kg	NC	NC	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	TRICHLOROETHENE	mg/kg	7	0.01	0.0011	U	0.00210		0.0018	U	0.00089	U
SW8260	TRICHLOROFLUOROMETHANE	mg/kg	23000	34	0.0057	U	0.0079	U	0.009	U	0.0044	U
SW8260	VINYL CHLORIDE	mg/kg	0.7	0.005	0.0023	U	0.0032	U	0.0036	U	0.0018	U
SW8260	XYLENES, M & P	mg/kg	NC	NC	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	XYLENES, TOTAL	mg/kg	12000	19	0.0011	U	0.0016	U	0.0018	U	0.00089	U
SW8260	TOTAL TICS, ALKANES	mg/kg	NC	NC	0		0		0		0	
SW8260	TOTAL TICS, VOLATILES	mg/kg	NC	NC	0		0		0		0	

Notes:
NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Italicized values not detected; reporting limit exceeds criteria
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
Results with a value of "0" indicates no TICs were detected
VOC: Volatile Organic Compounds

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - SVOCs

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

					Client Sample ID		087-WC-B-1016		087-WC-D-1014		087-WC-E-0913		087-WC-F-1014		087-WC-K-1418		087-WC-G-1012		087-WC-L-1216		087-WC-I-0812		087-WC-N-1216		087-WC-H-0812		087-WC-M-1318		087-WC-J-0812		087-WC-A-0004		087-WC-C-0408		124-087-WC-COMP	
					Lab Sample ID		JB85847-1		JB85847-3		JB85847-5		JB85847-7		JB85847-9		JB85847-11		JB85847-13		JB85847-15		JB85847-17		JB85847-19		JB85847-21		JB85847-23		JB85847-25		JB85847-27		JC29746-3	
					Date Sampled		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		10/14/2016	
					Sample Purpose	NJ 2012 MOST	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL			CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SW8270	1,1'-BIPHENYL	mg/kg	3100	140			0.0373	J	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.0301	J	0.12	U	0.0291	J	0.33	U	0.11	U
SW8270	1,2,4,5-TETRACHLOROBENZENE	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	1,4-DIOXANE	mg/kg	NC	NC			0.045	U	0.045	U	0.057	U	0.042	U	0.059	U	0.049	U	0.067	U	0.045	U	0.069	U	0.049	U	0.047	U	0.058	U	0.038	U	0.16	U	0.054	U
SW8270	2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	23	5			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	2,3,4,6-TETRACHLOROPHENOL	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	2,4,5-TRICHLOROPHENOL	mg/kg	6100	68			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	2,4,6-TRICHLOROPHENOL	mg/kg	19	0.2			*0.23*	*U*	*0.23*	*U*	*0.28*	*U*	*0.21*	*U*	*0.3*	*U*	*0.25*	*U*	*0.33*	*U*	*0.23*	*U*	*0.35*	*U*	*0.24*	*U*	*0.23*	*U*	*0.29*	*U*	0.19	U	*0.82*	*U*	*0.27*	*U*
SW8270	2,4-DICHLOROPHENOL	mg/kg	180	0.2			*0.23*	*U*	*0.23*	*U*	*0.28*	*U*	*0.21*	*U*	*0.3*	*U*	*0.25*	*U*	*0.33*	*U*	*0.23*	*U*	*0.35*	*U*	*0.24*	*U*	*0.23*	*U*	*0.29*	*U*	0.19	U	*0.82*	*U*	*0.27*	*U*
SW8270	2,4-DIMETHYLPHENOL	mg/kg	1200	1			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	2,4-DINITROPHENOL	mg/kg	120	0.3			*0.9*	*U*	*0.9*	*U*	*1.1*	*U*	*0.85*	*U*	*1.2*	*U*	*0.99*	*U*	*1.3*	*U*	*0.9*	*U*	*1.4*	*U*	*0.98*	*U*	*0.93*	*U*	*1.2*	*U*	*0.76*	*U*	*3.3*	*U*	0.27	U
SW8270	2,4-DINITROTOLUENE	mg/kg	0.7	NC			0.045	U	0.045	U	0.057	U	0.042	U	0.059	U	0.049	U	0.067	U	0.045	U	0.069	U	0.049	U	0.047	U	0.058	U	0.038	U	0.16	U	0.054	U
SW8270	2,6-DINITROTOLUENE	mg/kg	0.7	NC			0.045	U	0.045	U	0.057	U	0.042	U	0.059	U	0.049	U	0.067	U	0.045	U	0.069	U	0.049	U	0.047	U	0.058	U	0.038	U	0.16	U	0.054	U
SW8270	2-CHLORONAPHTHALENE	mg/kg	NC	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	2-CHLOROPHENOL	mg/kg	310	0.8			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	2-METHYLNAPHTHALENE	mg/kg	230	8			0.0904		0.0594	J	0.0997	J	0.085	U	0.0417	J	0.0383	J	0.13	U	0.0276	J	0.14	U	0.098	U	0.167		0.12	U	0.119		0.33	U	0.11	U
SW8270	2-METHYLPHENOL	mg/kg	310	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	2-NITROANILINE	mg/kg	39	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	2-NITROPHENOL	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	3&4-METHYLPHENOL	mg/kg	NC	NC			0.0703	J	0.09	U	0.11	U	0.085	U	0.086	J	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	3,3'-DICHLOROBENZIDINE	mg/kg	1	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	3-NITROANILINE	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	4,6-DINITRO-2-METHYLPHENOL	mg/kg	6	0.3			*0.9*	*U*	*0.9*	*U*	*1.1*	*U*	*0.85*	*U*	*1.2*	*U*	*0.99*	*U*	*1.3*	*U*	*0.9*	*U*	*1.4*	*U*	*0.98*	*U*	*0.93*	*U*	*1.2*	*U*	*0.76*	*U*	*3.3*	*U*	0.27	U
SW8270	4-BROMOPHENYL PHENYL ETHER	mg/kg	NC	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	4-CHLORO-3-METHYLPHENOL	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	4-CHLOROANILINE	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	4-CHLOROPHENYL PHENYL ETHER	mg/kg	NC	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	4-NITROANILINE	mg/kg	NC	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	4-NITROPHENOL	mg/kg	NC	NC			0.45	U	0.45	U	0.57	U	0.42	U	0.59	U	0.49	U	0.67	U	0.45	U	0.69	U	0.49	U	0.47	U	0.58	U	0.38	U	1.6	U	0.54	U
SW8270	ACENAPHTHENE	mg/kg	3400	110			0.13		0.055		0.158		0.0492		0.059	U	0.0231	J	0.067	U	0.045	U	0.069	U	0.0592		0.0658		0.058	U	0.251		0.16	U	0.054	U
SW8270	ACENAPHTHYLENE	mg/kg	300000	NC			0.0766		0.0197	J	0.122		0.042	U	0.0384	J	0.049	U	0.067	U	0.045	U	0.115		0.049	U	0.047	U	0.058	U	0.115		0.16	U	0.054	U
SW8270	ACETOPHENONE	mg/kg	2	3			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	0.82	U	0.27	U
SW8270	ANTHRACENE	mg/kg	17000	2400			0.319		0.214		0.32		0.149		0.0589	J	0.0484	J	0.0522	J	0.0708		0.115		0.195		0.0828		0.0442	J	0.708		0.16	U	0.054	U
SW8270	ATRAZINE	mg/kg	210	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	BENZALDEHYDE	mg/kg	6100	NC			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.0513	J	0.19	U	0.82	U	0.27	U
SW8270	BENZO(A)ANTHRACENE	mg/kg	0.6	0.8			0.455		0.218		**1.05**		0.564		0.234		0.14		0.133		0.146		0.374		0.483		0.232		0.113		**2.24**		0.142	J	0.0331	J
SW8270	BENZO(A)PYRENE	mg/kg	0.2	0.2			**0.376**		0.169		**1.1**		**0.615**		**0.262**		0.126		0.124		0.156		**0.527**		**0.442**		**0.264**		0.11		**2.18**		0.182		0.0321	J
SW8270	BENZO(B)FLUORANTHENE	mg/kg	0.6	2			0.344		0.241		**1.21**		**0.662**		0.347		0.152		0.155		0.199		0.516		0.497		0.312		0.138		**2.49**		0.23		0.0464	J
SW8270	BENZO(G,H,I)PERYLENE	mg/kg	30000	NC			0.147		0.163		0.623		0.328		0.201		0.0789		0.0866		0.119		0.357		0.209		0.159		0.0627		1.16		0.213		0.054	U
SW8270	BENZO(K)FLUORANTHENE	mg/kg	6	25			0.132		0.08		0.481		0.234		0.12		0.0609		0.0549	J	0.0659		0.169		0.194		0.103		0.0497	J	0.88		0.0875	J	0.054	U
SW8270	BIS(2-CHLOROETHOXY)METHANE	mg/kg	NC	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	BIS(2-CHLOROETHYL)ETHER	mg/kg	0.4	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	35	1200			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.0482	J	0.14	U	0.098	U	0.093	U	0.12	U	0.127		0.413		0.249			
SW8270	BUTYLBENZYL PHTHALATE	mg/kg	1200	230			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	CAPROLACTAM	mg/kg	31000	12			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	CARBAZOLE	mg/kg	24	NC			0.0319	J	0.0307	J	0.177		0.0611	J	0.0309	J	0.099	U	0.13	U	0.09	U	0.14	U	0.102		0.0397	J	0.12	U	0.262		0.33	U	0.0395	J
SW8270	CHRYSENE	mg/kg	62	80			0.489		0.315		1.11		0.59		0.321		0.155		0.157		0.177		0.441		0.468		0.278		0.127		2.3		0.16		0.038	J
SW8270	DI-N-BUTYL PHTHALATE	mg/kg	6100	760			0.0522	J	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	DI-N-OCTYL PHTHALATE	mg/kg	2400	3300			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	DIBENZO(A,H)ANTHRACENE	mg/kg	0.2	0.8			0.0504		0.0337	J	0.158		0.091		0.0452	J	0.023	J	0.067	U	0.0301	J	0.0828		0.0619		0.0463	J	0.058	U	**0.336**		0.16	U	0.054	U
SW8270	DIBENZOFURAN	mg/kg	NC	NC			0.0393	J	0.0611	J	0.107	J	0.0219	J	0.0256	J	0.099	U	0.13	U	0.09	U	0.14	U	0.0393	J	0.0306	J	0.12	U	0.14		0.33	U	0.11	U
SW8270	DIETHYL PHTHALATE	mg/kg	49000	88			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	DIMETHYL PHTHALATE	mg/kg	NC	NC			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.11	U
SW8270	FLUORANTHENE	mg/kg	2300	1300			0.685		0.607		1.71		0.738		0.382		0.218		0.241		0.221		0.373		0.788		0.367		0.194		3.54		0.133	J	0.111	
SW8270	FLUORENE	mg/kg	2300	170			0.152		0.0913		0.229		0.0579		0.0311	J	0.02	J	0.0273	J	0.045	U	0.0377	J	0.0861		0.0502		0.0265	J	0.264		0.16	U	0.054	U
SW8270	HEXACHLOROBENZENE	mg/kg	0.3	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	HEXACHLOROBUTADIENE	mg/kg	6	0.9			0.045	U	0.045	U	0.057	U	0.042	U	0.059	U	0.049	U	0.067	U	0.045	U	0.069	U	0.049	U	0.047	U	0.058	U	0.038	U	0.16	U	0.054	U
SW8270	HEXACHLOROCYCLOPENTADIENE	mg/kg	45	320			0.45	U	0.45	U	0.57	U	0.42	U	0.59	U	0.49	U	0.67	U	0.45	U	0.69	U	0.49	U	0.47	U	0.58	U	0.38	U	1.6	U	0.54	U
SW8270	HEXACHLOROETHANE	mg/kg	35	0.2			*0.23*	*U*	*0.23*	*U*	*0.28*	*U*	*0.21*	*U*	*0.3*	*U*	*0.25*	*U*	*0.33*	*U*	*0.23*	*U*	*0.35*	*U*	*0.24*	*U*	*0.23*	*U*	*0.29*	*U*	0.19	U	*0.82*	*U*	*0.27*	*U*
SW8270	INDENO(1,2,3-CD)PYRENE	mg/kg	0.6	7			0.145		0.122		**0.67**		0.337		0.194		0.0811		0.088		0.112		0.316		0.229		0.16		0.0769		**1.26**		0.167		0.054	U
SW8270	ISOPHORONE	mg/kg	510	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.2	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	N-NITROSODIPHENYLAMINE	mg/kg	99	0.4			0.23	U	0.23	U	0.28	U	0.21	U	0.3	U	0.25	U	0.33	U	0.23	U	0.35	U	0.24	U	0.23	U	0.29	U	0.19	U	*0.82*	*U*	0.27	U
SW8270	NAPHTHALENE	mg/kg	6	25			0.175		0.0796		0.222		0.072		0.075		0.0464	J	0.0461	J	0.0375	J	0.06	J	0.0236	J	0.151		0.0316	J	0.137		0.16	U	0.054	U
SW8270	NITROBENZENE	mg/kg	31	0.2			0.09	U	0.09	U	0.11	U	0.085	U	0.12	U	0.099	U	0.13	U	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	*0.33*	*U*	0.11	U
SW8270	PENTACHLOROPHENOL	mg/kg	3	0.3			*0.45*	*U*	*0.45*	*U*	*0.57*	*U*	*0.42*	*U*	*0.59*	*U*	*0.49*	*U*	*0.67*	*U*	*0.45*	*U*	*0.69*	*U*	*0.49*	*U*	*0.47*	*U*	*0.58*	*U*	*0.38*	*U*	*1.6*	*U*	0.22	U
SW8270	PHENANTHRENE	mg/kg	300000	NC			0.666		0.588		1.58		0.585		0.25		0.206		0.262		0.152		0.188		0.761		0.376		0.166		3.03		0.0876	J	0.0635	
SW8270	PHENOL	mg/kg	18000	8			0.0666	J	0.09	U	0.11	U	0.085	U	0.0821	J	0.099	U	0.122	J	0.09	U	0.14	U	0.098	U	0.093	U	0.12	U	0.076	U	0.33	U	0.186	
SW8270	PYRENE	mg/kg	1700	840			0.94		0.725		2.05		0.957		0.474		0.26		0.264		0.261		0.6		0.863		0.463		0.058	U	3.7		0.229		0.0833	
SW8270	TOTAL TICS, ALKANES	mg/kg	NC	NC			3.05	J	0.75	J	0.35	J	0.26	J	6.27	J	1.84	J	1.76	J	0		0		0		1.18	J	1.44	J	0		0		0	
SW8270	TOTAL TICS, SEMI-VOLATILES	mg/kg	NC	NC			17.11	J	16.05	J	38.31	J	12.56	J	43.09	J	1.45	J	29.54	J	21.28	J	30.13	J	9.3	J	5.37	J	17.65	J	13.3	J	22.83	J	0.25	J

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected; reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Results with a value of "0" indicates no TICs were detected

SVOC: Semi-Volatile Organic Compounds

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

Waste Classification Table - Metals

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-WC-B-1016		087-WC-D-1014		087-WC-E-0913		087-WC-F-1014		087-WC-K-1418		087-WC-G-1012		087-WC-L-1216		087-WC-I-0812		087-WC-N-1216		087-WC-H-0812		087-WC-M-1318		087-WC-J-0812		087-WC-A-0004		087-WC-C-0408		124-087-WC-COMP	
		Client Sample ID																														
		Lab Sample ID			JB85847-1		JB85847-3		JB85847-5		JB85847-7		JB85847-9		JB85847-11		JB85847-13		JB85847-15		JB85847-17		JB85847-19		JB85847-21		JB85847-23		JB85847-25		JB85847-27		JC29746-3	
		Date Sampled			01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		10/14/2016	
		Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analytical Method	Parameter Name	Units	NJ 2012 MOST STRINGENT SRS	NJ 2013 IGW SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SW6010	ARSENIC	mg/kg	19	19	10.1		16.1		**32.6**		14.8		**46.8**		9.9		**20.3**		12.6		**75.8**		**19.8**		14.4		13.9		**19.3**		17.3		1.8	
SW6010	BARIUM	mg/kg	16000	2100	68.3		806		578		880		234		100		130		69		207		863		167		243		341		**2230**		67.6	
SW6010	BERYLLIUM	mg/kg	16	0.7	**0.98**		0.46		0.69		0.32		**1**		**0.95**		**1.3**		0.45		**1.2**		0.49		**1.4**		0.53		0.68		*0.79*	*U*	0.45	U
SW6010	CADMIUM	mg/kg	78	2	0.66	U	1.6		**2.4**		**18**		0.86	U	*2.2*	*U*	*2.9*	*U*	0.67	U	1.1	U	**2.3**		*2.2*	*U*	0.91	U	2		**7.3**		0.37	U
SW6010	CHROMIUM	mg/kg	NC	NC	113		22.5		673		82.1		7180		11900		21300		169		1130		357		19100		303		1010		106		139	
SW6010	COPPER	mg/kg	3100	11000	41.8		427		106		113		187		31		36.6		24.1		248		185		40.4		337		215		1450		39.3	
SW6010	LEAD	mg/kg	400	90	38.8		**700**		**1150**		**787**		**447**		**96.3**		69.6		71.3		**516**		**1350**		**133**		**364**		**804**		**2750**		16.5	
SW7471	MERCURY	mg/kg	23	0.1	**3.1**		**0.49**		**1.6**		**0.69**		**3.7**		**1.6**		**0.74**		**0.58**		**19.1**		**2.3**		**0.44**		**32.1**		**0.96**		**17.2**		**0.13**	
SW6010	NICKEL	mg/kg	1600	48	29.5		40.8		26.2		15.5		**178**		**258**		**466**		15		**59**		26.6		**408**		12.4		**62.5**		**91.3**		24.4	
SW6010	SELENIUM	mg/kg	390	11	2.6	U	3.1	U	3.3	U	2.9	U	3.4	U	8.8	U	*12*	*U*	2.7	U	4.6	U	3.8		9	U	3.6	U	2.3	U	7.9	U	1.5	U
SW6010	SILVER	mg/kg	390	1	0.66	U	**1.1**		0.82	U	0.84		**1.9**		*2.2*	*U*	*2.9*	*U*	0.67	U	**1.6**		1		*2.2*	*U*	0.91	U	0.57	U	**6.8**		0.43	
SW6010	VANADIUM	mg/kg	78	NC	35.4		17.2		28.6		17.3		**104**		**196**		**242**		23.5		52.4		21.1		**212**		21.3		**86.2**		45.5		30	
SW6010	ZINC	mg/kg	23000	930	98.7		**933**		**1110**		**2650**		250		108		144		303		499		**1180**		218		703		**988**		**3060**		37.8	

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].

NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]

NC: No criterion established

Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS

Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS

Italicized values not detected: reporting limit exceeds criteria

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per kilogram (mg/kg)

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - EPH

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

		Client Sample ID	087-WC-B-1016		087-WC-D-1014		087-WC-E-0913		087-WC-F-1014		087-WC-K-1418		087-WC-G-1012		087-WC-L-1216		087-WC-I-0812		087-WC-N-1216		087-WC-H-0812		087-WC-M-1318		087-WC-J-0812		087-WC-A-0004		087-WC-C-0408		124-WC-100		124-087-WC-COMP	
		Lab Sample ID	JB85847-1		JB85847-3		JB85847-5		JB85847-7		JB85847-9		JB85847-11		JB85847-13		JB85847-15		JB85847-17		JB85847-19		JB85847-21		JB85847-23		JB85847-25		JB85847-27		JC29746-1R		JC29746-3	
		Date Sampled	01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		10/14/2016		10/14/2016	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analytical Method	**Parameter Name**	**Units**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SW8015	PETROLEUM HYDROCARBONS C10-C28	mg/kg	215		141		1010		302		109		96.7		105		193		421		204		71.6		687		123		210		NS		15.3	
SW8015	PHC AS GASOLINE	mg/kg	18.1		21	U	24	U	18	U	26	U	20	U	30	U	17	U	42	U	20	U	19	U	25	U	13	U	17	U	9.8	U	NS	

Notes:
NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
NS: Not sampled
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
EPH: Extractable Petroleum Hydrocarons
PHC: Petroleum Hydrocarbons

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - Pesticides and PCBs

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-WC-B-1016		087-WC-D-1014		087-WC-E-0913		087-WC-F-1014		087-WC-K-1418		087-WC-G-1012		087-WC-L-1216		087-WC-I-0812		087-WC-N-1216		087-WC-H-0812		087-WC-M-1318		087-WC-J-0812		087-WC-A-0004		087-WC-C-0408		124-087-WC-COMP	
	Client Sample ID																															
	Lab Sample ID				JB85847-1		JB85847-3		JB85847-5		JB85847-7		JB85847-9		JB85847-11		JB85847-13		JB85847-15		JB85847-17		JB85847-19		JB85847-21		JB85847-23		JB85847-25		JB85847-27		JC29746-3	
	Date Sampled				01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		10/14/2016	
	Sample Purpose		NJ 2012 MOST	NJ 2013 IGW	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analytical Method	Parameter Name	Units	STRINGENT SRS	SOIL	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q	CONC	Q
SW8081	4,4'-DDD	mg/kg	3	4	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00200		0.0011	U	0.01090		0.0009	U	0.0011	U
SW8081	4,4'-DDE	mg/kg	2	18	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.01170		0.0009	U	0.00064	J
SW8081	4,4'-DDT	mg/kg	2	11	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.02940		0.0009	U	0.0021	
SW8081	ALDRIN	mg/kg	0.04	0.2	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ALPHA-BHC	mg/kg	0.1	0.002	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ALPHA-CHLORDANE	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00230		0.0009	U	0.0011	U
SW8081	BETA-BHC	mg/kg	0.4	0.002	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	BETA-CHLORDANE	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00350		0.0009	U	0.0011	U
SW8081	CHLORDANE	mg/kg	0.2	0.05	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.00200		0.00580		0.0009	U	NS	
SW8081	DELTA-BHC	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	DIELDRIN	mg/kg	0.04	0.003	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDOSULFAN I	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDOSULFAN II	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDOSULFAN SULFATE	mg/kg	470	2	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDRIN	mg/kg	23	1	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDRIN ALDEHYDE	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	ENDRIN KETONE	mg/kg	NC	NC	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	GAMMA-BHC (LINDANE)	mg/kg	0.4	0.002	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	HEPTACHLOR	mg/kg	0.1	0.5	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00075	U	0.0009	U	0.0011	U
SW8081	HEPTACHLOR EPOXIDE	mg/kg	0.07	0.01	0.00082	U	0.001	U	0.001	U	0.00092	U	0.0012	U	0.00097	U	0.0013	U	0.00091	U	0.0015	U	0.00087	U	0.00093	U	0.0011	U	0.00190		0.0009	U	0.0011	U
SW8081	METHOXYCHLOR	mg/kg	390	160	0.0016	U	0.002	U	0.0021	U	0.0018	U	0.0023	U	0.0019	U	0.0026	U	0.0018	U	0.0031	U	0.0017	U	0.0019	U	0.0022	U	0.0015	U	0.0018	U	0.0022	U
SW8081	TOXAPHENE	mg/kg	0.6	0.3	0.021	U	0.026	U	0.026	U	0.023	U	0.029	U	0.024	U	0.033	U	0.023	U	0.039	U	0.022	U	0.023	U	0.028	U	0.019	U	0.023	U	0.028	U
SW8082	AROCLOR-1016	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
SW8082	AROCLOR-1221	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
SW8082	AROCLOR-1232	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
SW8082	AROCLOR-1242	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
SW8082	AROCLOR-1248	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	2.59		0.056	U
SW8082	AROCLOR-1254	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	1.52		0.056	U
SW8082	AROCLOR-1260	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.667		0.056	U
SW8082	AROCLOR-1262	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
SW8082	AROCLOR-1268	mg/kg	NC	NC	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	0.045	U	0.056	U
	Total PCBs	mg/kg	0.2	0.2	0.041	U	0.051	U	0.052	U	0.046	U	0.058	U	0.048	U	0.066	U	0.045	U	0.077	U	0.044	U	0.047	U	0.055	U	0.038	U	**4.777**		0.056	U
SW8151	2,2-DICHLOROPROPANOIC ACID	mg/kg	NC	NC	0.0046	U	0.0052	U	0.0057	U	0.0047	U	0.0058	U	0.0049	U	0.0066	U	0.0043	U	0.0077	U	0.0048	U	0.005	U	0.0057	U	0.0035	U	0.0044	U	0.011	U
SW8151	2,4,5-T	mg/kg	NC	NC	0.0046	U	0.0052	U	0.0057	U	0.0047	U	0.0058	U	0.0049	U	0.0066	U	0.0043	U	0.0077	U	0.0048	U	0.005	U	0.0057	U	0.0035	U	0.0044	U	0.011	U
SW8151	2,4,5-TP (SILVEX)	mg/kg	NC	NC	0.0046	U	0.0052	U	0.0057	U	0.0047	U	0.0058	U	0.0049	U	0.0066	U	0.0043	U	0.0077	U	0.0048	U	0.005	U	0.0057	U	0.0035	U	0.0044	U	0.011	U
SW8151	2,4-D	mg/kg	NC	NC	0.023	U	0.026	U	0.029	U	0.024	U	0.029	U	0.025	U	0.033	U	0.022	U	0.039	U	0.024	U	0.025	U	0.028	U	0.017	U	0.022	U	0.056	U
SW8151	2,4-DB	mg/kg	NC	NC	0.023	U	0.026	U	0.029	U	0.024	U	0.029	U	0.025	U	0.033	U	0.022	U	0.039	U	0.024	U	0.025	U	0.028	U	0.017	U	0.022	U	0.056	U
SW8151	DICAMBA	mg/kg	NC	NC	0.0046	U	0.0052	U	0.0057	U	0.0047	U	0.0058	U	0.0049	U	0.0066	U	0.0043	U	0.0077	U	0.0048	U	0.005	U	0.0057	U	0.0035	U	0.0044	U	0.011	U
SW8151	DICHLOROPROP	mg/kg	NC	NC	0.023	U	0.026	U	0.029	U	0.024	U	0.029	U	0.025	U	0.033	U	0.022	U	0.039	U	0.024	U	0.025	U	0.028	U	0.017	U	0.022	U	0.056	U
SW8151	DINOSEB	mg/kg	NC	NC	0.023	U	0.026	U	0.029	U	0.024	U	0.029	U	0.025	U	0.033	U	0.022	U	0.039	U	0.024	U	0.025	U	0.028	U	0.017	U	0.022	U	0.056	U
SW8151	MCPA	mg/kg	NC	NC	2.3	U	2.6	U	2.9	U	2.4	U	2.9	U	2.5	U	3.3	U	2.2	U	3.9	U	2.4	U	2.5	U	2.8	U	1.7	U	2.2	U	5.6	U
SW8151	Mecoprop	mg/kg	NC	NC	2.3	U	2.6	U	2.9	U	2.4	U	2.9	U	2.5	U	3.3	U	2.2	U	3.9	U	2.4	U	2.5	U	2.8	U	1.7	U	2.2	U	5.6	U
SW8151	PENTACHLOROPHENOL	mg/kg	3	0.3	0.0023	U	0.0026	U	0.0029	U	0.0024	U	0.0029	U	0.0025	U	0.0033	U	0.0022	U	0.0039	U	0.0024	U	0.0025	U	0.0028	U	0.0017	U	0.0043		0.0056	U

Notes:

NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Italicized values not detected: reporting limit exceeds criteria
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per kilogram (mg/kg)
NS: Not sampled
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
PCBs: Polychlorinated biphenyls

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - General Chemistry

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

					087-WC-B-1016		087-WC-D-1014		087-WC-E-0913		087-WC-F-1014		087-WC-K-1418		087-WC-G-1012		087-WC-L-1216		087-WC-I-0812		087-WC-N-1216		087-WC-H-0812		087-WC-M-1318		087-WC-J-0812		087-WC-A-0004		087-WC-C-0408		087-TW-02-GRAVEL		087-TW-02-FABRIC-A		124-087-WC-COMP	
		Client Sample ID			JB85847-1/1A/1R		JB85847-3/3A		JB85847-5/5A/5R		JB85847-7/7A		JB85847-9/9A		JB85847-11/11A		JB85847-13/13A		JB85847-15/15A/15R		JB85847-17/17A/17R		JB85847-19/19A/19R		JB85847-21/21A		JB85847-23/23A		JB85847-25/25A		JB85847-27/27A/27R		JC31618-1/1R		JC31798-1		JC29746-3/3R	
		Lab Sample ID			01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		11/11/2016		11/15/2016		10/14/2016	
		Date Sampled			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
		Sample Purpose	NJ 2012 MOST	NJ 2013 IGW																																		
Analytical Method	**Parameter Name**	**Units**	**STRINGENT SRS**	**SOIL**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**					**CONC**	**Q**
SW9040	CORROSIVITY	NEG	NC	NC	NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NS		NS		NEG	
SW9012	CYANIDE	mg/kg	1600	20	0.28	U	0.34	U	0.38	U	0.3	U	1.1		1.5		1.4		0.3	U	0.80		0.34	U	0.35		0.41	U	0.25	U	0.29	U	NS		NS		NS	
SW7199	HEXAVALENT CHROMIUM	mg/kg	20	NC	12.8		0.63	U	0.69	U	0.6	U	**170**		**3240**		0.83	U	1.9		13.1		**37.8**		**4380**		0.73	U	**72.8**		2.2	U	0.53		1	U	5.9	
SW1010	Ignitability (liquids) Pensky-Martens	NEG	NC	NC	NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NEG		NS		NS		NEG	
ASTM D1498	OXIDATION-REDUCTION POTENTIAL	mV	NC	NC	97.5		199		191		165		-118		80.7		32.7		100		113		264		84.4		109		237		256		NS		NS		536	
SW9095	PAINT FILTER TEST	ml/100g	NC	NC	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NS		NS		0.50	U
SW9045	pH	S.U.	NC	NC	9.65		7.94		8.32		8.57		11.77		11.86		11.94		9.35		8.98		7.71		11.77		7.85		8.18		7.58		NS		NS		9.80	
846-7.3.3.2	REACTIVE CYANIDE	mg/kg	NC	NC	14	U	16	U	17	U	14	U	18	U	15	U	20	U	14	U	23	U	15	U	15	U	18	U	12	U	14	U	NS		NS		16	U
846-7.3.4.2	REACTIVE SULFIDE	mg/kg	NC	NC	140	UJ	160	U	170	U	140	U	180	U	150	U	200	U	140	U	230	U	150	U	150	U	180	U	120	U	140	U	NS		NS		160	U

Notes:
NJ 2012 MOST STRINGENT SRS- NJDEP Most Stringent Soil Remediation Standards [N.J.A.C. 7:26D; last amended 5/7/2012].
NJ 2013 IGW SOIL – NJDEP Impact to Groundwater Soil Screening Levels [N.J.A.C. 7:26D; last amended November 2013]
NC: No criterion established
Bold and underlined concentrations exceed the NJ 2012 MOST STRINGENT SRS
Bold and shaded concentrations exceed the NJ 2013 IGW SOIL or both the NJ 2013 IGW SOIL and the NJ 2012 MOST STRINGENT SRS
Italicized values not detected; reporting limit exceeds criteria
Depths reported in feet below ground surface
NS: Not sampled
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
S.U.: Standard Units
mg/kg: milligrams per kilogram
ml/100g: milliliters per 100 grams
mV: millivolts

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - TCLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

		Client Sample ID		087-WC-B-1016		087-SB-612-1416		087-WC-D-1014		087-SB-613-D2-1214		087-WC-E-0913		087-SB-614-E1		087-WC-F-1014		087-SB-615-F2-1214		087-WC-K-1418		087-SB-615-K1-1416		087-WC-G-1012		087-SB-616-G2-1012		087-WC-L-1216	
		Lab Sample ID		JB85847-1A		JB85847-2		JB85847-3A		JB85847-4		JB85847-5A		JB85847-6		JB85847-7A		JB85847-8		JB85847-9A		JB85847-10		JB85847-11A		JB85847-12		JB85847-13A	
		Date Sampled	RCRA Toxicity	01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/06/2015		01/07/2015		01/07/2015		01/07/2015	
		Sample Purpose	Characteristics	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Parameter Name**	**Units**	**(40 CFR261.24)**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 TAL Metals	ARSENIC	mg/L	5	0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100	1	U	NS		2.1		NS		2.6		NS		2		NS		1	U	NS		1	U	NS		1	U
SA-6 TAL Metals	CADMIUM	mg/L	1	0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U
SA-6 TAL Metals	CHROMIUM	mg/L	5	0.08		NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		**73**		NS		**23.9**	
SA-6 TAL Metals	COPPER	mg/L	NC	0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 TAL Metals	LEAD	mg/L	5	0.5	U	NS		1.2		NS		0.74		NS		1.3		NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2	0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U
SA-6 TAL Metals	NICKEL	mg/L	NC	0.063		NS		0.16		NS		0.2		NS		0.069		NS		0.07		NS		0.05	U	NS		0.05	U
SA-6 TAL Metals	SELENIUM	mg/L	1	0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	SILVER	mg/L	5	0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 TAL Metals	ZINC	mg/L	NC	0.43		NS		3		NS		2.2		NS		5.7		NS		0.1	U	NS		0.1	U	NS		0.1	U
SA-6 GC/MS Volatiles	1,1-DICHLOROETHENE	mg/L	0.7	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	1,2-DICHLOROETHANE	mg/L	0.5	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U
SA-6 GC/MS Volatiles	2-BUTANONE	mg/L	200	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS	
SA-6 GC/MS Volatiles	BENZENE	mg/L	0.5	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CARBON TETRACHLORIDE	mg/L	0.5	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CHLOROBENZENE	mg/L	100	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CHLOROFORM	mg/L	6	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.0019	J	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	TETRACHLOROETHENE	mg/L	0.7	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	TRICHLOROETHENE	mg/L	0.5	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	VINYL CHLORIDE	mg/L	0.2	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS	
SA-6 GC/MS Semi-Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	2,4,5-TRICHLOROPHENOL	mg/L	400	0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4,6-TRICHLOROPHENOL	mg/L	2	0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4-DINITROTOLUENE	mg/L	0.13	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	2-METHYLPHENOL	mg/L	200	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	3&4-METHYLPHENOL	mg/L	NC	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBENZENE	mg/L	0.13	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBUTADIENE	mg/L	0.5	0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROETHANE	mg/L	3	0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	NITROBENZENE	mg/L	2	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	PENTACHLOROPHENOL	mg/L	100	0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U
SA-6 GC/MS Semi-Volatiles	PYRIDINE	mg/L	5	0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 PCB/Pesticide/Herbicide	2,4,5-TP (SILVEX)	mg/L	1	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	2,4-D	mg/L	10	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	0.03	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	ENDRIN	mg/L	0.02	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	GAMMA-BHC (LINDANE)	mg/L	0.4	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR	mg/L	0.008	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR EPOXIDE	mg/L		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	METHOXYCHLOR	mg/L	10	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	PENTACHLOROPHENOL	mg/L	100	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	TOXAPHENE	mg/L	0.5	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison

RCRA Toxicity Characteristics from 40 CFR 261.24

NC: No criterion established

Bold and underlined concentrations exceed the Toxicity Characteristics

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per liter (mg/L)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

mg/L: milligrams per liter

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

Waste Classification Table - TCLP

Study Area 6 North

Honeywell International Inc.

Jersey City, New Jersey

				087-SB-616-L1-1214		087-WC-I-0812		087-SB-617-I-0810		087-WC-N-1216		087-SB-617-N1-1012		087-WC-H-0812		087-SB-618-H-0810		087-WC-M-1318		087-SB-618-M1-1416		087-WC-J-0812		087-SB-619-J1-0810		087-WC-A-0004	
				JB85847-14		JB85847-15A		JB85847-16		JB85847-17A		JB85847-18		JB85847-19A		JB85847-20		JB85847-21A		JB85847-22		JB85847-23A		JB85847-24		JB85847-25A	
				01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015		01/07/2015	
				REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Parameter Name**	**Units**	**RCRA Toxicity Characteristics (40 CFR261.24)**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 TAL Metals	ARSENIC	mg/L	5	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100	NS		1	U	NS		1	U	NS		2.2		NS		1	U	NS		1.5		NS		1.4	
SA-6 TAL Metals	CADMIUM	mg/L	1	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U
SA-6 TAL Metals	CHROMIUM	mg/L	5	NS		0.49		NS		0.05	U	NS		0.05	U	NS		**96**		NS		0.14		NS		0.09	
SA-6 TAL Metals	COPPER	mg/L	NC	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 TAL Metals	LEAD	mg/L	5	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U	NS		0.0002	U
SA-6 TAL Metals	NICKEL	mg/L	NC	NS		0.13		NS		0.16		NS		0.051		NS		0.05	U	NS		0.05		NS		0.05	U
SA-6 TAL Metals	SELENIUM	mg/L	1	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U	NS		0.5	U
SA-6 TAL Metals	SILVER	mg/L	5	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 TAL Metals	ZINC	mg/L	NC	NS		0.58		NS		1.3		NS		0.81		NS		0.1	U	NS		0.62		NS		0.88	
SA-6 GC/MS Volatiles	1,1-DICHLOROETHENE	mg/L	0.7	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	1,2-DICHLOROETHANE	mg/L	0.5	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U	0.005	U	0.02	U
SA-6 GC/MS Volatiles	2-BUTANONE	mg/L	200	0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS	
SA-6 GC/MS Volatiles	BENZENE	mg/L	0.5	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CARBON TETRACHLORIDE	mg/L	0.5	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CHLOROBENZENE	mg/L	100	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	CHLOROFORM	mg/L	6	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	TETRACHLOROETHENE	mg/L	0.7	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	TRICHLOROETHENE	mg/L	0.5	0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS		0.005	U	NS	
SA-6 GC/MS Volatiles	VINYL CHLORIDE	mg/L	0.2	0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS		0.025	U	NS	
SA-6 GC/MS Semi-Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	2,4,5-TRICHLOROPHENOL	mg/L	400	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4,6-TRICHLOROPHENOL	mg/L	2	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4-DINITROTOLUENE	mg/L	0.13	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	2-METHYLPHENOL	mg/L	200	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	3&4-METHYLPHENOL	mg/L	NC	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBENZENE	mg/L	0.13	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBUTADIENE	mg/L	0.5	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U	NS		0.01	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROETHANE	mg/L	3	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U	NS		0.05	U
SA-6 GC/MS Semi-Volatiles	NITROBENZENE	mg/L	2	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 GC/MS Semi-Volatiles	PENTACHLOROPHENOL	mg/L	100	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U	NS		0.1	U
SA-6 GC/MS Semi-Volatiles	PYRIDINE	mg/L	5	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U	NS		0.02	U
SA-6 PCB/Pesticide/Herbicide	2,4,5-TP (SILVEX)	mg/L	1	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	2,4-D	mg/L	10	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	0.03	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	ENDRIN	mg/L	0.02	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	GAMMA-BHC (LINDANE)	mg/L	0.4	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR	mg/L	0.008	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR EPOXIDE	mg/L		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	METHOXYCHLOR	mg/L	10	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	PENTACHLOROPHENOL	mg/L	100	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SA-6 PCB/Pesticide/Herbicide	TOXAPHENE	mg/L	0.5	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

Notes:

TAL: Target Analyte List; hexavalent chromium results included for comparison

RCRA Toxicity Characteristics from 40 CFR 261.24

NC: No criterion established

Bold and underlined concentrations exceed the Toxicity Characteristics

Depths reported in feet below ground surface

CONC: Concentration reported in milligrams per liter (mg/L)

J: Estimated concentration

Q: Data qualifier assigned by laboratory or data validator

U: Not detected above method detection limit

mg/L: milligrams per liter

Prepared by: DP 05/25/2016

Reviewed by: JLD 12/15/2016

Waste Classification Table - TCLP

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

		Client Sample ID	RCRA Toxicity Characteristics (40 CFR261.24)	087-SB-620-A-0002	
		Lab Sample ID		JB85847-26	
		Date Sampled		01/07/2015	
		Sample Purpose		REG	
Parameter Group Name	**Parameter Name**	**Units**		**CONC**	**Q**
SA-6 TAL Metals	ARSENIC	mg/L	5	NS	
SA-6 TAL Metals	BARIUM	mg/L	100	NS	
SA-6 TAL Metals	CADMIUM	mg/L	1	NS	
SA-6 TAL Metals	CHROMIUM	mg/L	5	NS	
SA-6 TAL Metals	COPPER	mg/L	NC	NS	
SA-6 TAL Metals	LEAD	mg/L	5	NS	
SA-6 TAL Metals	MERCURY	mg/L	0.2	NS	
SA-6 TAL Metals	NICKEL	mg/L	NC	NS	
SA-6 TAL Metals	SELENIUM	mg/L	1	NS	
SA-6 TAL Metals	SILVER	mg/L	5	NS	
SA-6 TAL Metals	ZINC	mg/L	NC	NS	
SA-6 GC/MS Volatiles	1,1-DICHLOROETHENE	mg/L	0.7	0.005	U
SA-6 GC/MS Volatiles	1,2-DICHLOROETHANE	mg/L	0.5	0.005	U
SA-6 GC/MS Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.005	U
SA-6 GC/MS Volatiles	2-BUTANONE	mg/L	200	0.1	U
SA-6 GC/MS Volatiles	BENZENE	mg/L	0.5	0.005	U
SA-6 GC/MS Volatiles	CARBON TETRACHLORIDE	mg/L	0.5	0.005	U
SA-6 GC/MS Volatiles	CHLOROBENZENE	mg/L	100	0.005	U
SA-6 GC/MS Volatiles	CHLOROFORM	mg/L	6	0.005	U
SA-6 GC/MS Volatiles	TETRACHLOROETHENE	mg/L	0.7	0.005	U
SA-6 GC/MS Volatiles	TRICHLOROETHENE	mg/L	0.5	0.005	U
SA-6 GC/MS Volatiles	VINYL CHLORIDE	mg/L	0.2	0.025	U
SA-6 GC/MS Semi-Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	NS	
SA-6 GC/MS Semi-Volatiles	2,4,5-TRICHLOROPHENOL	mg/L	400	NS	
SA-6 GC/MS Semi-Volatiles	2,4,6-TRICHLOROPHENOL	mg/L	2	NS	
SA-6 GC/MS Semi-Volatiles	2,4-DINITROTOLUENE	mg/L	0.13	NS	
SA-6 GC/MS Semi-Volatiles	2-METHYLPHENOL	mg/L	200	NS	
SA-6 GC/MS Semi-Volatiles	3&4-METHYLPHENOL	mg/L	NC	NS	
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBENZENE	mg/L	0.13	NS	
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBUTADIENE	mg/L	0.5	NS	
SA-6 GC/MS Semi-Volatiles	HEXACHLOROETHANE	mg/L	3	NS	
SA-6 GC/MS Semi-Volatiles	NITROBENZENE	mg/L	2	NS	
SA-6 GC/MS Semi-Volatiles	PENTACHLOROPHENOL	mg/L	100	NS	
SA-6 GC/MS Semi-Volatiles	PYRIDINE	mg/L	5	NS	
SA-6 PCB/Pesticide/Herbicide	2,4,5-TP (SILVEX)	mg/L	1	NS	
SA-6 PCB/Pesticide/Herbicide	2,4-D	mg/L	10	NS	
SA-6 PCB/Pesticide/Herbicide	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	0.03	NS	
SA-6 PCB/Pesticide/Herbicide	ENDRIN	mg/L	0.02	NS	
SA-6 PCB/Pesticide/Herbicide	GAMMA-BHC (LINDANE)	mg/L	0.4	NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR	mg/L	0.008	NS	
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR EPOXIDE	mg/L		NS	
SA-6 PCB/Pesticide/Herbicide	METHOXYCHLOR	mg/L	10	NS	
SA-6 PCB/Pesticide/Herbicide	PENTACHLOROPHENOL	mg/L	100	NS	
SA-6 PCB/Pesticide/Herbicide	TOXAPHENE	mg/L	0.5	NS	

Notes:
TAL: Target Analyte List; hexavalent chromium results included for comparison
RCRA Toxicity Characteristics from 40 CFR 261.24
NC: No criterion established
Bold and underlined concentrations exceed the Toxicity Characteristics
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
mg/L: milligrams per liter

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

Waste Classification Table - TCLP

Study Area 6 North
Honeywell International Inc.
Jersey City, New Jersey

		Client Sample ID		087-WC-C-0408		087-SB-621-C1-0204		087-SB-622-C2-0608				087-WC-SLUDGE-1		124-087-WC-COMP	
		Lab Sample ID		JB85847-27A		JB85847-28		JB85847-29		JC29746-1/1R		JC29746-2		JC29746-3A	
		Date Sampled	RCRA Toxicity	01/07/2015		01/07/2015		01/07/2015		10/14/2016		10/14/2016		10/14/2016	
		Sample Purpose	Characteristics	REG		REG		REG		REG		REG		REG	
Parameter Group Name	**Parameter Name**	**Units**	**(40 CFR261.24)**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**	**CONC**	**Q**
SA-6 TAL Metals	ARSENIC	mg/L	5	0.5	U	NS		NS		NS		NS		0.5	U
SA-6 TAL Metals	BARIUM	mg/L	100	1	U	NS		NS		NS		NS		1	U
SA-6 TAL Metals	CADMIUM	mg/L	1	0.029		NS		NS		NS		NS		0.025	U
SA-6 TAL Metals	CHROMIUM	mg/L	5	0.05	U	NS		NS		0.05	U	0.08		0.05	U
SA-6 TAL Metals	COPPER	mg/L	NC	0.32		NS		NS		NS		NS			
SA-6 TAL Metals	LEAD	mg/L	5	0.5	U	NS		NS		NS		NS		0.5	U
SA-6 TAL Metals	MERCURY	mg/L	0.2	0.0002	U	NS		NS		NS		NS		0.0002	U
SA-6 TAL Metals	NICKEL	mg/L	NC	0.1		NS		NS		NS		NS			
SA-6 TAL Metals	SELENIUM	mg/L	1	0.5	U	NS		NS		NS		NS		0.5	U
SA-6 TAL Metals	SILVER	mg/L	5	0.05	U	NS		NS		NS		NS		0.05	U
SA-6 TAL Metals	ZINC	mg/L	NC	5.6		NS		NS		NS		NS			
SA-6 GC/MS Volatiles	1,1-DICHLOROETHENE	mg/L	0.7	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	1,2-DICHLOROETHANE	mg/L	0.5	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.02	U	0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	2-BUTANONE	mg/L	200	NS		0.1	U	0.1	U	0.1	U	NS		NS	
SA-6 GC/MS Volatiles	BENZENE	mg/L	0.5	NS		0.005	U	0.005	U	0.0025	U	NS		NS	
SA-6 GC/MS Volatiles	CARBON TETRACHLORIDE	mg/L	0.5	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	CHLOROBENZENE	mg/L	100	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	CHLOROFORM	mg/L	6	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	TETRACHLOROETHENE	mg/L	0.7	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	TRICHLOROETHENE	mg/L	0.5	NS		0.005	U	0.005	U	0.005	U	NS		NS	
SA-6 GC/MS Volatiles	VINYL CHLORIDE	mg/L	0.2	NS		0.025	U	0.025	U	0.005	U	NS		NS	
SA-6 GC/MS Semi-Volatiles	1,4-DICHLOROBENZENE	mg/L	7.5	0.02	U	NS		NS		0.005	U	NS		NS	
SA-6 GC/MS Semi-Volatiles	2,4,5-TRICHLOROPHENOL	mg/L	400	0.05	U	NS		NS		NS		NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4,6-TRICHLOROPHENOL	mg/L	2	0.05	U	NS		NS		NS		NS		0.05	U
SA-6 GC/MS Semi-Volatiles	2,4-DINITROTOLUENE	mg/L	0.13	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 GC/MS Semi-Volatiles	2-METHYLPHENOL	mg/L	200	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 GC/MS Semi-Volatiles	3&4-METHYLPHENOL	mg/L	NC	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBENZENE	mg/L	0.13	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROBUTADIENE	mg/L	0.5	0.01	U	NS		NS		NS		NS		0.01	U
SA-6 GC/MS Semi-Volatiles	HEXACHLOROETHANE	mg/L	3	0.05	U	NS		NS		NS		NS		0.05	U
SA-6 GC/MS Semi-Volatiles	NITROBENZENE	mg/L	2	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 GC/MS Semi-Volatiles	PENTACHLOROPHENOL	mg/L	100	0.1	U	NS		NS		NS		NS		0.1	U
SA-6 GC/MS Semi-Volatiles	PYRIDINE	mg/L	5	0.02	U	NS		NS		NS		NS		0.02	U
SA-6 PCB/Pesticide/Herbicide	2,4,5-TP (SILVEX)	mg/L	1	NS		NS		NS		NS		NS		0.0015	U
SA-6 PCB/Pesticide/Herbicide	2,4-D	mg/L	10	NS		NS		NS		NS		NS		0.005	U
SA-6 PCB/Pesticide/Herbicide	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	0.03	NS		NS		NS		NS		NS		0.005	U
SA-6 PCB/Pesticide/Herbicide	ENDRIN	mg/L	0.02	NS		NS		NS		NS		NS		0.0001	U
SA-6 PCB/Pesticide/Herbicide	GAMMA-BHC (LINDANE)	mg/L	0.4	NS		NS		NS		NS		NS		0.0001	U
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR	mg/L	0.008	NS		NS		NS		NS		NS		0.0001	U
SA-6 PCB/Pesticide/Herbicide	HEPTACHLOR EPOXIDE	mg/L		NS		NS		NS		NS		NS		0.0001	U
SA-6 PCB/Pesticide/Herbicide	METHOXYCHLOR	mg/L	10	NS		NS		NS		NS		NS		0.0002	U
SA-6 PCB/Pesticide/Herbicide	PENTACHLOROPHENOL	mg/L	100	NS		NS		NS		NS		NS		0.1	U
SA-6 PCB/Pesticide/Herbicide	TOXAPHENE	mg/L	0.5	NS		NS		NS		NS		NS		0.0025	U

Notes:
TAL: Target Analyte List; hexavalent chromium results included for comparison
RCRA Toxicity Characteristics from 40 CFR 261.24
NC: No criterion established
Bold and underlined concentrations exceed the Toxicity Characteristics
Depths reported in feet below ground surface
CONC: Concentration reported in milligrams per liter (mg/L)
J: Estimated concentration
Q: Data qualifier assigned by laboratory or data validator
U: Not detected above method detection limit
mg/L: milligrams per liter

Prepared by: DP 05/25/2016
Reviewed by: JLD 12/15/2016

APPENDIX L

BACKFILL DOCUMENTATION

Honeywell

Honeywell
101 Columbia Rd
Morristown, NJ 07962

July 3, 2014 *Via Express Mail*

Honorable Robert G. Torricelli
Office of the Special Master
41 W. State St., Suite 2F
Trenton, NJ 08608

Subject: **New Source of Imported Clean Fill**
Study Area 6 (SA-6)
Jersey City, New Jersey

Dear Senator Torricelli:

Honeywell is preparing this letter to advise the parties that we have identified a new source of fill which can be used at SA-6 for both surcharging and common borrow needs. The borrow site located in Summit, NJ and has received a Site-Wide NFA designation from the NJDEP and is now in active construction of a new subgrade parking garage. This construction requires excavation up to 20 feet below grade and is creating the potential availability of up to ~70,000 cubic yards of surplus clean fill.

Although the site has an NFA, additional analytical samples were collected and compared to the NJDEP Soil Remediation Standards. Specifically, 66 composite soil samples were collected from 13 soil boring locations and analyzed for:

a. Discrete - VOCs
b. Composite - SVOCs, PCBs, pesticides, metals, Hex Cr, cyanide, EPH

All the data was found to meet NJDEP unrestricted use criteria and the Hex Cr was found to be < 1 mg/kg. Consistent with our prior practice we are providing the parties a copy of one of the final laboratory data packages which includes soil samples D-1 and E-1 is attached to this letter.

In addition, Honeywell requested that Amec collect geotechnical samples for evaluation of whether the material meets the Common Borrow fill specifications in the approved 100% Design. Amec found that the materials are acceptable for common fill and a copy of the geotechnical data (classification, moisture content and standard proctor) are also attached to this letter.

As discussed at our weekly progress meetings, Honeywell/Amec have contracted with a trucking firm and began importing the material on Jun 25, 2014. The materials will either be stockpiled adjacent to the Novartis materials on SA-7, or used immediately for Surcharge on SA-6 South.

Additional testing will be continued as needed to meet the specifications and updates will be provided in future reports per previous agreement with the parties.

Should you have any questions please contact the undersigned at (973) 455-2175.

Sincerely,

William J. Hague
Director, Remediation
Engineering and Construction

WJH:sgf

Encl: D-1 and E-1 Sample Results
Geotechnical Results

cc: (electronic copy only)
Joe Clifford - AMEC
Michael Daneker - Arnold & Porter LLP
Jeremy Karpatkin - Arnold & Porter LLP
Dr. Bruce Bell - Carpenter Environmental Associates, Inc.
Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
Jason Watson – City Hall
Agnieszka Antonian - Connell Foley LLP
Kevin Coakley, Esq. - Connell Foley LLP
Liza Walsh - Connell Foley LLP
Frank Borin - DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella - DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross - Disposal Safety, Inc.
David Isabel - Golub & Isabel PC
Tom Byrne - Honeywell
Maria Kaouris - Honeywell
John Morris - Honeywell
Alicia Clark Alcorn - Terris, Pravlik & Millian, LLP
Kathleen Millian - Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik - Terris, Pravlik & Millian, LLP
Steve Egnaczyk - The Louis Berger Group, Inc.
Thomas Lewis - The Louis Berger Group, Inc.

D-1 and E-1 Sample Results

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Environmental Waste Management Associates, LLC.
Project: CELGENE - 208493
Lab Case No.: E14-02037

Lab ID:	02037-037			02037-038			02037-039			02037-040		
Client ID:	D-1 (15-20)			D-1 (19.5-20)			E-1 (0-5)			E-1 (3.5-4)		
Depth:	15/20			19.5/20			0/5			3.5/4		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	3/13/14			3/13/14			3/13/14			3/13/14		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
TOTAL VO's:	~		~	ND			~		~	ND		
TOTAL TIC's:	~		~	0.019	J		~		~	ND		
TOTAL VO's & TIC's:	~		~	0.019	J		~		~	ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Bis(2-ethylhexyl) phthalate	0.058		0.021	~		~	0.048		0.022	~		~
TOTAL BNA'S:	0.058			~		~	0.048			~		~
TOTAL TIC's:	0.151	J		~		~	ND			~		~
TOTAL BNA'S & TIC's:	0.209	J		~		~	0.048			~		~
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1221	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1232	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1242	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1248	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1254	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1260	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1262	ND		0.000696	~		~	ND		0.000732	~		~
Aroclor-1268	ND		0.000696	~		~	ND		0.000732	~		~
PCBs	ND		0.000696	~		~	ND		0.000732	~		~
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000174	~		~	ND		0.000916	~		~
beta-BHC	ND		0.000174	~		~	ND		0.000916	~		~
gamma-BHC (Lindane)	ND		0.000174	~		~	ND		0.000916	~		~
delta-BHC	ND		0.000174	~		~	ND		0.000916	~		~
Heptachlor	ND		0.000174	~		~	ND		0.000916	~		~
Aldrin	ND		0.000174	~		~	ND		0.000916	~		~
Heptachlor epoxide	ND		0.000174	~		~	ND		0.000916	~		~
Endosulfan I	ND		0.000174	~		~	ND		0.000916	~		~
4,4'-DDE	ND		0.000174	~		~	ND		0.000916	~		~
Dieldrin	ND		0.000174	~		~	ND		0.000916	~		~
Endrin	ND		0.000174	~		~	ND		0.000916	~		~
Endosulfan II	ND		0.000174	~		~	ND		0.000916	~		~
4,4'-DDD	ND		0.000174	~		~	ND		0.000916	~		~
Endrin aldehyde	ND		0.000174	~		~	ND		0.000916	~		~
Endosulfan sulfate	ND		0.000174	~		~	ND		0.000916	~		~
4,4'-DDT	ND		0.000174	~		~	ND		0.000916	~		~
Endrin ketone	ND		0.000174	~		~	ND		0.000916	~		~
Methoxychlor	ND		0.000174	~		~	ND		0.000916	~		~
alpha-Chlordane	ND		0.000174	~		~	ND		0.000916	~		~
gamma-Chlordane	ND		0.000174	~		~	ND		0.000916	~		~
Toxaphene	ND		0.00209	~		~	ND		0.011	~		~
Endosulfan (I and II)	ND		0.000174	~		~	ND		0.000916	~		~
Chlordane (alpha and gamma)	ND		0.000174	~		~	ND		0.000916	~		~

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL
J = Concentration detected at a value below the RL and above the MDL for target compounds. For non-target compounds (i.e. TICs), qualifier indicates estimated concentrations.
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Environmental Waste Management Associates, LLC.
Project: CELGENE - 208493
Lab Case No.: E14-02037

Lab ID:	02037-037			02037-038			02037-039			02037-040		
Client ID:	D-1 (15-20)			D-1 (19.5-20)			E-1 (0-5)			E-1 (3.5-4)		
Depth:	15/20			19.5/20			0/5			3.5/4		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	3/13/14			3/13/14			3/13/14			3/13/14		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
NJ-EPH-Fractionated (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
C9-C12 Aliphatics	ND		6.04	~		~	ND		6.37	~		~
C12-C16 Aliphatics	ND		6.04	~		~	ND		6.37	~		~
C16-C21 Aliphatics	ND		4.03	~		~	ND		4.25	~		~
C21-C40 Aliphatics	ND		4.03	~		~	ND		4.25	~		~
Total Aliphatics	ND		6.04	~		~	ND		6.37	~		~
C10-C12 Aromatics	ND		4.03	~		~	ND		4.25	~		~
C12-C16 Aromatics	ND		4.03	~		~	ND		4.25	~		~
C16-C21 Aromatics	ND		4.03	~		~	ND		4.25	~		~
C21-C36 Aromatics	ND		4.03	~		~	ND		4.25	~		~
Total Aromatics	ND		4.03	~		~	ND		4.25	~		~
Total NJ-EPH	ND		6.04	~		~	ND		6.37	~		~
Metals (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aluminum	7120		0.551	~		~	9510		0.583	~		~
Antimony	ND		0.276	~		~	ND		0.291	~		~
Arsenic	0.712		0.276	~		~	1.33		0.291	~		~
Barium	61.8		0.551	~		~	41.0		0.583	~		~
Beryllium	0.389	J	0.221	~		~	0.299	J	0.233	~		~
Cadmium	ND		0.138	~		~	ND		0.146	~		~
Calcium	1520		5.51	~		~	2900		5.83	~		~
Chromium	11.9		0.551	~		~	9.92		0.583	~		~
Cobalt	5.24		0.551	~		~	5.41		0.583	~		~
Copper	25.5		0.551	~		~	15.4		0.583	~		~
Iron	10500		5.51	~		~	11600		5.83	~		~
Lead	4.87		0.551	~		~	8.24		0.583	~		~
Magnesium	2940		5.51	~		~	3310		5.83	~		~
Manganese	523		0.276	~		~	300		0.291	~		~
Mercury	ND		0.023	~		~	ND		0.024	~		~
Nickel	11.1		0.551	~		~	8.56		0.583	~		~
Potassium	654		5.51	~		~	449		5.83	~		~
Selenium	1.21		0.551	~		~	0.692		0.583	~		~
Silver	ND		0.138	~		~	ND		0.146	~		~
Sodium	298		5.51	~		~	857		5.83	~		~
Thallium	ND		0.138	~		~	ND		0.146	~		~
Vanadium	12.5		0.551	~		~	20.8		0.583	~		~
Zinc	20.9		0.551	~		~	17.5		0.583	~		~
General Analytical (Units)												
Hexavalent Chromium(mg/Kg)	ND		0.177	~		~	ND		0.186	~		~
Cyanide, Total(mg/Kg)	ND		0.527	~		~	ND		0.554	~		~

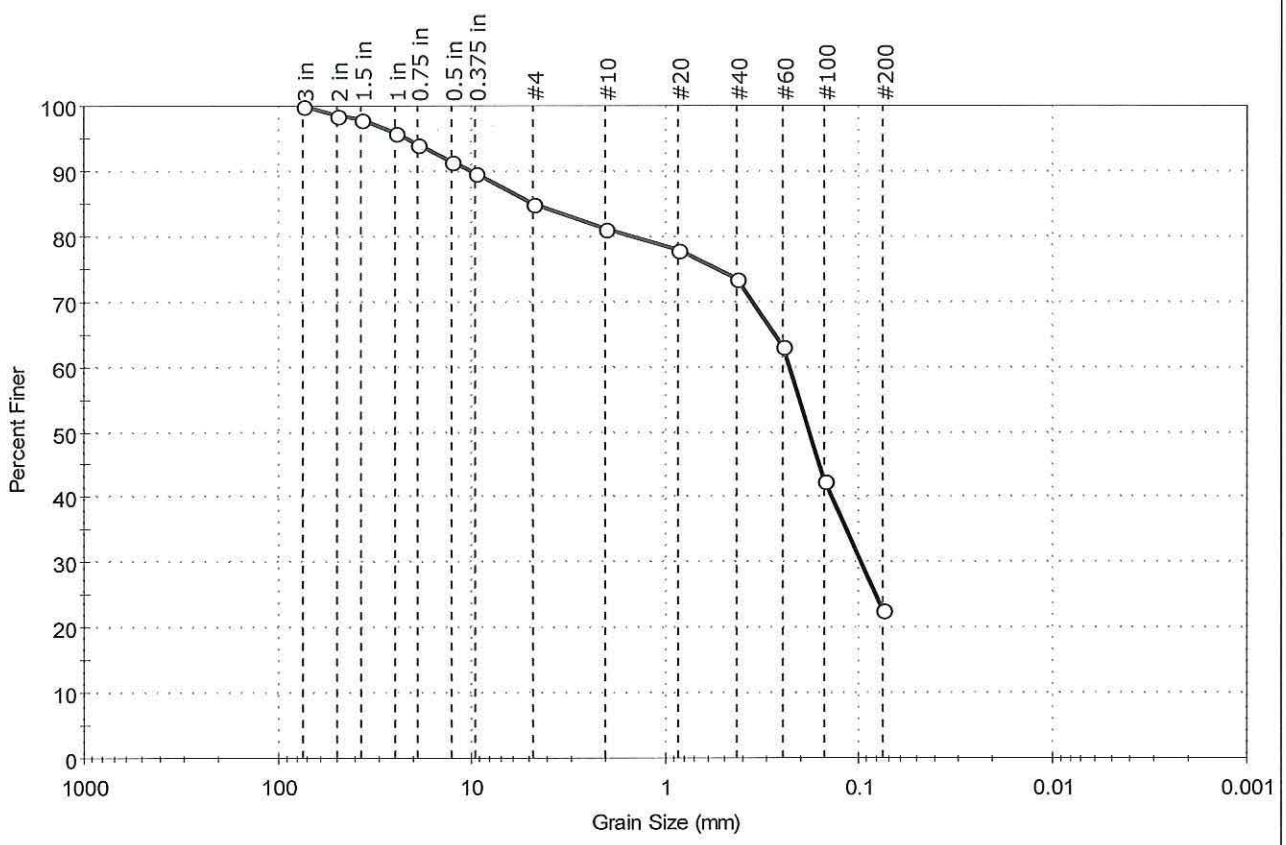
~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL
J = Concentration detected at a value below the RL and above the MDL for target compounds. For non-target compounds (i.e. TICs), qualifier indicates estimated concentrations.

Geotechnical Results

GeoTesting EXPRESS

Client:	AMEC E&I, Inc.				
Project:	Celgene Stockpile				
Location:	Jersey City, NJ			Project No:	GTX-301981
Boring ID:	---	Sample Type:	bucket	Tested By:	jbr
Sample ID:	Celgene-061614-001	Test Date:	06/27/14	Checked By:	njh
Depth :	0-2 ft	Test Id:	300011		
Test Comment:	---				
Sample Description:	Moist, reddish brown silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	15.0	62.2	22.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	99		
1.5 in	37.50	98		
1 in	25.00	96		
0.75 in	19.00	94		
0.5 in	12.70	91		
0.375 in	9.50	90		
#4	4.75	85		
#10	2.00	81		
#20	0.85	78		
#40	0.42	73		
#60	0.25	63		
#100	0.15	43		
#200	0.075	23		

Coefficients

D_{85} =4.7802 mm	D_{30} =0.0966 mm
D_{60} =0.2308 mm	D_{15} =N/A
D_{50} =0.1804 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Silty sand with gravel (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

Client:	AMEC E&I, Inc.				
Project:	Celgene Stockpile				
Location:	Jersey City, NJ			Project No:	GTX-301981
Boring ID:	---	Sample Type:	bucket	Tested By:	cam
Sample ID:	Celgene-061614-001	Test Date:	06/27/14	Checked By:	njh
Depth :	0-2 ft	Test Id:	300012		
Test Comment:	---				
Sample Description:	Moist, reddish brown silty sand with gravel				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	elgene-061614-00	---	0-2 ft	8	n/a	n/a	n/a	n/a	Silty sand with gravel (SM)

27% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	AMEC E&I, Inc.				
Project:	Celgene Stockpile				
Location:	Jersey City, NJ			Project No:	GTX-301981
Boring ID:	---	Sample Type:	bucket	Tested By:	jek
Sample ID:	Celgene-061614-001	Test Date:	06/27/14	Checked By:	njh
Depth :	0-2 ft	Test Id:	300013		
Test Comment:	---				
Sample Description:	Moist, reddish brown silty sand with gravel				
Sample Comment:	---				

Laboratory Determination of Density (Unit Weight) of Soil Specimens by ASTM D7263

Boring ID	Sample ID	Depth	Visual Description	Bulk Density pcf	Moisture Content %	Dry Density pcf
---	Celgene-061614-001	0-2 ft	Moist, reddish brown silty sand with gravel	89.44	7.651	83.09

* Sample Comments

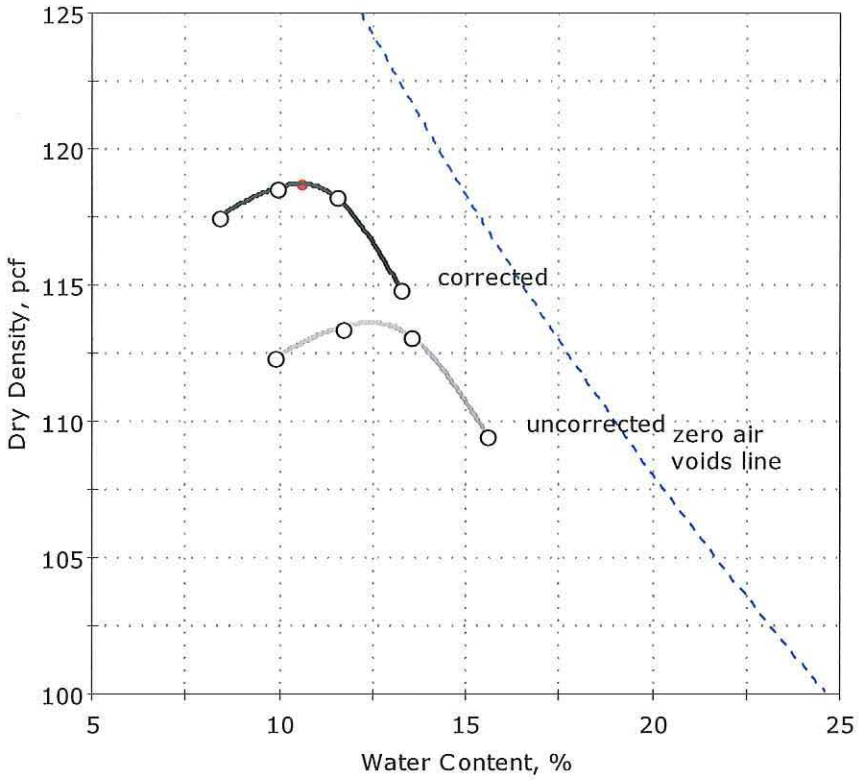
(1): Method B-Cylinder, Remolded

Notes: Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS

Client:	AMEC E&I, Inc.				
Project:	Celgene Stockpile				
Location:	Jersey City, NJ			Project No:	GTX-301981
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	Celgene-061614-001	Test Date:	06/27/14	Checked By:	njh
Depth :	0-2 ft	Test Id:	300014		
Test Comment:	---				
Sample Description:	Moist, reddish brown silty sand with gravel				
Sample Comment:	---				

Compaction Report - ASTM D698



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	112.3	113.4	113.1	109.5
Moisture Content, %	9.8	11.7	13.5	15.6

Method : A

Preparation : DRY

As received Moisture :8 %

Rammer : Manual

Zero voids line based on assumed specific gravity of 2.65

Maximum Dry Density= 113.6 pcf

Optimum Moisture= 12.4 %

Oversize Correction (15.0% > #4 Sieve)

Corrected Maximum Dry Density= 118.7 pcf

Corrected Optimum Moisture= 10.6 %

Assumed Average Bulk Specific Gravity = 2.55

EXCAVATING MATERIALS & EQUIPMENT, INC.
849 ROUTE 539 • NEW EGYPT, NJ 08533 • 609.758.3400 • FAX: 609.758.5545

10-12-16

GENERAL CONTRACTOR : Entach Corp

CERTIFICATION: Clean Fill Certification

PROJECT: Honeywell Jersey City NJ.

Please accept this letter as our certification that the Clean Fill to be supplied to you through EME for the above referenced project is produced at our Plumsted Township Plant located at 849 Route 539, New Egypt, NJ 08533. Block 80 lot 4.

The material provided from our pit is:
Excavated from undisturbed geologic formations;
Obtained from a licensed quarry/mine;
Not been subject to a discharged hazardous substance at any time;
Not located on or impacted by other contaminant sources;
Not comingled with any other materials;
Not known or suspected of being contaminated.
Not adversely impacted by discharges of hazardous materials or chemical applications;
Not affected by conditions or processes that would result in the introduction of contaminates into the licensed quarry/mine material in concentrations above regulatory concern; and
Not affected by conditions or processes that would increase the concentrations of contaminants already present in the licensed quarry/mine to concentrations above regulatory concern.
Also please find a copy of our state mine registration.

If you need any further assistance, please feel free to contact me.

Sincerely,

Keith Prince
Vice President

State of New Jersey
Department of Labor and Workforce Development

Certificate No. 004218
Expiration Date 3/31/2017

MINE REGISTRATION CERTIFICATE

ISSUED TO: EME Inc

LOCATION: 849 Route 539
New Egypt, NJ

BLK NO(S): 80
LOT NO(S): 4
COUNTY: Ocean

Issued pursuant to the provisions of N.J.S.A. 34:6-98.1 et. seq. Failure to comply with the provisions of the Act, and the Rules promulgated thereunder, shall be good cause for the revocation of this Certificate.

Harold J. Wirths
Commissioner

THIS CERTIFICATE MUST BE POSTED AT ALL TIMES

ES 140 (R-1-05)

Nature's Choice Corporation

March 18, 2016

Caroline Panico
Entact Environmental Services Inc.
800 North Kings Highway, Suite 501
Cherry Hill, NJ 08034

RE: Topsoil located 20 Mansard Court, Wayne NJ 07470

Dear: Ms. Panico:

This letter is to certify that the above reference material is produced from a virgin source supply. All Material is excavated from the pre-existing location and put through a scalper prior to delivery.

Please contact me with any questions.

Very truly yours,

Matthew Vastano
Vice President

398 Lincoln Boulevard, Middlesex, New Jersey Phone 973.969.3299 Fax 732.469.0054

Nature's Choice Corporation

March 18, 2016

Caroline Panico
Entact Environmental Services Inc.
800 North Kings Highway, Suite 501
Cherry Hill, NJ 08034

RE: Horizon C material located 476 Deans Rhode Hall Road, Cranbury, NJ

Dear: Ms. Panico:

This letter is to certify that the above reference material is produced from a virgin source supply. All Material is excavated from the pre-existing location and put through a scalper prior to delivery.

Please contact me with any questions.

Very truly yours,

Matthew Vastano
Vice President

398 Lincoln Boulevard, Middlesex, New Jersey Phone 973.969.3299 Fax 732.469.0054

State of New Jersey
Department of Labor and Workforce Development

Certificate No. 004285
Expiration Date 3/31/2017

MINE REGISTRATION CERTIFICATE

ISSUED TO: A.B. Kurre Contracting Inc

LOCATION: PORTABLE

NJ

BLK NO(S): 18
LOT NO(S): 4
COUNTY: Middelsex

Issued pursuant to the provisions of N.J.S.A. 34:6-98.1 et. seq. Failure to comply with the provisions of the Act, and the Rules promulgated thereunder, shall be good cause for the revocation of this Certificate.

Harold J. Wirths
Commissioner

THIS CERTIFICATE MUST BE POSTED AT ALL TIMES

ES-148 (R-1-05)

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6
Honeywell International Inc.
Jersey City, New Jersey

				Tilcon Mt Hope - DGA	Tilcon Mt Hope - DGA 002	Tilcon Mt Hope - DGA 003	Tilcon Mt Hope - DGA 004	Tilcon Mt Hope - DGA 005	Tilcon Mt Hope - DGA 006 (used for 1.5" Stone also, Sub 173)	Tilcon Mt Hope - 1.5 in Stone 001	Tilcon Mt Hope - 1.5 in Stone 002	Tilcon Mt Hope - 3/8 in Stone 001	Tilcon Mt Hope - 3/8 in Stone 002	Tilcon Pompton Lakes DGA 001	Liberty 1.5" Stone
Approval Status:				Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Make Corrections	Approved	Approved	Approved as Noted
Submittal Response Date:				10/29/2013	4/9/2014	5/7/2014	9/25/2014	11/18/2014	9/12/2016	5/7/2014	5/6/2015	5/7/2014	5/6/2015	7/31/2014	7/23/2015
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	34A	46	49	68	77	168 / 173	53	84	54	85	57	107
Cyanide	1600	23000	20	0.13 U	0.044 J	0.318	0.124 U	0.131 U	0.122 U	0.034 J	0.122 U	0.077 J	0.125 U	0.07 J	0.124 U
Aluminum[1]	78000	NA	6000	3870	2090	1940	2090	1380	1260	**6130**	1930	2080	1960	4700	**7570**
Antimony	31	450	6	0.25 J	1.07 UN	1.09 U	0.516 U	0.552 U	0.533 UN	1.06 U	0.539 U	1.05 U	0.539 U	1.05 UN	0.539 U
Arsenic	19	19	19	0.29 J	1.56 N	1.64	1.72	1.52	1.68	0.658 J	1.73	0.642 J	1.62	1.01	0.592 J
Barium	16000	59000	2100	18.8	13	12.1	12.6	8.11	9.76	29.5	17.3 N	9.36	12.5 N	25.7 N	19.1
Beryllium	16	140	0.7	0.065 U	0.545 N*	**0.947 N**	0.251	0.175 J	0.064 U	**1.16**	0.242 J	**0.968**	0.31 J	0.205 J	0.131 J
Cadmium	78	78	2	0.21	0.128 U	0.13 U	0.062 U	0.066 U	0.064 U	0.127 U	0.065 U	0.127 U	0.128 U	0.126 U	0.338
Cobalt	1600	590	90	3.65	4.59 N	3.98 N	6.01	3.52	5.1	3.74	5.5	3.58	4.64	10 N	8.31
Copper	3100	45000	11000	4.07	5.11 N*	2.06	4.59	2.58	6.12	2.09	0.615 J	0.349 J	7.14 J	28.9 N	65.8
Lead	400	800	90	5.71	0.686	0.695	0.969	0.583	4.3	0.579	1.47	0.59	1.21	2.41	18.9
Manganese[1]	11000	59000	65	**70.8**	**103**	**71.1**	**76.5**	55	**77.3**	**80.2**	53.7	34.7	**66.3**	**77.7**	**96.5**
Mercury	23	65	0.1	0.002 J	0.005 U	0.0005 U	0.005 U	0.005 U	0.0006 U	0.004 U	0.007 U	0.005 U	0.007 U	0.005 U	0.006 U
Nickel (soluble salts)	1600	23000	48	3.36	2.91	2.56	5.67	2.73	4.92	0.714 J	11.1	4.45	2.65	13.1 N	15.3
Selenium	390	5700	11	0.215 U	0.621 JN	0.977	0.959	0.507 J	4.28	0.424 U	0.216 U	0.422 U	0.216 U	0.878	0.216 U
Silver[1]	390	5700	1	0.105 U	0.213 UN	**1.36**	**1.56**	0.11 U	0.128 JN	**1.07**	0.871	0.939	0.487	0.255 J	0.877
Thallium	5	79	3	0.43 U	0.853 U	0.87 U	0.413 U	0.441 U	0.426 U	0.847 U	0.431 U	0.844 U	0.431 U	0.841 U	0.431 U
Vanadium	78	1100	NA	5.89	5.7 N	5.04	7.61	5.13	6.92	6.24	9.21	15.2	5.39	20.3	33.6
Zinc[1]	23000	110000	930	15.6	13.2 N	8.87 N	17.6	11.3	18.5	17.4	12.2 N	9.52	15.4 N	16.1 N	36.2
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0245 U	0.0245 U	0.0035 U	0.0238 U	0.0252 U	0.0306 U	0.0033 U	0.0231 U	0.0033 U	0.0231 U	0.0033 U	0.0231 U
Total EPH (mg/kg)	1000	1000	1000	11.37	10.92	3.105 J	8.44	7.76	3.04 U	3.86 J	6.85	2.995 U	6.27	4.92 J	2.99 U
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Heptachlor	0.4	0.7	0.5	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Aldrin	0.04	0.2	0.2	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Heptachlor epoxide	0.07	0.3	0.01	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000684 U	0.000343 U	0.000684 U	0.000666 U	0.000704 U	0.000668 U	0.000658 U	0.000658 U	0.000658 U	0.000658 U	0.000664 U	0.000658 U
Dieldrin	0.04	0.2	0.003	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
4,4'-DDE	2	9	18	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Endrin	23	340	1	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
4,4'-DDD	3	13	4	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Endosulfan sulfate	470	6800	2	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
4,4'-DDT	2	8	11	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Methoxychlor	390	5700	160	0.000342 U	0.000343 U	0.000342 U	0.000333 U	0.000352 U	0.000334 U	0.000329 U	0.000329 U	0.000329 U	0.000329 U	0.000332 U	0.000329 U
Chlordane (alpha and gamma)	0.2	1	0.05	0.000684 U	0.000686 U	0.000684 U	0.000666 U	0.000704 U	0.000668 U	0.000658 U	0.000658 U	0.000658 U	0.000658 U	0.000664 U	0.000658 U
Toxaphene	0.6	3	0.3	0.0035 U	0.0035 U	0.0034 U	0.0034 U	0.0035 U	0.0034 U	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.0033 U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0692 U	0.0692 U	0.0693 U	0.0673 U	0.0711 U	0.0674 U	0.0664 U	0.0665 U	0.0666 U	0.0666 U	0.0672 U	0.0666 U
Benzaldehyde	6100	68000	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Phenol	18000	210000	8	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Bis(2-chloroisopropyl)ether	23	67	5	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Acetophenone	2	5	3	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
4-Methylphenol (p-Creosol)	31	340	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Hexachloroethane	35	140	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Nitrobenzene	31	340	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Isophorone	510	2000	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4-Dimethylphenol	1200	14000	1	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4-Dichlorophenol	180	2100	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Naphthalene	6	17	25	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Hexachloro-1,3,butadiene	6	25	0.9	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Caprolactam	31000	340000	12	0.0692 U	0.0692 U	0.0693 U	0.0673 U	0.0711 U	0.0674 U	0.0664 U	0.0665 U	0.0666 U	0.0666 U	0.0672 U	0.0666 U
2-Methylnaphthalene	230	2400	8	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Hexachlorocyclopentadiene	45	110	320	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4,6-Trichlorophenol	19	74	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4,5-Trichlorophenol	6100	68000	68	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
1,1-Biphenyl	3100	34000	140	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2-Nitroaniline	39	23000	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Acenaphthylene	NA	300000	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0346 U	0.0692 U	0.0692 U	0.0672 U	0.071 U	0.0674 U	0.0332 U	0.0666 U	0.0333 U	0.0666 U	0.0672 U	0.0666 U
2,6-Dinitrotoluene	0.7	3	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Acenaphthene	3400	37000	110	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
2,4-Dinitrophenol[2]	120	1400	0.3	0.28 U	0.28 U	0.28 UQ	0.27 U	0.28 U	0.27 U	0.027 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
2,4-Dinitrotoluene	0.7	3	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U
Diethylphthalate	49000	550000	88	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Tilcon Mt Hope - DGA	Tilcon Mt Hope - DGA 002	Tilcon Mt Hope - DGA 003	Tilcon Mt Hope - DGA 004	Tilcon Mt Hope - DGA 005	Tilcon Mt Hope - DGA 006 (used for 1.5" Stone also, Sub 173)	Tilcon Mt Hope - 1.5 in Stone 001	Tilcon Mt Hope - 1.5 in Stone 002	Tilcon Mt Hope - 3/8 in Stone 001	Tilcon Mt Hope - 3/8 in Stone 002	Tilcon Pompton Lakes DGA 001	Liberty 1.5" Stone	
				Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Make Corrections	Approved	Approved	Approved as Noted	
Submittal Response Date:				10/29/2013	4/9/2014	5/7/2014	9/25/2014	11/18/2014	9/12/2016	5/7/2014	5/6/2015	5/7/2014	5/6/2015	7/31/2014	7/23/2015	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	34A	46	49	68	77	168 / 173	53	84	54	85	57	107	
Fluorene	2300	24000	170	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	
N-Nitrosodiphenylamine	99	390	0.4	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Hexachlorobenzene	0.3	1	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Atrazine	210	2400	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Pentachlorophenol	3	10	0.3	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Phenanthrene	NA	300000	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Anthracene	17000	30000	2400	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Carbazole	24	96	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Di-n-butyl phthalate	6100	68000	760	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Fluoranthene	2300	24000	1300	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0332 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzidine	0.7	0.7	0.7	0.0692 U	0.0692 U	0.0693 U	0.0673 U	0.0711 U	0.0674 U	0.0664 U	0.0665 U	0.0666 U	0.0666 U	0.0672 U	0.0666 U	
Pyrene	1700	18000	840	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Butyl benzyl phthalate	1200	14000	230	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0889 J	
3,3-Dichlorobenzidine	1	4	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0712 J	
Chrysene	62	230	80	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0782 J	
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0942 J	
Di-n-octyl phthalate	2400	27000	3300	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0337 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzo(k)fluoranthene	6	23	25	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzo(a)pyrene	0.2	0.2	0.2	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Benzo(ghi)perylene	380000	30000	NA	0.0346 U	0.0346 U	0.0346 U	0.0336 U	0.0355 U	0.0017 U	0.0032 U	0.0333 U	0.0333 U	0.0333 U	0.0336 U	0.0333 U	
Dichlorodifluoromethane	490	230000	39	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Chloromethane (Methyl chloride)	4	12	NA	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Vinyl chloride	0.7	2	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Bromomethane (Methyl bromide)	25	59	0.04	0.0012 U	0.00065 U	0.00065 U	0.00063 U	0.00067 U	0.001 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	
Chloroethane (Ethyl chloride)	220	1100	NA	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Trichlorofluoromethane	23000	340000	34	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Tertiary butyl alcohol	1400	11000	0.3	0.0289 U	0.0163 U	0.0162 U	0.0158 UQ	0.0167 U	0.0254 U	0.0156 UQ	0.0156 U	0.0156 UQ	0.0156 U	0.0158 U	0.0156 U	
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Acrolein	0.5	1	0.5	0.0289 U	0.0163 U	0.0162 U	0.0158 UQ	0.0167 U	0.0254 U	0.0156 UQ	0.0156 U	0.0156 UQ	0.0156 U	0.0158 U	0.0156 U	
Acrylonitrile	0.9	3	0.5	0.0029 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0025 U	0.0016 UQ	0.0016 U	0.0016 UQ	0.0016 U	0.0016 U	0.0016 U	
Acetone (2-Propanone)	70000	NA	19	0.0029 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0025 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	
Carbon disulfide	7800	110000	6	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00058 U	0.00033 U	0.00032 U	0.00032 UQ	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Methyl acetate	78000	NA	22	0.0012 U	0.00065 U	0.00065 U	0.00063 U	0.00067 U	0.001 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	
Methylene chloride (Dichloromethane)	34	97	0.01	0.0068	0.00033 U	0.0014 J	0.00032 U	0.0024 J	0.0086	0.0013 JB	0.00031 U	0.0014 JB	0.00031 U	0.00032 U	0.0043	
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,1-Dichloroethane	8	24	0.2	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0087 U	0.0049 U	0.0049 U	0.0047 U	0.005 U	0.0076 U	0.0047 U	0.0047 U	0.0047 U	0.0047 U	0.0047 U	0.0047 U	
Carbon tetrachloride	0.6	2	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Chloroform	0.6	2	0.4	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,1,1-Trichloroethane	290	4200	0.3	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Benzene	2	5	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,2-Dichloroethane	0.9	3	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,2-Dichloropropane	2	5	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
4-Methyl-2-pentanone	NA	NA	NA	NS	NS	NS	NS	NS	0.0025 U	NS	NS	NS	NS	NS	NS	
Toluene	6300	91000	7	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00116 U	0.00066 U	0.00064 U	0.00064 U	0.00066 U	0.00102 U	0.00062 U	0.00062 U	0.00062 U	0.00062 U	0.00064 U	0.00062 U	
1,1,2-Trichloroethane	2	6	0.02	0.0012 U	0.00065 U	0.00065 U	0.00063 U	0.00067 U	0.001 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	0.00063 U	
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Chlorobenzene	510	7400	0.6	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 UQ	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Ethyl benzene	7800	110000	13	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 UQ	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Total Xylenes	12000	170000	19	0.00178 U	0.00098 U	0.00097 U	0.00095 U	0.001 U	0.00151 U	0.00094 U	0.00094 U	0.00094 U	0.00094 U	0.00095 U	0.00094 U	
Styrene	90	260	3	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
Bromoform	81	280	0.03	0.0017 U	0.00098 U	0.00097 U	0.00095 U	0.001 U	0.0015 U	0.00094 U	0.00094 U	0.00094 U	0.00094 U	0.00095 U	0.00094 U	
Isopropylbenzene	NA	NA	NA	NS	NS	NS	NS	NS	0.00051 U	NS	NS	NS	NS	NS	NS	
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00058 U	0.00033 U	0.00032 U	0.00032 U	0.00033 U	0.00051 U	0.00031 U	0.00031 U	0.00031 U	0.00031 U	0.00032 U	0.00031 U	

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Tilcon Mt Hope - DGA**		**Tilcon Mt Hope - DGA 002**		**Tilcon Mt Hope - DGA 003**		**Tilcon Mt Hope - DGA 004**		**Tilcon Mt Hope - DGA 005**		**Tilcon Mt Hope - DGA 006 (used for 1.5" Stone also, Sub 173)**		**Tilcon Mt Hope - 1.5 in Stone 001**		**Tilcon Mt Hope - 1.5 in Stone 002**		**Tilcon Mt Hope - 3/8 in Stone 001**		**Tilcon Mt Hope - 3/8 in Stone 002**		**Tilcon Pompton Lakes DGA 001**		**Liberty 1.5" Stone**	
				Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Make Corrections		Approved		Approved		Approved as Noted	
Submittal Response Date:				10/29/2013		4/9/2014		5/7/2014		9/25/2014		11/18/2014		9/12/2016		5/7/2014		5/6/2015		5/7/2014		5/6/2015		7/31/2014		7/23/2015	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	34A		46		49		68		77		168 / 173		53		84		54		85		57		107	
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00058	U	0.00033	U	0.00032	U	0.00032	U	0.00033	U	0.00051	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00032	U	0.00031	U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	**0.0058**	**U**	0.0033	U	0.0032	U	0.0032	U	0.0033	U	**0.0051**	**U**	0.0031	U	0.0031	U	0.0031	U	0.0031	U	0.0032	U	0.0031	U
1,2,4-Trichlorobenzene	73	820	0.7	0.00058	U	0.00033	U	0.00032	U	0.00032	UQ	0.00033	U	0.00051	U	0.00031	U	0.00031	U	0.00031	U	0.00031	U	0.00032	U	0.00031	U
DICAMBA	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
DICHLORPROP	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
2,4-D	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
2,4,5-TP (Silvex)	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
2,4,5-T	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
2,4-DB	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
DINOSEB	NA	NA	NA	NS		0.0173	U	0.0173	U	0.0168	U	0.0178	U	0.0168	U	0.0166	U	0.0167	U	0.0166	U	0.0166	U	0.0168	U	0.0166	U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.43	U	0.42	U	0.42	U	0.4	U	0.43	U	0.14	U	0.4	U	0.41	U	0.4	U	0.39	U	0.41	U	0.4	U

SPLP Parameter[3]	**SPLP Guidance**	**Units**																					
Arsenic	3	ug/L	NS	*5*	*U*	*5*	*U*	NS	2.5		2.5	U	*5*	*U*	2.5	U	*5*	*U*	2.5	U	NS	2.5	U
Barium	120000	ug/L	NS	191	N	155		NS	644		177		164		276		164		341	N	NS	235	
Beryllium	20	ug/L	NS	NS		1.5	U	NS	0.75	U	0.75	U	1.5	U	0.75	U	1.5	U	0.75	U	NS	0.75	U
Cadmium	80	ug/L	NS	1.5	U	1.5	U	NS	0.75	U	0.75	U	1.5	U	0.75	U	1.5	U	0.75	U	NS	0.75	U
Chromium	--	ug/L	NS	4	J	10.7		NS	3.95	J	1.68	J	1.44	J	1.61	J	2.5	U	1.25	U	NS	5.02	
Lead	100	ug/L	NS	4.42	J	3.22	J	NS	5.07		1.5	U	3	U	1.89	J	3	U	1.5	U	NS	1.5	U
Nickel	2000	ug/L	NS	15	J	7.39	J	NS	5	U	NS		10	U	9.55	J	10	U	5	U	NS	5	U
Selenium	800	ug/L	NS	5	U	5	U	NS	5	U	5	U	5	U	5	U	5	U	5	U	NS	5	U
Silver	800	ug/L	NS	2.5	U	2.5	U	NS	1.25	UN	1.25	U	2.5	U	1.25	U	2.5	U	1.25	U	NS	1.25	U
Aluminum	--	--	NS	NS		NS		NS	NS		NS		NS		NS		NS						
Manganese	--	--	NS	NS		NS		NS	NS		NS		NS		NS		NS						
Mercury	40	ug/L	NS	NS		NS		NS	NS		0.1	U	NS		NS		NS						

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Liberty DGA**		**Nature's Choice (TS-001)**		**Nature's Choice (TS-002)**		**Nature's Choice (TS-004)**		**Nature's Choice (TS-005)**		**EME (TS-002)**		**EME (TS-003)**		**EME (TS-004)**		**Nature's Choice Horizon B (NC-HC-001)**		**Liberty Structural Fill**		**Liberty Structural Fill**	
				Approved as Noted		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Rejected	
Submittal Response Date:				7/23/2015		9/25/2015		5/20/2016		9/26/2016		9/26/2016		11/8/2016		11/8/2016		11/18/2016		9/24/2015		9/25/2015		12/17/2015	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	106		115A		144		171		172		176		177		178		116		117A		123	
Cyanide	1600	23000	20	0.118	U	0.132	U	0.055	J	0.083	J	0.098	J	0.23	U	0.085	J	0.06	J	0.256	U	0.11	U	0.125	U
Aluminum[1]	78000	NA	6000	**6820**		**6450**		**6770**		**7280**		**7610**		3160		2360		1770		**12400**		**6190**		4540	
Antimony	31	450	6	0.53	U	0.596	U	0.668	UN	0.647	UN	0.641	UN	2.3	U	0.647	UN	0.639	UN	0.564	U	0.524	UN*	0.555	U
Arsenic	19	19	19	0.862		3.29		4.04		4.53		4.35		5.4		6.16		5.13		4.94		0.849	N	1.46	
Barium	16000	59000	2100	30.9		36.5		49.5		48.1		47.2		23	U	7.62		6.45		14.9		73.5	N	50.7	
Beryllium	16	140	0.7	0.166	J	0.293		0.443		0.304	J	0.296	J	0.23	U	0.078	U	0.077	UN	0.458		0.294	N	0.249	J
Cadmium	78	78	2	0.439		0.465		0.259	J	0.078	U	0.077	U	0.58	U	0.078	U	0.077	UN	0.403		0.07	J	0.067	U
Cobalt	1600	590	90	8.18		3.07		6.74		6.3		6.12		5.8	U	0.388	U	0.383	U	4.35		7.45		5.43	
Copper	3100	45000	11000	75.3		21.7		13		11.9	N	14.2	N	3.5		0.259	U	2.87		5.94		25.3	N	23.9	
Lead	400	800	90	4.04		27		18		26.8		257		4.3		6.1		4.94		5.27		8.09		11.5	
Manganese[1]	11000	59000	65	**147**		**131**		**262**		**300**		**245**		12.7		5.19		5.35		**92.2**		**117**		**133**	
Mercury	23	65	0.1	0.007	U	0.072		0.071		0.064		0.08		0.038	U	0.012	J	0.015	J	0.032		0.007	U	0.076	
Nickel (soluble salts)	1600	23000	48	9.29		7.15		11.2		11.8		11.5		4.6	U	1.21	J	1.04	J	4.53		16.1		8.29	
Selenium	390	5700	11	0.212	U	0.238	U	0.267	U	3.64		3.49		2.3	U	2.96		1.99		0.226	U	0.21	UN	0.222	U
Silver[1]	390	5700	1	**1.16**		0.674		0.134	UN	0.129	UN	0.128	UN	0.58	U	0.129	UN	0.128	UN	**1.26**		0.105	UN	0.111	UN
Thallium	5	79	3	0.424	U	0.477	U	0.534	U	0.518	U	0.513	U	1.2	U	0.517	U	0.511	U	0.451	U	0.419	U	0.444	U
Vanadium	78	1100	NA	36.7		16		30.6		26.8		26.8		9.1		10.7		8.77		28.8		22.9	N	16.9	
Zinc[1]	23000	110000	930	32.1		60.1		41	N	47.9		46.1		5.8	U	6.69		4.5		8.5		41.1		26.3	
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.02331	U	0.0266	U	0.0378	U	0.0041	U	0.004	U	0.04	U	0.0369	U	0.036	U	0.00245	U	0.0238	U	0.0315	U
Total EPH (mg/kg)	1000	1000	1000	6.29		89.7				78.6		60.1		447		95.3		175		39.2		3.08	U	50.1	
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0013	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0015	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0011	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Heptachlor	0.4	0.7	0.5	0.000329	U	0.000372	U	0.000421	U	0.0011	J	0.0004	U	0.0012	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Aldrin	0.04	0.2	0.2	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0012	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Heptachlor epoxide	0.07	0.3	0.01	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0013	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000658	U	0.000744	U	0.000842	U	0.00082	U	0.0008	U	0.0026	U	0.000822	U	0.000802	U	0.0007	U	0.00076	U	0.000684	U
Dieldrin	0.04	0.2	0.003	0.000329	U	0.000372	U	0.000421	U	0.0012	J	0.0004	U	0.0012	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
4,4'-DDE	2	9	18	0.000329	U	0.0072		0.000421	U	0.0022		0.0021	P	0.0013	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Endrin	23	340	1	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0012	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
4,4'-DDD	3	13	4	0.000329	U	0.000372	U	0.000421	U	0.0019	JP	0.0004	U	0.0016	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Endosulfan sulfate	470	6800	2	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.00099	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
4,4'-DDT	2	8	11	0.000329	U	0.000372	U	0.000421	U	0.002	JP	0.0016	JP	0.0015	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Methoxychlor	390	5700	160	0.000329	U	0.000372	U	0.000421	U	0.00041	U	0.0004	U	0.0012	U	0.000411	U	0.000401	U	0.00035	U	0.00038	U	0.000342	U
Chlordane (alpha and gamma)	0.2	1	0.05	0.000658	U	0.0293	P	0.002555	JP	0.0192		0.0045		0.0011	U	0.000822	U	0.000802	U	0.0007	U	0.00076	U	0.000684	U
Toxaphene	0.6	3	0.3	0.0033	U	0.0038	U	0.0042	U	0.00041	U	0.004	U	0.026	U	0.0041	U	0.004	U	0.0035	U	0.0034	U	0.0035	U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0665	U	0.0751	U	0.0847	U	0.0826	U	0.0807	U			0.083	U	0.0809	U	0.0708	U	0.0685	U	0.069	U
Benzaldehyde	6100	68000	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.0113	J	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Phenol	18000	210000	8	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.02	U	0.0415	U	0.11	J	0.0354	U	0.0342	U	0.0345	U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.016	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Bis(2-chloroisopropyl)ether	23	67	5	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.014	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.019	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.024	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U			0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Acetophenone	2	5	3	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.0158	J	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
4-Methylphenol (p-Creosol)	31	340	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U			0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.011	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Hexachloroethane	35	140	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.019	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Nitrobenzene	31	340	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.015	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Isophorone	510	2000	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.0081	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2,4-Dimethylphenol	1200	14000	1	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.068	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2,4-Dichlorophenol	180	2100	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.032	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Naphthalene	6	17	25	0.0332	U	0.0376	U	0.0017	J	0.0029	J	0.0016	J	0.011	U	0.0021	U	0.002	U	0.0354	U	0.0342	U	0.0345	U
Hexachloro-1,3,butadiene	6	25	0.9	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.015	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Caprolactam	31000	340000	12	0.0665	U	0.0751	U	0.0847	U	0.0826	U	0.0807	U	0.015	U	0.083	U	0.0809	U	0.0708	U	0.0685	U	0.069	U
2-Methylnaphthalene	230	2400	8	0.0332	U	0.0376	U	0.0021	J	0.0025	J	0.0012	J	0.0086	U	0.0021	U	0.002	U	0.0354	U	0.0342	U	0.0345	U
Hexachlorocyclopentadiene	45	110	320	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.015	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2,4,6-Trichlorophenol	19	74	0.2	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.023	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2,4,5-Trichlorophenol	6100	68000	68	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.028	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
1,1-Biphenyl	3100	34000	140	0.0332	U	0.0375	U	0.0424	U	0.0413	U	0.0403	U	0.0052	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
2-Nitroaniline	39	23000	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.009	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Acenaphthylene	NA	300000	NA	0.0332	U	0.0376	U	0.0055		0.0227		0.0154		0.019	U	0.0021	U	0.002	U	0.0354	U	0.0342	U	0.0345	U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0664	U	0.0752	U	0.0848	U	0.0826	U	0.0807	U	0.031	U	0.083	U	0.0808	U	0.0708	U	0.0684	U	0.069	U
2,6-Dinitrotoluene	0.7	3	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.019	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Acenaphthene	3400	37000	110	0.0332	U	0.0376	U	0.0038	J	0.0045		0.0028	J	0.13	U	0.0021	U	0.002	U	0.0354	U	0.0342	U	0.0345	U
2,4-Dinitrophenol[2]	120	1400	0.3	0.27	U	0.3	U	**0.34**	**U**	**0.33**	**U**	**0.32**	**U**	0.14	U	**0.33**	**U**	**0.32**	**U**	0.28	U	0.27	U	0.028	U
2,4-Dinitrotoluene	0.7	3	NA	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.012	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U
Diethylphthalate	49000	550000	88	0.0332	U	0.0376	U	0.0424	U	0.0413	U	0.0403	U	0.0081	U	0.0415	U	0.0404	U	0.0354	U	0.0342	U	0.0345	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6
Honeywell International Inc.
Jersey City, New Jersey

	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	Liberty DGA	Nature's Choice (TS-001)	Nature's Choice (TS-002)	Nature's Choice (TS-004)	Nature's Choice (TS-005)	EME (TS-002)	EME (TS-003)	EME (TS-004)	Nature's Choice Horizon B (NC-HC-001)	Liberty Structural Fill	Liberty Structural Fill
Approval Status:				Approved as Noted	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Rejected
Submittal Response Date:				7/23/2015	9/25/2015	5/20/2016	9/26/2016	9/26/2016	11/8/2016	11/8/2016	11/18/2016	9/24/2015	9/25/2015	12/17/2015
Submittal Number:				106	115A	144	171	172	176	177	178	116	117A	123
Fluorene	2300	24000	170	0.0332 U	0.0376 U	0.0064	0.0062	0.0036 J	0.017 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.0345 U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.17 U	0.19 UQ	0.21 U	0.21 U	0.2 U	0.041 U	0.21 U	0.2 U	0.18 UQ	0.17 U	0.17 U
N-Nitrosodiphenylamine	99	390	0.4	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.014 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U		0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Hexachlorobenzene	0.3	1	0.2	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0096 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Atrazine	210	2400	0.2	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.016 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Pentachlorophenol	3	10	0.3	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.036 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Phenanthrene	NA	300000	NA	0.0332 U	0.0376 U	0.0434	0.0422	0.0324	0.013 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.5
Anthracene	17000	30000	2400	0.0332 U	0.0376 U	0.0183	0.0244	0.0166	0.023 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.14 J
Carbazole	24	96	NA	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0055 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Di-n-butyl phthalate	6100	68000	760	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0062 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Fluoranthene	2300	24000	1300	0.0332 U	0.17 J	0.13	0.15	0.0967	0.017 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.65
Benzidine	0.7	0.7	0.7	0.0665 U	0.0751 U	0.0847 U	0.0826 U	0.0807 U		0.083 U	0.0809 U	0.0708 U	0.0685 U	0.069 U
Pyrene	1700	18000	840	0.0332 U	0.16 J	0.12	0.15	0.11	0.012 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.58
Butyl benzyl phthalate	1200	14000	230	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0093 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
3,3-Dichlorobenzidine	1	4	0.2	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.032 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0332 U	0.0971 J	0.0808	0.0843	0.0756	0.011 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.37
Chrysene	62	230	80	0.0332 U	0.13 J	0.0544	0.11	0.0554	0.012 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.33 J
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0332 J	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0089 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Di-n-octyl phthalate	2400	27000	3300	0.0332 U	0.0376 U	0.0424 U	0.0413 U	0.0403 U	0.0095 U	0.0415 U	0.0404 U	0.0354 U	0.0342 U	0.0345 U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0332 U	0.18 J	0.12	0.15	0.0853	0.017 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.45
Benzo(k)fluoranthene	6	23	25	0.0332 U	0.0376 U	0.0285	0.0426	0.0283	0.018 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.13 J
Benzo(a)pyrene	0.2	0.2	0.2	0.0332 U	0.12 J	0.0766	0.093	0.0542	0.017 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	**0.33 J**
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0332 U	0.0782 J	0.0451	0.0546	0.0315	0.018 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.14 J
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0332 U	0.0376 U	0.014	0.0169	0.0093	0.017 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.0345 U
Benzo(ghi)perylene	380000	30000	NA	0.0332 U	0.11 J	0.057	0.0703	0.0384	0.019 U	0.0021 U	0.002 U	0.0354 U	0.0342 U	0.18 J
Dichlorodifluoromethane	490	230000	39	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.0011 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Chloromethane (Methyl chloride)	4	12	NA	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00041 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Vinyl chloride	0.7	2	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 UQ	0.00038 UQ	0.00039 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Bromomethane (Methyl bromide)	25	59	0.04	0.00063 U	0.00071 U	0.0008 U	0.00078 U	0.00076 U	0.00093 U	0.00078 U	0.00076 U	0.00067 U	0.00064 U	0.00065 U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00083 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Trichlorofluoromethane	23000	340000	34	0.00031 U	0.00035 UQ	0.0004 U	0.00039 U	0.00038 U	0.0012 U	0.00039 U	0.00038 U	0.00033 UQ	0.00032 U	0.00032 U
Tertiary butyl alcohol	1400	11000	0.3	0.0156 U	0.0177 U	0.02 U	0.0194 U	0.019 U		0.0195 U	0.019 U	0.0166 U	0.0161 U	0.0162 U
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00029 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Acrolein	0.5	1	0.5	0.0156 U	0.0177 U	0.02 U	0.0194 U	0.019 U		0.0195 U	0.019 U	0.0166 U	0.0161 U	0.0162 U
Acrylonitrile	0.9	3	0.5	0.0016 U	0.0018 UQ	0.002 U	0.0019 U	0.0019 U		0.0019 U	0.0019 U	0.0017 UQ	0.0016 U	0.0016 U
Acetone (2-Propanone)	70000	NA	19	0.0016 U	0.0018 U	0.002 U	0.0019 UQ	0.0019 UQ	0.0096 U	0.0019 U	0.0019 U	0.0017 U	0.0016 U	0.0016 U
Carbon disulfide	7800	110000	6	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00033 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00051 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Methyl acetate	78000	NA	22	0.00063 U	0.00071 U	0.0008 U	0.00078 UQ	0.00076 UQ	0.0039 U	0.00078 U	0.00076 U	0.00067 U	0.00064 U	0.00065 U
Methylene chloride (Dichloromethane)	34	97	0.01	0.0057	0.00035 UQ	0.0029 J	0.00039 U	0.00038 U	0.0019 U	0.0036 J	0.00038 U	0.00033 UQ	0.00032 U	0.0032
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.0003 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,1-Dichloroethane	8	24	0.2	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00036 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0047 U	0.0053 U	0.006 U	0.0058 U	0.0057 U	0.0034 U	0.0058 U	0.0057 U	0.005 U	0.0048 U	0.0049 U
Carbon tetrachloride	0.6	2	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00032 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00084 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Chloroform	0.6	2	0.4	0.00031 U	0.00035 U	0.0004 U	0.00039 UQ	0.00038 UQ	0.00046 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,1,1-Trichloroethane	290	4200	0.3	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00032 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Benzene	2	5	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00023 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,2-Dichloroethane	0.9	3	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00033 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00037 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,2-Dichloropropane	2	5	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.0006 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 UQ	0.00029 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
4-Methyl-2-pentanone	NA	NA	NA	NS	NS	0.002 U	0.0019 U	0.0019 U	0.0016 U	0.0019 U	0.0019 U	NS	NS	NS
Toluene	6300	91000	7	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00024 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00062 U	0.0007 U	0.0008 U	0.00039 U	0.00038 U	0.00081 U	0.00078 U	0.00076 U	0.00066 U	0.00064 U	0.00064 U
1,1,2-Trichloroethane	2	6	0.02	0.00063 U	0.00071 U	0.0008 U	0.00078 UQ	0.00076 UQ	0.00062 U	0.00078 U	0.00076 U	0.00067 U	0.00064 U	0.00065 U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 UQ	0.00038 UQ	0.00029 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 UQ	0.00038 UQ	0.00047 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00054 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Chlorobenzene	510	7400	0.6	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00031 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Ethyl benzene	7800	110000	13	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00029 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Total Xylenes	12000	170000	19	0.00094 U	0.00106 U	0.0012 U	0.00117 U	0.00114 U	0.00039 U	0.00117 U	0.00114 U	0.001 U	0.00096 U	0.00097 U
Styrene	90	260	3	0.00031 U	0.00035 U	0.0004 U	0.00039 UQ	0.00038 UQ	0.00028 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
Bromoform	81	280	0.03	0.00094 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.00051 U	0.0012 U	0.0011 U	0.001 U	0.00096 U	0.00097 U
Isopropylbenzene	NA	NA	NA	NS	NS	0.0004 U	0.00039 U	0.00038 U	0.0003 U	0.00039 U	0.00038 U	NS	NS	NS
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00031 U	0.00035 UQ	0.0004 U	0.00039 U	0.00038 U	0.00046 U	0.00039 U	0.00038 U	0.00033 UQ	0.00032 U	0.00032 U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00026 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00031 U	0.00035 U	0.0004 U	0.00039 U	0.00038 U	0.00029 U	0.00039 U	0.00038 U	0.00033 U	0.00032 U	0.00032 U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6
Honeywell International Inc.
Jersey City, New Jersey

				Liberty DGA		Nature's Choice (TS-001)		Nature's Choice (TS-002)		Nature's Choice (TS-004)		Nature's Choice (TS-005)		EME (TS-002)		EME (TS-003)		EME (TS-004)		Nature's Choice Horizon B (NC-HC-001)		Liberty Structural Fill		Liberty Structural Fill	
Approval Status:				Approved as Noted		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Rejected	
Submittal Response Date:				7/23/2015		9/25/2015		5/20/2016		9/26/2016		9/26/2016		11/8/2016		11/8/2016		11/18/2016		9/24/2015		9/25/2015		12/17/2015	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	106		115A		144		171		172		176		177		178		116		117A		123	
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00031	U	0.00035	U	0.0004	U	0.00039	U	0.00038	U	0.00033	U	0.00039	U	0.00038	U	0.00033	U	0.00032	U	0.00032	U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0031	U	0.0035	U	0.004	U	0.0039	U	0.0038	U	0.00093	U	0.0039	U	0.0038	U	0.0033	U	0.0032	U	0.0032	U
1,2,4-Trichlorobenzene	73	820	0.7	0.00031	U	0.00035	U	0.0004	U	0.00039	U	0.00038	U	0.00035	U	0.00039	U	0.00038	U	0.00033	U	0.00032	U	0.00032	U
DICAMBA	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.0038	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
DICHLORPROP	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.011	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
2,4-D	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.017	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
2,4,5-TP (Silvex)	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.0027	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
2,4,5-T	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.0029	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
2,4-DB	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.012	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
DINOSEB	NA	NA	NA	0.0166	U	0.0188	U	0.0212	U	0.0207	U	0.0202	U	0.025	U	0.0207	U	0.0203	U	0.0177	U	0.0171	U	0.0173	U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.41	U	0.16	J	0.24	J	0.17	U	0.17	U	0.46	U	0.17	U	0.3	J	0.64		0.14	U	0.23	J

SPLP Parameter[3]	**SPLP Guidance**	**Units**																	
Arsenic	3	ug/L	2.5	U	*10.8*		*6.11*	*U*	*4.51*	*J*	*3.66*	*J*	NS		2.5	U	2.5	U	2.5	U	2.5	U	*14.2*	
Barium	120000	ug/L	273		396		293		259		316		NS		246		211		150		228		398	N
Beryllium	20	ug/L	0.75	U	0.75	U	NS		0.75	U	0.75	U	NS		0.75	U	0.75	U	0.75	U	0.75	U	1.32	J
Cadmium	80	ug/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	NS		0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
Chromium	--	ug/L	3.17	J	18.2		28.5		6.37		9.57	J	NS		13.2		13.9		1.24	J	1.25	U	31.2	
Lead	100	ug/L	1.5	J	40		13.2		6.46		18.4		NS		1.5	U	1.5	U	1.59	J	1.5	U	*139*	
Nickel	2000	ug/L	5	U	8.68	J	NS		NS		NS		NS		NS		NS		5	U	5	U	30.8	
Selenium	800	ug/L	5	U	5	U	5.15	J	5	U	5	U	NS		5	U	5	U	5	U	8.3	J	9.01	J
Silver	800	ug/L	1.25	U	1.37	J	1.25	U	1.25	U	1.25	U	NS		1.25	U	1.25	U	1.25	U	1.25	U	1.25	U
Aluminum	--	--			NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
Manganese	--	--			NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
Mercury	40	ug/L			NS		0.138	J	0.1	U	0.1	U	NS		0.1	U	0.1	U	NS		NS		NS	

Legend

Bold - >IGW
Underline - >NRDCSRS
Highlight - >RDCSRS
Italics - > SPLP
NA = Not Available
NS = Not Sampled
U = Not Detected
D = Dilution
Q = indicates LCS control criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits
N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6
Honeywell International Inc.
Jersey City, New Jersey

	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	Tilcon Mt Hope Structural Fill	Tilcon Mt Hope Structural Fill 002	Tilcon Mt Hope Structural Fill 003	Tilcon Mt Hope Structural Fill 004	Tilcon Mt Hope Structural Fill 005	Tilcon Mt Hope Structural Fill 006	Tilcon Mt Hope 3/4 Stone	Tilcon Mt Hope 3/4 Stone 002 (#57 Stone)	Tilcon Mt Hope 3/4 Stone 003	Nature's Choice Horizon A (NC-TS-003)	Horizon B - Cedar Hill (Cedar-001-HORC)
Approval Status:				Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved
Submittal Response Date:				3/1/2016	4/26/2016	5/17/2016	7/29/2016	7/29/2016	9/26/2016	3/29/2016	8/8/2016	9/12/2016	9/15/2016	4/26/2016
Submittal Number:				128	137	143	161	162	170	131	163	169	167	136
Cyanide	1600	23000	20	0.067 J	0.253 U	0.066 J	0.096 J	0.125 U	0.127 U	0.055 J	0.121 U	0.037 J	0.065 J	0.26 U
Aluminum[1]	78000	NA	6000	1500	**6390**	1650	2250	2220	1760	1790 *	536	1060	**6970**	**6130**
Antimony	31	450	6	0.482 U	0.921 J	0.537 UN	0.538	0.541 UN	0.527 UN	0.545 UN	0.508 UN	0.535 UN	0.672 UN	2 U
Arsenic	19	19	19	0.978	3.37	0.945 N	1.04	1.09	1.02	1.82	0.612 J	0.536 J	4.51	2 U
Barium	16000	59000	2100	6.16	99.9	6.93	15.8	14.4	8.92	12.3 *	1.39 J	1.05 J	51.1	44.1
Beryllium	16	140	0.7	0.133 J	0.277	0.182 J	0.071 J	0.071 J	0.135 J	0.246 J	0.061 U	0.064 U	0.287 J	0.24
Cadmium	78	78	2	0.052 U	1.38	0.064 U	0.084 J	0.105 J	0.063 U	0.065	0.061 U	0.064 U	0.081 U	0.49 U
Cobalt	1600	590	90	2.22	2.57	3.29	3.6	5.33	2.95	4.72	0.949 J	1.16 J	6.19	5.3
Copper	3100	45000	11000	1.77	2480 D	6.1	4.76	9.45	7.34	0.707 JN	0.789 J	2.53 J	25.5	10.1
Lead	400	800	90	0.78	**183**	1.33	1.15	1.5	4.93	2.41	0.691	1.5	28.5	13.8
Manganese[1]	11000	59000	65	1.26 N	**77.9**	50.1	**77.4**	**96.3**	**65.5**	62.5	21.4	44.9	**262**	**280**
Mercury	23	65	0.1	0.012 J	0.007 U	0.007 U	0.007 U	0.007 U	0.0007 U	0.006 U	0.007 U	0.007 U	**0.11**	0.032 U
Nickel (soluble salts)	1600	23000	48	1.26 J	11.7	2.79 N	3.93	5.7	2.35	3.31	0.406 U	0.428 U	11.3	13.5
Selenium	390	5700	11	0.411 J	0.213 U	0.215 UN	2.49	2.86	3.2	0.218 U	0.537 J	1.5	4.44	2
Silver[1]	390	5700	1	0.108 U	0.999	0.557 N	0.108 U	0.108 U	0.105 UN	0.856 N*	0.102 U	0.107 UN	0.134 UN	0.49
Thallium	5	79	3	0.232 U	0.426 U	0.43 U	0.43 U	0.433 U	0.422 U	0.436 U	0.406 U	0.428 U	0.538 U	0.98
Vanadium	78	1100	NA	2.56	15.4	5.07	7.19	14.7	3.17	3.68 N	1.43 J	0.718 J	30	21.1
Zinc[1]	23000	110000	930	12.7	288	9.4	12.5	14.4	23.4	23.4	3.83	7.44	46.4	26.3
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0306 U	0.0306 U	0.0315 U	0.0306 U	0.0315 U	0.0306 U	0.0297 U	0.0297 U	0.0297 U	0.0396 U	0.0324 U
Total EPH (mg/kg)	1000	1000	1000	3.11 U	3.02 U	11.2	3.09 U	3.13 U	3.065 U	5.17 J	3 U	3.01 U	137	7.1 U
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Heptachlor	0.4	0.7	0.5	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Aldrin	0.04	0.2	0.2	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Heptachlor epoxide	0.07	0.3	0.01	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000684 U	0.000666 U	0.000684 U	0.000678 U	0.00069 U	0.000674 U	0.00066 U	0.00066 U	0.00066 U	0.000864 U	0.00144 U
Dieldrin	0.04	0.2	0.003	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
4,4'-DDE	2	9	18	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Endrin	23	340	1	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
4,4'-DDD	3	13	4	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Endosulfan sulfate	470	6800	2	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
4,4'-DDT	2	8	11	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.00072 U
Methoxychlor	390	5700	160	0.000342 U	0.000333 U	0.000342 U	0.000339 U	0.000345 U	0.000337 U	0.00033 U	0.00033 U	0.00033 U	0.000432 U	0.0014 U
Chlordane (alpha and gamma)	0.2	1	0.05	0.000684 U	0.000666 U	0.000684 U	0.000678 U	0.00069 U	0.000674 U	0.00066 U	0.00066 U	0.00066 U	0.0066 P	0.00072 U
Toxaphene	0.6	3	0.3	0.0034 U	0.0034 U	0.0035 U	0.0034 U	0.0035 U	0.0034 U	0.0033 U	0.0034 U	0.0033 U	0.0044 U	0.018 U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0691 U	0.0671 U	0.0691 U	0.0687 U	0.0697 U	0.0682 U	0.0668 U	0.0666 U	0.067 U	0.0874 U	
Benzaldehyde	6100	68000	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
Phenol	18000	210000	8	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Bis(2-chloroisopropyl)ether	23	67	5	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	
Acetophenone	2	5	3	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
4-Methylphenol (p-Creosol)	31	340	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Hexachloroethane	35	140	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
Nitrobenzene	31	340	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Isophorone	510	2000	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
2,4-Dimethylphenol	1200	14000	1	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
2,4-Dichlorophenol	180	2100	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
Naphthalene	6	17	25	0.0345 U	0.0017 U	0.0017 U	0.0024 J	0.0017 U	0.0017 U	0.00067 J	0.0017 U	0.0335 U	0.0048	0.036 U
Hexachloro-1,3,butadiene	6	25	0.9	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.00067 U	0.0333 U	0.0335 U	0.0437 U	0.036 U
Caprolactam	31000	340000	12	0.0691 U	0.0671 U	0.0691 U	0.0687 U	0.0697 U	0.0682 U	0.0668 U	0.0666 U	0.067 U	0.0874 U	0.072 U
2-Methylnaphthalene	230	2400	8	0.0345 U	0.0017 U	0.0017 U	0.00069 J	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0335 U	0.0031 J	0.072 U
Hexachlorocyclopentadiene	45	110	320	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.36 U
2,4,6-Trichlorophenol	19	74	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
2,4,5-Trichlorophenol	6100	68000	68	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
1,1-Biphenyl	3100	34000	140	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
2-Nitroaniline	39	23000	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
Acenaphthylene	NA	300000	NA	0.0345 U	0.0017 U	0.0017 U	0.0017 U	0.0024 U	0.0017 U	0.0017 U	0.0017 U	0.0335 U	0.0131	0.036 U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.069 U	0.067 U	0.069 U	0.0686 U	0.0696 U	0.0682 U	0.0668 U	0.0666 U	0.034 U	0.0874 U	0.072 U
2,6-Dinitrotoluene	0.7	3	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.036 U
Acenaphthene	3400	37000	110	0.0345 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.00067 J	0.0017 U	0.0335 U	0.0044	0.036 U
2,4-Dinitrophenol[2]	120	1400	0.3	0.28 U	0.27 U	0.28 U	0.27 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27	**0.35 U**	0.18 U
2,4-Dinitrotoluene	0.7	3	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.036 U
Diethylphthalate	49000	550000	88	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6
Honeywell International Inc.
Jersey City, New Jersey

	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	Tilcon Mt Hope Structural Fill	Tilcon Mt Hope Structural Fill 002	Tilcon Mt Hope Structural Fill 003	Tilcon Mt Hope Structural Fill 004	Tilcon Mt Hope Structural Fill 005	Tilcon Mt Hope Structural Fill 006	Tilcon Mt Hope 3/4 Stone	Tilcon Mt Hope 3/4 Stone 002 (#57 Stone)	Tilcon Mt Hope 3/4 Stone 003	Nature's Choice Horizon A (NC-TS-003)	Horizon B - Cedar Hill (Cedar-001-HORC)
Approval Status:				Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved
Submittal Response Date:				3/1/2016	4/26/2016	5/17/2016	7/29/2016	7/29/2016	9/26/2016	3/29/2016	8/8/2016	9/12/2016	9/15/2016	4/26/2016
Submittal Number:				128	137	143	161	162	170	131	163	169	167	136
Fluorene	2300	24000	170	0.0345 U	0.0017 U	0.0017 U	0.0058	0.0035	0.0017 UQ	0.00067 J	0.0017 U	0.0335 U	0.0057	0.036 U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17	0.22 U	0.18 U
N-Nitrosodiphenylamine	99	390	0.4	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.18 U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	
Hexachlorobenzene	0.3	1	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Atrazine	210	2400	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Pentachlorophenol	3	10	0.3	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.0077
Phenanthrene	NA	300000	NA	0.0345 U	0.0013 J	0.0017 U	0.0452	0.0181	0.0017 U	0.0107	0.0017 U	0.0335 U	0.0537	0.036 U
Anthracene	17000	30000	2400	0.0345 U	0.0017 U	0.0017 U	0.014	0.0042	0.0017 U	0.002 J	0.0017 U	0.0335 U	0.0188	0.036 U
Carbazole	24	96	NA	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Di-n-butyl phthalate	6100	68000	760	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Fluoranthene	2300	24000	1300	0.0345 U	0.001 J	0.0017 U	0.0613	0.016	0.0017 U	0.023	0.0017 U	0.0335 U	0.12	0.036 U
Benzidine	0.7	0.7	0.7	0.0691 U	0.0671 U	0.0691 U	0.0687 U	0.0697 U	0.0682 U	0.0668 U	0.0666 U	0.067	0.0874 U	
Pyrene	1700	18000	840	0.0345 U	0.0013 J	0.001 J	0.0723	0.023	0.0017 U	0.0147	0.0017 U	0.0335 U	0.13	0.036 U
Butyl benzyl phthalate	1200	14000	230	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
3,3-Dichlorobenzidine	1	4	0.2	0.0345 U	0.0335 U	0.0345 U	0.0343 U	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0345 U	0.0017 U	0.0017 U	0.0473	0.0119	0.0017 UQ	0.0073	0.0017 U	0.0335 U	0.0903	0.036 U
Chrysene	62	230	80	0.0345 U	0.0017 U	0.0017 U	0.0257	0.0052	0.0017 U	0.008	0.0017 U	0.0335 U	0.0676	0.036 U
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0345 U	0.0335 U	0.0345 U	0.0783 J	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.14 J	0.072 U
Di-n-octyl phthalate	2400	27000	3300	0.0345 U	0.0335 U	0.0345 U	0.18 J	0.0348 U	0.0341 U	0.0334 U	0.0333 U	0.0335 U	0.0437 U	0.072 U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0345 U	0.0017 U	0.0017 U	0.0322	0.0063	0.0017 U	0.0097	0.0017 U	0.0335 UQ	0.13	0.036 U
Benzo(k)fluoranthene	6	23	25	0.0345 U	0.0017 U	0.0017 U	0.0134	0.0028 J	0.0017 U	0.0043	0.0017 U	0.0335 U	0.038	0.036 U
Benzo(a)pyrene	0.2	0.2	0.2	0.0345 U	0.0017 U	0.0017 U	0.026	0.0052	0.0017 U	0.0053	0.0017 U	0.0335 U	0.0864	0.036 U
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0345 U	0.0017 U	0.0017 U	0.0175	0.0035	0.0017 U	0.003 J	0.0017 U	0.0335 U	0.0511	0.036 U
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0345 U	0.0017 U	0.0017 U	0.0038	0.0017 U	0.0017 U	0.001 J	0.0017 U	0.0335 U	0.0188	0.036 U
Benzo(ghi)perylene	380000	30000	NA	0.0345 U	0.0017 U	0.0017 U	0.0178	0.0031 J	0.0017 U	0.0037	0.0017 U	0.0335 U	0.0724	0.036 U
Dichlorodifluoromethane	490	230000	39	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0062 U
Chloromethane (Methyl chloride)	4	12	NA	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0062 U
Vinyl chloride	0.7	2	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Bromomethane (Methyl bromide)	25	59	0.04	0.00065 U	0.00063 U	0.00065 U	0.00065 U	0.00065 U	0.00064 U	0.001 U	0.00063 U	0.001 U	0.00082 U	0.0062 U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0062 U
Trichlorofluoromethane	23000	340000	34	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0062 U
Tertiary butyl alcohol	1400	11000	0.3	0.0162 U	0.0158 U	0.0162 U	0.0161 U	0.0164 U	0.016 U	0.025 U	0.0157 U	0.0253 U	0.0205 U	
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
Acrolein	0.5	1	0.5	0.0162 U	0.0158 U	0.0162 U	0.0161 U	0.0164 U	0.016 U	0.025 U	0.0157 U	0.0253 U	0.0205 U	
Acrylonitrile	0.9	3	0.5	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0025 U	0.0016 U	0.0025 U	0.0021 U	
Acetone (2-Propanone)	70000	NA	19	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0025 U	0.0016 U	0.0025 U	0.0021 U	0.012 U
Carbon disulfide	7800	110000	6	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
Methyl acetate	78000	NA	22	0.00065 U	0.00063 U	0.00065 U	0.00065 U	0.00065 U	0.00064 U	0.001 U	0.00063 U	0.001 U	0.00082 U	0.0062 U
Methylene chloride (Dichloromethane)	34	97	0.01	0.00073 J	0.00032 U	0.00032 U	0.00032 UQ	0.00033 UQ	0.00032 U	0.0051 U	0.00031 UQ	0.0054 U	0.00041 U	0.0062 U
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
1,1-Dichloroethane	8	24	0.2	0.00032 U	0.00032 UQ	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0049 U	0.0047 U	0.0049 U	0.0048 U	0.0049 U	0.0048 U	0.0075 U	0.0047 U	0.0076 U	0.0062 U	0.012 U
Carbon tetrachloride	0.6	2	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
Chloroform	0.6	2	0.4	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
1,1,1-Trichloroethane	290	4200	0.3	0.00032 U	0.00032 U	0.00032 U	0.00032 UQ	0.00033 UQ	0.00032 U	0.0005 U	0.00031 UQ	0.00051 U	0.00041 U	0.0025 U
Benzene	2	5	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.00062 U
1,2-Dichloroethane	0.9	3	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
1,2-Dichloropropane	2	5	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
4-Methyl-2-pentanone	NA	NA	NA	NS	0.0016	0.0016 U	0.0016 U	0.0016 U	0.0016 U	NS	0.0016 U	0.0025 U	0.0021 U	0.0062 U
Toluene	6300	91000	7	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00064 U	0.00064 U	0.00064 U	0.00064 U	0.00066 U	0.00064 U	0.001 U	0.00062 U	0.00102 U	0.00082 U	0.005 U
1,1,2-Trichloroethane	2	6	0.02	0.00065 U	0.00063 U	0.00065 U	0.00065 U	0.00065 U	0.00064 UQ	0.001 U	0.00063 U	0.001 U	0.00082 U	0.0025 U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Chlorobenzene	510	7400	0.6	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Ethyl benzene	7800	110000	13	0.00032 U	0.00032 U	0.00032 U	0.00032 UQ	0.00033 UQ	0.00032 U	0.0005 U	0.00031 UQ	0.00051 U	0.00041 U	0.0012 U
Total Xylenes	12000	170000	19	0.00097 U	0.00095 U	0.00097 U	0.00097 U	0.00098 U	0.00096 U	0.0015 U	0.00094 U	0.00151 U	0.00123 U	0.0012 U
Styrene	90	260	3	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
Bromoform	81	280	0.03	0.00097 U	0.00095 U	0.00097 U	0.00097 U	0.00098 U	0.00096 U	0.0015 U	0.00094 U	0.0015 U	0.0012 U	0.0062 U
Isopropylbenzene	NA	NA	NA	NS	0.00032 U	0.00032 U	0.00032 UQ	0.00033 UQ	0.00032 U	NS	0.00031 UQ	0.00051 U	0.00041 U	0.0025 U
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0025 U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Tilcon Mt Hope Structural Fill** Approved	**Tilcon Mt Hope Structural Fill 002** Approved	**Tilcon Mt Hope Structural Fill 003** Approved	**Tilcon Mt Hope Structural Fill 004** Approved	**Tilcon Mt Hope Structural Fill 005** Approved	**Tilcon Mt Hope Structural Fill 006** Approved	**Tilcon Mt Hope 3/4 Stone** Approved	**Tilcon Mt Hope 3/4 Stone 002 (#57 Stone)** Approved	**Tilcon Mt Hope 3/4 Stone 003** Approved	**Nature's Choice Horizon A (NC-TS-003)** Approved	**Horizon B - Cedar Hill (Cedar-001-HORC)** Approved
Submittal Response Date:				3/1/2016	4/26/2016	5/17/2016	7/29/2016	7/29/2016	9/26/2016	3/29/2016	8/8/2016	9/12/2016	9/15/2016	4/26/2016
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	128	137	143	161	162	170	131	163	169	167	136
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 UQ	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0012 U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0033 U	0.0032 U	0.005 U	0.0031 U	**0.0051 U**	0.0041 U	0.0025 U
1,2,4-Trichlorobenzene	73	820	0.7	0.00032 U	0.00032 U	0.00032 U	0.00032 U	0.00033 U	0.00032 U	0.0005 U	0.00031 U	0.00051 U	0.00041 U	0.0062 U
DICAMBA	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.0036 U
DICHLORPROP	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.018 U
2,4-D	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.018 U
2,4,5-TP (Silvex)	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.0036 U
2,4,5-T	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.0036 U
2,4-DB	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.018 U
DINOSEB	NA	NA	NA	0.0172 U	0.0168 U	0.0173 U	0.0172 U	0.0174 U	0.0171 U	0.0167 U	0.0167 U	0.0168 U	0.0218 U	0.018 U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.96	0.17 U	0.44 J	0.42 U	0.42 U	0.23 J	0.14 U	0.15 J	0.13 U	0.22 U	0.44 U

SPLP Parameter[3]	**SPLP Guidance**	**Units**											
Arsenic	3	ug/L	2.5 U	2.5 U	2.5 U	NS	NS	NS	NS	NS	2.5 U	2.5 U	NS
Barium	120000	ug/L	190	205	167	NS	NS	NS	NS	NS	227	179 N	NS
Beryllium	20	ug/L	0.7 U			NS	NS	NS	NS	NS	0.75 U	0.75 U	NS
Cadmium	80	ug/L	0.5 U	0.75 U	0.75 U	NS	NS	NS	NS	NS	0.75 U	0.75 U	NS
Chromium	--	ug/L	4.08 J	212 N	2.24 J	NS	NS	NS	NS	NS	1.25 U	7.27	NS
Lead	100	ug/L	1.5 U	1.55 J	1.5 U	NS	NS	NS	NS	NS	1.5 U	4.52 J	NS
Nickel	2000	ug/L	4.2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	800	ug/L	4.8 U	5 U	5 U	NS	NS	NS	NS	NS	5 U	5 U	NS
Silver	800	ug/L	1.25 U	1.25 U	1.25 U	NS	NS	NS	NS	NS	1.25 U	1.25 U	NS
Aluminum	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	40	ug/L	NS	0.1 U	0.1 U	NS	NS	NS	NS	NS	0.1 U	0.1 U	NS

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Horizon B - Cedar Hill (TF-PS-001)**		**Horizon B - Cedar Hill (TF-PS-002)**		**Horizon B - Cedar Hill (TF-PS-003)**		**Horizon C Nature's Choice (NC-HC-001)**		**Horizon C Nature's Choice (NC-003)**		**Horizon C Nature's Choice (NCHC-008)**		**Horizon C Nature's Choice (NCHC-009)**		**Horizon C Nature's Choice (NCHC-010)**		**Horizon C Nature's Choice (NCHC-011)**		**Horizon C Nature's Choice (NC-023)**		**Horizon C Nature's Choice (NC-024)**		**Horizon C Nature's Choice (NC-HC-007)**	
				Rejected		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved	
Submittal Response Date:				5/4/2016		5/16/2016		5/16/2016		10/28/2015		11/30/2015		7/14/2016		7/15/2016		7/15/2016		7/15/2016		4/22/2016		4/22/2016		5/9/2016	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	138		141		142		118A		121		157		158		159		160		135		135		140	
Cyanide	1600	23000	20	0.13	U	0.051	J	0.135	U	0.256	U	0.126	U	0.136	U	0.129	U	0.135	U	0.038	J	0.27	U	0.24	U	0.042	J
Aluminum[1]	78000	NA	6000	411		1490		947		**12400**		**12400**		**11700**		**12100**		**9840**		**12400**		**18800**		**24000**		**14100**	
Antimony	31	450	6	0.548	UN	0.566	UN	0.566	UN	0.564	U	0.562	UN	0.555	U	0.562	U	0.566	U	0.559	U	2	U	2.2	U	0.575	UN
Arsenic	19	19	19	0.219	U	0.71	J	0.688	J	4.94		6.14		6.58		5.3		5.1		5.83		5.4		5.4		5.51	N
Barium	16000	59000	2100	0.687	J	2.63	J	2.53	J	14.9		35.1		17.6		30.4		21.6		35.9		41.4		43.5		38.1	
Beryllium	16	140	0.7	0.058	J	0.102	J	0.095	J	0.458		0.462		0.45		0.461		0.406		0.496		0.36		0.42		0.502	
Cadmium	78	78	2	0.066	U	0.068	UN	0.068	U	0.403		0.184	JN	0.067	U	0.067	U	0.068	U	0.069	U	0.5	U	0.55	U	0.069	U
Cobalt	1600	590	90	0.329	U	0.339	U	0.34	U	4.35		4.18	N	2.77		3.73		3.05		4.87		5	U	5.5	U	4.33	
Copper	3100	45000	11000	1.59		2.52		2.56		5.94		4.44		8.19		11.9		14.8		16.2		14.6		12.5		15.6	
Lead	400	800	90	1.88		2.87		2.44		5.27		9.49	N	6.85		12.7		11.4		16.8		14.4		13.6		13.4	
Manganese[1]	11000	59000	65	1.68		3.99	N	3.25	N	**92.2**		**77**		57.6		**78**		**67.6**		**126**		**89.3**		**75.3**		**70.6**	
Mercury	23	65	0.1	0.016		0.024		0.02		0.032		0.029		0.032		0.029		0.028		0.063		0.036	U	0.034	U	0.033	
Nickel (soluble salts)	1600	23000	48	0.438	U	0.452	U	0.453	U	4.53		5.97	N	4.42		6.21		4.98		7.85		9		9.5		7.91	N
Selenium	390	5700	11	0.219	U	0.226	U	0.226	U	0.226	U	0.225	UN	0.222	U	0.225	U	0.226	U	0.224	U	2	U	2.2	U	0.23	UN
Silver[1]	390	5700	1	0.294	J	0.113	U	0.113	U	**1.26**		0.112	UN	0.111	U	0.112	U	0.113	U	0.112	U	**2.1**		**2.2**		0.988	N
Thallium	5	79	3	0.438	U	0.452	U	0.453	U	0.451	U	0.449	U	0.444	U	0.449	U	0.453	U	0.447	U	1	U	1.1	U	0.46	U
Vanadium	78	1100	NA	1.69	J	3.94		3.64		28.8		25.8		27.7		24.4		23.9		25.9		29.7		30.7		23.3	
Zinc[1]	23000	110000	930	1.08	J	2.65		2.56		8.5		17.8		12.3		22.7		20.7		29.7		28.6		26.1		30.7	
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0315	U	0.0324	U	0.0324	U	0.0245	U	0.0252	U	0.0324	U	0.0315	U	0.0324	U	0.0324	U	0.1319	U	0.1374	U	0.0324	U
Total EPH (mg/kg)	1000	1000	1000	3.17	U	10.6		8.72		39.2		33.5		5.89	J	41.2		85.4		108		61.5		70.9		21.9	
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00048	U	0.00047	U	0.000361	U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00044	U	0.00044	U	0.000361	U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00033	U	0.00032	U	0.000361	U
Heptachlor	0.4	0.7	0.5	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00059	U	0.00058	U	0.000361	U
Aldrin	0.04	0.2	0.2	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00064	U	0.00063	U	0.000361	U
Heptachlor epoxide	0.07	0.3	0.01	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.0003	U	0.00029	U	0.000361	U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000698	U	0.000718	U	0.000716	U	0.0007	U	0.000704	U	0.000716	U	0.000698	U	0.000712	U	0.00072	U	0.00092	U	0.0009	U	0.000722	U
Dieldrin	0.04	0.2	0.003	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00056	U	0.00056	U	0.000361	U
4,4'-DDE	2	9	18	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.0022	P	0.0015	J	0.0022		0.0013	JP	0.0024		0.0052		0.0049		0.0018	J
Endrin	23	340	1	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00025	U	0.00025	U	0.000361	U
4,4'-DDD	3	13	4	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.004		0.0035		0.000361	U
Endosulfan sulfate	470	6800	2	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.00041	U	0.0004	U	0.0016	U
4,4'-DDT	2	8	11	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.0021	P	0.0012	J	0.0011	J	0.000356	U	0.0011	J	0.011		0.0109		0.000361	J
Methoxychlor	390	5700	160	0.000349	U	0.000359	U	0.000358	U	0.00035	U	0.000352	U	0.000358	U	0.000349	U	0.000356	U	0.00036	U	0.0004	U	0.00039	U	0.000361	U
Chlordane (alpha and gamma)	0.2	1	0.05	0.000698	U	0.000718	U	0.000716	U	0.0007	U	0.000704	U	0.000716	U	0.000698	U	0.000712	U	0.00072	U	0.00038	U	0.00038	U	0.000722	U
Toxaphene	0.6	3	0.3	0.0035	U	0.0036	U	0.0036	U	0.0035	U	0.0035	U	0.0036	U	0.0035	U	0.0036	U	0.0036	U	0.012	U	0.012	U	0.0036	U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0706	U	0.0725	U	0.0723	U	0.0708	U	0.0712	U	0.0723	U	0.0706	U	0.0717	U	0.073	U					0.073	U
Benzaldehyde	6100	68000	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0091	U	0.0087	U	0.0365	U
Phenol	18000	210000	8	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.027	U	0.026	U	0.0365	U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.015	U	0.014	U	0.0365	U
Bis(2-chloroisopropyl)ether	23	67	5	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0084	U	0.0079	U	0.0365	U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.027	U	0.026	U	0.0365	U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.053	U	0.05	U	0.0365	U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U					0.0365	U
Acetophenone	2	5	3	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0062	U	0.0059	U	0.0365	U
4-Methylphenol (p-Creosol)	31	340	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.035	U	0.033	U	0.0365	U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.011	U	0.01	U	0.0365	U
Hexachloroethane	35	140	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.012	U	0.011	U	0.0365	U
Nitrobenzene	31	340	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.012	U	0.011	U	0.0365	U
Isophorone	510	2000	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0068	U	0.0065	U	0.0365	U
2,4-Dimethylphenol	1200	14000	1	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.067	U	0.064	U	0.0365	U
2,4-Dichlorophenol	180	2100	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.033	U	0.031	U	0.0365	U
Naphthalene	6	17	25	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0011	J	0.0018	U	0.0018	U	0.0059	U	0.0056	U	0.0018	U
Hexachloro-1,3,butadiene	6	25	0.9	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0097	U	0.0092	U	0.0365	U
Caprolactam	31000	340000	12	0.0706	U	0.0725	U	0.0723	U	0.0708	U	0.0712	U	0.0723	U	0.0706	U	0.0717	U	0.073	U	0.023	U	0.022	U	0.073	U
2-Methylnaphthalene	230	2400	8	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0007	J	0.0011	J	0.0018	U	0.0068	U	0.0065	U	0.0018	U
Hexachlorocyclopentadiene	45	110	320	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.058	U	0.055	U	0.0365	U
2,4,6-Trichlorophenol	19	74	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.029	U	0.028	U	0.0365	U
2,4,5-Trichlorophenol	6100	68000	68	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.033	U	0.031	U	0.0365	U
1,1-Biphenyl	3100	34000	140	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0068	U	0.0064	U	0.0365	U
2-Nitroaniline	39	23000	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0083	U	0.0079	U	0.0365	U
Acenaphthylene	NA	300000	NA	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0039		0.0032	J	0.0018	U	0.0038	U	0.0036	U	0.0022	J
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0706	U	0.0726	U	0.0724	U	0.0708	U	0.0712	U	0.0722	U	0.0706	U	0.0716	U	0.073	U	0.0163	U	0.0155	U	0.073	U
2,6-Dinitrotoluene	0.7	3	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0094	U	0.009	U	0.0365	U
Acenaphthene	3400	37000	110	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0017	U	0.0018	U	0.0018	U	0.034	U	0.033	U	0.00073	J
2,4-Dinitrophenol[2]	120	1400	0.3	0.28	U	0.29	U	0.29	U	0.28	U	0.28	U	0.29	U	0.28	U	0.29	U	0.29	U	0.16	U	0.15	U	0.29	U
2,4-Dinitrotoluene	0.7	3	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0069	U	0.0065	U	0.0365	U
Diethylphthalate	49000	550000	88	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0046	U	0.0044	U	0.0365	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Horizon B - Cedar Hill (TF-PS-001)		Horizon B - Cedar Hill (TF-PS-002)		Horizon B - Cedar Hill (TF-PS-003)		Horizon C Nature's Choice (NC-HC-001)		Horizon C Nature's Choice (NC-003)		Horizon C Nature's Choice (NCHC-008)		Horizon C Nature's Choice (NCHC-009)		Horizon C Nature's Choice (NCHC-010)		Horizon C Nature's Choice (NCHC-011)		Horizon C Nature's Choice (NC-023)		Horizon C Nature's Choice (NC-024)		Horizon C Nature's Choice (NC-HC-007)	
				Rejected		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved	
Submittal Response Date:				5/4/2016		5/16/2016		5/16/2016		10/28/2015		11/30/2015		7/14/2016		7/15/2016		7/15/2016		7/15/2016		4/22/2016		4/22/2016		5/9/2016	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	138		141		142		118A		121		157		158		159		160		135		135		140	
Fluorene	2300	24000	170	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0021	J	0.0025	J	0.0018	U	0.0044	U	0.0041	U	0.0011	J
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.18	U	0.18	U	0.18	U	0.18	UQ	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.07	U	0.066	U	0.18	U
N-Nitrosodiphenylamine	99	390	0.4	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.019	U	0.018	U	0.0365	U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U					0.0365	U
Hexachlorobenzene	0.3	1	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0072	U	0.0068	U	0.0365	U
Atrazine	210	2400	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.015	U	0.014	U	0.0365	U
Pentachlorophenol	3	10	0.3	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0016	U	0.0016	U	0.0365	U
Phenanthrene	NA	300000	NA	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.019		0.0118		0.0084		0.0497	J	0.0158	J	0.0132	
Anthracene	17000	30000	2400	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0053		0.0036		0.0029	J	0.0032	U	0.003	U	0.004	
Carbazole	24	96	NA	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0041	U	0.0039	U	0.0365	U
Di-n-butyl phthalate	6100	68000	760	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0043	U	0.0041	U	0.0365	U
Fluoranthene	2300	24000	1300	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0058		0.0356		0.0258		0.0175		0.0394		0.0329	J	0.0326	
Benzidine	0.7	0.7	0.7	0.0706	U	0.0363	U	0.0723	U	0.0708	U	0.0712	U	0.0723	U	0.0706	U	0.0717	U	0.073	U					0.073	U
Pyrene	1700	18000	840	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0065		0.0363		0.0298		0.02		0.0373		0.0327	J	0.0362	
Butyl benzyl phthalate	1200	14000	230	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.02	U	0.019	U	0.0365	U
3,3-Dichlorobenzidine	1	4	0.2	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.024	U	0.023	U	0.0365	U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.004		0.0243		0.0172		0.0117		0.0238	J	0.0209	J	0.0227	
Chrysene	62	230	80	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0033	J	0.0176		0.0154		0.0102		0.0292	J	0.0253	J	0.0198	
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.013	U	0.012	U	0.0365	U
Di-n-octyl phthalate	2400	27000	3300	0.0353	U	0.0363	U	0.0362	U	0.0354	U	0.0356	U	0.0361	U	0.0353	U	0.0358	U	0.0365	U	0.0049	U	0.0047	U	0.0365	U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0051		0.0264		0.0255		0.0153		0.0341	J	0.0291	J	0.0234	
Benzo(k)fluoranthene	6	23	25	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0022	J	0.0102		0.0111		0.0066		0.0082	U	0.0077	U	0.0102	
Benzo(a)pyrene	0.2	0.2	0.2	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0036		0.0197		0.0172		0.0113		0.0251	J	0.0223	J	0.0176	
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0025	J	0.0113		0.0115		0.0073		0.019	U	0.0187	J	0.0128	
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0018	U	0.0017	U	0.0018	U	0.0018	U	0.013	U	0.012	U	0.0018	U
Benzo(ghi)perylene	380000	30000	NA	0.0017	U	0.0018	U	0.018	U	0.0354	U	0.0356	U	0.0033	J	0.0169		0.0194		0.0102		0.0217	J	0.0211	J	0.0154	
Dichlorodifluoromethane	490	230000	39	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00031	U	0.0003	U	0.00034	U
Chloromethane (Methyl chloride)	4	12	NA	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00023	U	0.00022	U	0.00034	U
Vinyl chloride	0.7	2	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00017	U	0.00017	U	0.00034	U
Bromomethane (Methyl bromide)	25	59	0.04	0.00066	U	0.00068	U	0.00068	U	0.00067	U	0.00067	U	0.00068	U	0.00066	U	0.00067	U	0.00068	U	0.00032	U	0.00031	U	0.00069	U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00042	U	0.0004	U	0.00034	U
Trichlorofluoromethane	23000	340000	34	0.00033	U	0.00034	U	0.00034	U	0.00033	UQ	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00022	U	0.00021	U	0.00034	U
Tertiary butyl alcohol	1400	11000	0.3	0.0166	U	0.017	U	0.017	U	0.0166	U	0.0167	U	0.17	U	0.0166	U	0.0168	U	0.0171	U					0.0172	U
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00052	U	0.0005	U	0.00034	U
Acrolein	0.5	1	0.5	0.0166	U	0.017	U	0.017	U	0.0166	U	0.0167	U	0.017	U	0.0166	U	0.0168	U	0.0171	U					0.0172	U
Acrylonitrile	0.9	3	0.5	0.0017	U	0.0017	U	0.0017	U	0.0017	UQ	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U					0.0017	U
Acetone (2-Propanone)	70000	NA	19	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.002	U	0.0019	U	0.0017	U
Carbon disulfide	7800	110000	6	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.0002	U	0.00019		0.00034	U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00013	U	0.00013	U	0.00034	U
Methyl acetate	78000	NA	22	0.00066	U	0.00068	U	0.00068	U	0.00067	U	0.00067	U	0.00068	U	0.00066	U	0.00067	U	0.00068	U	0.00075	U	0.00072	U	0.00039	U
Methylene chloride (Dichloromethane)	34	97	0.01	0.00033	U	0.00034	U	0.00034	U	0.00033	UQ	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00086	U	0.00082	U	0.00034	U
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00052	U	0.0005	U	0.00034	U
1,1-Dichloroethane	8	24	0.2	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00012	U	0.00012	U	0.00034	U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.005	U	0.0051	U	0.0051	U	0.005	U	0.005	U	0.0051	U	0.005	U	0.0051	U	0.0051	U	0.0017	U	0.0016	U	0.0052	U
Carbon tetrachloride	0.6	2	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.0002	U	0.00019	U	0.00034	U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00068	U	0.00065	U	0.00034	U
Chloroform	0.6	2	0.4	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00013	U	0.00013	U	0.00034	U
1,1,1-Trichloroethane	290	4200	0.3	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00013	U	0.00013	U	0.00034	U
Benzene	2	5	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00012	U	0.00011	U	0.00034	U
1,2-Dichloroethane	0.9	3	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00012	U	0.00011	U	0.00034	U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00013	U	0.00012	U	0.00034	U
1,2-Dichloropropane	2	5	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00021	U	0.0002	U	0.00034	U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00027	U	0.00026	U	0.00034	U
4-Methyl-2-pentanone	NA	NA	NA	0.0017	U	0.017	U	0.0017	U	NS		NS		0.0017	U	0.0017	U	0.0017	U	0.0017	U	0.0004	U	0.00039	U	1.7	U
Toluene	6300	91000	7	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00018	U	0.00017	U	0.00034	U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00066	U	0.00068	U	0.00068	U	0.00066	U	0.00066	U	0.00068	U	0.00066	U	0.00068	U	0.00068	U	0.00025	U	0.000249	U	0.00068	U
1,1,2-Trichloroethane	2	6	0.02	0.00066	U	0.00068	U	0.00068	U	0.00067	U	0.00067	U	0.00068	U	0.00066	U	0.00067	U	0.00068	U	0.00013	U	0.00012	U	0.00069	U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00018	U	0.00017	U	0.00034	U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00011	U	0.00011	U	0.00034	U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00026	U	0.00025	U	0.00034	U
Chlorobenzene	510	7400	0.6	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00014	U	0.00013	U	0.00034	U
Ethyl benzene	7800	110000	13	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00014	U	0.00014	U	0.00034	U
Total Xylenes	12000	170000	19	0.00099	U	0.00102	U	0.00102	U	0.001	U	0.001	U	0.00102	U	0.00099	U	0.00101	U	0.00102	U	0.00024	U	0.00023	U	0.00103	U
Styrene	90	260	3	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00016	U	0.00015	U	0.00034	U
Bromoform	81	280	0.03	0.00099	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00099	U	0.001	U	0.001	U	0.00014	U	0.00013	U	0.001	U
Isopropylbenzene	NA	NA	NA	0.00033	U	0.00034	U	0.00034	U	NS		NS		0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.000092	U	0.000089	U	0.00034	U
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00033	U	0.00034	U	0.00034	U	0.00033	UQ	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00015	U	0.00015	U	0.00034	U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.00014	U	0.00013	U	0.00034	U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00033	U	0.00034	U	0.00034	U	0.00033	U	0.00033	U	0.00034	U	0.00033	U	0.00034	U	0.00034	U	0.0002	U	0.00019	U	0.00034	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Horizon B - Cedar Hill (TF-PS-001)** Rejected	**Horizon B - Cedar Hill (TF-PS-002)** Approved	**Horizon B - Cedar Hill (TF-PS-003)** Approved	**Horizon C Nature's Choice (NC-HC-001)** Approved	**Horizon C Nature's Choice (NC-003)** Approved	**Horizon C Nature's Choice (NCHC-008)** Approved	**Horizon C Nature's Choice (NCHC-009)** Approved	**Horizon C Nature's Choice (NCHC-010)** Approved	**Horizon C Nature's Choice (NCHC-011)** Approved	**Horizon C Nature's Choice (NC-023)** Approved	**Horizon C Nature's Choice (NC-024)** Approved	**Horizon C Nature's Choice (NC-HC-007)** Approved
Submittal Response Date:				5/4/2016	5/16/2016	5/16/2016	10/28/2015	11/30/2015	7/14/2016	7/15/2016	7/15/2016	7/15/2016	4/22/2016	4/22/2016	5/9/2016
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	138	141	142	118A	121	157	158	159	160	135	135	140
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00033 U	0.00034 U	0.00034 U	0.00033 U	0.00033 U	0.00034 U	0.00033 U	0.00034 U	0.00034 U	0.00011 U	0.0001 U	0.00034 U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0033 U	0.0034 U	0.0034 U	0.0033 U	0.0033 U	0.0034 U	0.0033 U	0.0034 U	0.0034 U	0.00047 U	0.00046 U	0.0034 U
1,2,4-Trichlorobenzene	73	820	0.7	0.00033 U	0.00034 U	0.00034 U	0.00033 U	0.00033 U	0.00034 U	0.00033 U	0.00034 U	0.00034 U	0.00015 U	0.00014 U	0.00034 U
DICAMBA	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.0023 U	0.0023 U	0.0183 U
DICHLORPROP	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.023 U	0.023 U	0.0183 U
2,4-D	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.016 U	0.016 U	0.0183 U
2,4,5-TP (Silvex)	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.0021 U	0.0021 U	0.0183 U
2,4,5-T	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.0026 U	0.0027 U	0.0183 U
2,4-DB	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.022 U	0.022 U	0.0183 U
DINOSEB	NA	NA	NA	0.0176 U	0.0181 U	0.0181 U	0.0177 U	0.0178 U	0.018 U	0.0176 U	0.0179 U	0.0182 U	0.034 U	0.035 U	0.0183 U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.23 J	1	0.24 J	0.64	0.97	0.63	1	0.71	0.61	**1.4**	0.86	**1.3**

SPLP Parameter[3]	**SPLP Guidance**	**Units**												
Arsenic	3	ug/L	2.5 U	NS	NS	2.5 U	2.5 U	NS	NS	NS	NS	NS	NS	*27.6*
Barium	120000	ug/L	204	NS	NS	150	148 N	NS	NS	NS	NS	NS	NS	702
Beryllium	20	ug/L	NS	NS	NS	0.75 U	0.75 U	NS	NS	NS	NS	NS	NS	NS
Cadmium	80	ug/L	0.75 U	NS	NS	0.75 U	0.75 U	NS	NS	NS	NS	NS	NS	0.75 U
Chromium	--	ug/L	20.4 N	NS	NS	1.24 J	5.11	NS	NS	NS	NS	NS	NS	61.8
Lead	100	ug/L	1.5 U	NS	NS	1.59 J	1.5 U	NS	NS	NS	NS	NS	NS	77.7
Nickel	2000	ug/L	NS	NS	NS	5 U	5.18 J	NS	NS	NS	NS	NS	NS	NS
Selenium	800	ug/L	5 U	NS	NS	5 U	4.96 J	NS	NS	NS	NS	NS	NS	5 U
Silver	800	ug/L	1.25 U	NS	NS	1.25 U	1.25 U	NS	NS	NS	NS	NS	NS	3 J
Aluminum	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	40	ug/L	0.1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3.05

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	Horizon C - Advanced (AST-HB-001)	Weldon - Lake Hopatcong	Weldon - Lake Hopatcong Screenings 002	Weldon - Lake Hopatcong Screenings 003	Weldon, Watchung - Screening	Weldon, Watchung - Screening 002	Weldon, Watchung - Screening 003	Weldon, Watchung - Screening 004	Weldon, Watchung - Screening 005	Weldon, Watchung - Screening 006	Weldon, Watchung - Screening 007	Weldon, Watchung Screenings 008
Approval Status:				Not Approved (Not used onsite)	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved - CB; Rejected - GDL Cover
Submittal Response Date:				10/28/2015	11/7/2013	9/30/2014	9/30/2014	11/26/2013	1/21/2014	1/30/2014	2/21/2014	4/30/2014	4/24/2014	5/1/2014	6/4/2014
Submittal Number:				118	35	72	73	37	42	44	45A	47	48	51	55
Cyanide	1600	23000	20	0.304 U	0.046 J	0.153 J	0.046 J	0.129 U	0.129 U	0.055 J	0.129 J	0.171 J	0.222 J	0.125 U	0.045 J
Aluminum[1]	78000	NA	6000	2090	1700	2080	2170	**13700**	**13800**	**15200**	**12700**	**13900**	**10900**	**14600**	**15000**
Antimony	31	450	6	0.675 U	1.09 UN	0.558 U	0.541 U	1.12 UN	1.08 UN	1.18 UN	0.626 J	0.704 J	0.603 J	1.06 J	1.04 UN
Arsenic	19	19	19	1.69	0.35 J	1.38	1.56	0.449 U	0.554 J	0.529 J	0.374 J	0.393 J	0.3 J	1.58	1.58
Barium	16000	59000	2100	13.9	29	30.3	31	30.1	27.6	25.7	25.1	24.2	25.9	28.6	29
Beryllium	16	140	0.7	0.114 J	0.131 U	0.339	0.358	0.12 J	0.129 U	0.141 UN	0.14 U	0.135 U	0.137 U	**1.28 N**	0.125 U
Cadmium	78	78	2	0.183 J	0.19 JN	0.067 U	0.065 U	0.135 UN	**2.91 N**	**2.87 N**	0.902	1.08	0.782	0.138 U	0.125 U
Cobalt	1600	590	90	0.944 J	5.1 N	5.43	7.35	27.9	27.5 N	27 N	22.7	25.4	21.3	27.1 N	25.4
Copper	3100	45000	11000	6.5	7.9	6.16	6.91	72.7	75.3	71.9	126 N	54.1 N	57.8 N	78.9	57.7
Lead	400	800	90	2.79	0.93	1.11	1.22	1.96	0.123 JN	0.113 JN	2.19	1.67	1.83	1.75	2.28
Manganese[1]	11000	59000	65	**94.7**	**110**	**177**	**185**	**330**	**313**	**321**	**287**	**311**	**254**	**313**	**295**
Mercury	23	65	0.1	0.012 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Nickel (soluble salts)	1600	23000	48	1.87 J	2.8	4.47	4.99	**52.9**	**51.9 N**	47.2 N	43.7	45.8	41.5	44.8	38.2
Selenium	390	5700	11	0.27 U	1.6	0.833 J	1.01	2.54	2.8	2.57	0.468 UN	0.451 UN	0.455 UN	1.25	1.04
Silver[1]	390	5700	1	0.387 J	0.37 J	**1.19**	**1.32**	0.773	0.789 N	0.649 N	0.234 U	0.226 U	0.228 U	**2.14**	0.957
Thallium	5	79	3	0.54 U	0.874 U	0.447 U	0.433 U	0.897 U	0.86 U	0.942 U	0.935 U	0.902	0.91	0.092 U	0.832 U
Vanadium	78	1100	NA	6.56	6.5	4.89	5.5	59.1	55	62.2	52.4	58	47	58.6	52.2
Zinc[1]	23000	110000	930	14.6	26.2	20.7	22.6	43.7	45.3	44.1	33.4	40.9	32.7	28.4 N	41.7
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0294 U	0.0238 U	0.0238 U	0.0238 U	0.0238 U	0.0034 U	0.0037 U	0.0036 U	0.0036 U	0.0035 U	0.0036 U	0.0034 U
Total EPH (mg/kg)	1000	1000	1000		3.545 J	6.682	6.515		14.94	14.69	12.795	10.8	11.79	3.84 J	4.06 J
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Heptachlor	0.4	0.7	0.5	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Aldrin	0.04	0.2	0.2	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Heptachlor epoxide	0.07	0.3	0.01	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000826 U	0.000682 U	0.000668 U	0.00064 U	0.00068 U	0.000338 U	0.000367 U	0.000361 U	0.000716 U	0.000702 U	0.000718 U	0.00068 U
Dieldrin	0.04	0.2	0.003	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
4,4'-DDE	2	9	18	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Endrin	23	340	1	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
4,4'-DDD	3	13	4	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Endosulfan sulfate	470	6800	2	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
4,4'-DDT	2	8	11	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Methoxychlor	390	5700	160	0.000413 U	0.000341 U	0.000334 U	0.00032 U	0.00034 U	0.000338 U	0.000367 U	0.000361 U	0.000358 U	0.000351 U	0.000359 U	0.00034 U
Chlordane (alpha and gamma)	0.2	1	0.05	0.002313 J	0.000682 U	0.000668 U	0.00064 U	0.00068 U	0.000338 U	0.000367 U	0.000361 U	0.000716 U	0.000702 U	0.000359 U	0.0044 P
Toxaphene	0.6	3	0.3	0.0042 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0036 U	0.0035 U	0.0036 U	0.0034 U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0832 U	0.069 U	0.0674 U	0.0671 U	0.0687 U	0.0684 U	0.0742 U	0.0731 U	0.0723 U	0.0708 U	0.0725 U	0.0687 U
Benzaldehyde	6100	68000	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Phenol	18000	210000	8	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Bis(2-chloroisopropyl)ether	23	67	5	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Acetophenone	2	5	3	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
4-Methylphenol (p-Creosol)	31	340	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Hexachloroethane	35	140	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Nitrobenzene	31	340	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Isophorone	510	2000	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4-Dimethylphenol	1200	14000	1	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4-Dichlorophenol	180	2100	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Naphthalene	6	17	25	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Hexachloro-1,3,butadiene	6	25	0.9	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Caprolactam	31000	340000	12	0.0832 U	0.069 U	0.0674 U	0.0671 U	0.0687 U	0.0684 U	0.0742 U	0.0731 U	0.0723 U	0.0708 U	0.0725 U	0.0687 U
2-Methylnaphthalene	230	2400	8	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Hexachlorocyclopentadiene	45	110	320	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 UQ	0.0371 UQ	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4,6-Trichlorophenol	19	74	0.2	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4,5-Trichlorophenol	6100	68000	68	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
1,1-Biphenyl	3100	34000	140	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2-Nitroaniline	39	23000	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Acenaphthylene	NA	300000	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0832 U	0.0345 U	0.0674 U	0.0672 U	0.0686 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0686 U
2,6-Dinitrotoluene	0.7	3	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Acenaphthene	3400	37000	110	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
2,4-Dinitrophenol[2]	120	1400	0.3	**0.33 U**	0.28 U	0.27 U	0.27 U	0.27 U	0.27 UQ	0.3 UQ	0.29 U	0.29 U	0.28 U	0.29 UQ	0.27 U
2,4-Dinitrotoluene	0.7	3	NA	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0371 U	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U
Diethylphthalate	49000	550000	88	0.0416 U	0.0345 U	0.0337 U	0.0336 U	0.0343 U	0.0342 U	0.0827 J	0.0365 U	0.0362 U	0.0354 U	0.0362 U	0.0343 U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Horizon C - Advanced (AST-HB-001)		Weldon - Lake Hopatcong		Weldon - Lake Hopatcong Screenings 002		Weldon - Lake Hopatcong Screenings 003		Weldon, Watchung - Screening		Weldon, Watchung - Screening 002		Weldon, Watchung - Screening 003		Weldon, Watchung - Screening 004		Weldon, Watchung - Screening 005		Weldon, Watchung - Screening 006		Weldon, Watchung - Screening 007		Weldon, Watchung Screenings 008	
Submittal Response Date:				Not Approved (Not used onsite) 10/28/2015		Approved 11/7/2013		Approved 9/30/2014		Approved 9/30/2014		Approved 11/26/2013		Approved 1/21/2014		Approved 1/30/2014		Approved 2/21/2014		Approved 4/30/2014		Approved 4/24/2014		Approved 5/1/2014		Approved - CB; Rejected - GDL Cover 6/4/2014	
Submittal Number:	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	118		35		72		73		37		42		44		45A		47		48		51		55	
Fluorene	2300	24000	170	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.21	UQ	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.17	U
N-Nitrosodiphenylamine	99	390	0.4	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Hexachlorobenzene	0.3	1	0.2	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Atrazine	210	2400	0.2	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Pentachlorophenol	3	10	0.3	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Phenanthrene	NA	300000	NA	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Anthracene	17000	30000	2400	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Carbazole	24	96	NA	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Di-n-butyl phthalate	6100	68000	760	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0876	J	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Fluoranthene	2300	24000	1300	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzidine	0.7	0.7	0.7	0.0832	U	0.069	U	0.0674	U	0.0671	U	0.0687	U	0.0684	U	0.0742	U	0.0731	U	0.0723	U	0.0708	U	0.0725	U	0.0687	U
Pyrene	1700	18000	840	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Butyl benzyl phthalate	1200	14000	230	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
3,3-Dichlorobenzidine	1	4	0.2	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Chrysene	62	230	80	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.29	J	0.0354	U	0.0362	U	0.0343	U
Di-n-octyl phthalate	2400	27000	3300	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzo(k)fluoranthene	6	23	25	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzo(a)pyrene	0.2	0.2	0.2	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Benzo(ghi)perylene	380000	30000	NA	0.0416	U	0.0345	U	0.0337	U	0.0336	U	0.0343	U	0.0342	U	0.0371	U	0.0365	U	0.0362	U	0.0354	U	0.0362	U	0.0343	U
Dichlorodifluoromethane	490	230000	39	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
Chloromethane (Methyl chloride)	4	12	NA	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
Vinyl chloride	0.7	2	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
Bromomethane (Methyl bromide)	25	59	0.04	0.00078	U	0.0011	U	0.00063	U	0.00063	U	0.0012	U	0.00068	U	0.001	U	0.0011	UQ	0.0011	UQ	0.001	UQ	0.00068	U	0.00064	U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
Trichlorofluoromethane	23000	340000	34	0.00039	UQ	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Tertiary butyl alcohol	1400	11000	0.3	0.0196	U	0.0272	UQ	0.0158	U	0.0158	U	0.0306	U	0.0169	U	0.0255	U	0.028	U	0.0272	U	0.0261	U	0.017	U	0.0161	U
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Acrolein	0.5	1	0.5	0.0196	U	0.0272	U	0.0158	U	0.0158	U	0.0306	U	0.0169	U	0.0255	U	0.028	U	0.0272	U	0.0261	U	0.017	U	0.0161	U
Acrylonitrile	0.9	3	0.5	0.002	UQ	0.0027	U	0.0016	U	0.0016	U	0.0031	U	0.0017	U	0.0025	U	0.0028	U	0.0027	U	0.0026	U	0.0017	U	0.0016	U
Acetone (2-Propanone)	70000	NA	19	0.002	U	0.0027	U	0.012	J	0.0124	J	0.0031	U	0.0028	J	0.0025	U	0.0028	U	0.0027	U	0.0026	U	0.0017	U	0.0016	U
Carbon disulfide	7800	110000	6	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	UQ	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Methyl acetate	78000	NA	22	0.00078	U	0.0011	U	0.00063	U	0.00063	U	0.0012	U	0.00068	U	0.001	U	0.0011	U	0.0011	U	0.001	U	0.00068	U	0.00064	U
Methylene chloride (Dichloromethane)	34	97	0.01	0.00039	UQ	0.0029	J	0.0042		0.0029	J	0.002	J	0.00034	U	0.00051	U	0.00056	UQ	0.00054	UQ	0.00052	UQ	0.00034	U	0.00032	U
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,1-Dichloroethane	8	24	0.2	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0059	U	0.0082	U	0.0048	U	0.0047	U	0.0092	U	0.0051	U	0.0076	U	0.0084	U	0.0082	U	0.0078	U	0.0051	U	0.0048	U
Carbon tetrachloride	0.6	2	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Chloroform	0.6	2	0.4	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,1,1-Trichloroethane	290	4200	0.3	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Benzene	2	5	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,2-Dichloroethane	0.9	3	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,2-Dichloropropane	2	5	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
4-Methyl-2-pentanone	NA	NA	NA	NS		0.0027	U	NS		NS		0.0031	U	NS		0.0025	U	NS		0.00054		0.00052		NS		NS	
Toluene	6300	91000	7	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00078	U	0.00108	U	0.00064	U	0.00064	U	0.00122	U	0.00034	U	0.00051	U	0.00056	U	0.00108	U	0.00052	U	0.00068	U	0.00064	U
1,1,2-Trichloroethane	2	6	0.02	0.00078	U	0.0011	U	0.00063	U	0.00063	U	0.0012	U	0.00068	U	0.001	U	0.0011	U	0.0011	U	0.001	U	0.00068	U	0.00064	U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Chlorobenzene	510	7400	0.6	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Ethyl benzene	7800	110000	13	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Total Xylenes	12000	170000	19	0.00117	U	0.00164	U	0.00095	U	0.00095	U	0.00181	U	0.00102	U	0.00151	U	0.00166	U	0.00164	U	0.00152	U	0.00102	U	0.00096	U
Styrene	90	260	3	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
Bromoform	81	280	0.03	0.0012	U	0.0016	U	0.00095	U	0.00095	U	0.0018	U	0.001	U	0.0015	U	0.0017	U	0.0016	U	0.0016	U	0.001	U	0.00097	U
Isopropylbenzene	NA	NA	NA	NS		0.00054	U	NS		NS		0.00061	U	NS		0.00051	U	NS		NS		NS		NS		NS	
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00039	UQ	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Horizon C - Advanced (AST-HB-001)		Weldon - Lake Hopatcong		Weldon - Lake Hopatcong Screenings 002		Weldon - Lake Hopatcong Screenings 003		Weldon, Watchung - Screening		Weldon, Watchung - Screening 002		Weldon, Watchung - Screening 003		Weldon, Watchung - Screening 004		Weldon, Watchung - Screening 005		Weldon, Watchung - Screening 006		Weldon, Watchung - Screening 007		Weldon, Watchung Screenings 008	
				Not Approved (Not used onsite)		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved		Approved - CB; Rejected - GDL Cover	
Submittal Response Date:				10/28/2015		11/7/2013		9/30/2014		9/30/2014		11/26/2013		1/21/2014		1/30/2014		2/21/2014		4/30/2014		4/24/2014		5/1/2014		6/4/2014	
Submittal Number:	RDCSRS (2012)	NRDCSRS (2012)	IGW (2013)	118		35		72		73		37		42		44		45A		47		48		51		55	
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0039	U	**0.0054**	**U**	0.0032	U	0.0032	U	**0.0061**	**U**	0.0034	U	**0.0051**	**U**	**0.0056**	**U**	**0.0054**	**U**	**0.0052**	**U**	0.0034	U	0.0032	U
1,2,4-Trichlorobenzene	73	820	0.7	0.00039	U	0.00054	U	0.00032	U	0.00032	U	0.00061	U	0.00034	U	0.00051	U	0.00056	U	0.00054	U	0.00052	U	0.00034	U	0.00032	U
DICAMBA	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
DICHLORPROP	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
2,4-D	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
2,4,5-TP (Silvex)	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
2,4,5-T	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
2,4-DB	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
DINOSEB	NA	NA	NA	0.0208	U	NS		0.0169	U	0.0168	U	NS		NS		NS		0.0183	U	0.0181	U	0.0177	U	0.018	U	0.0172	U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.23	J	0.42	U	0.39	U	0.4	U	0.44	U	0.4	U	0.44	U	0.44	U	0.45	U	0.66		0.45	U	0.4	U

SPLP Parameter[3]	SPLP Guidance	Units																									
Arsenic	3	ug/L	NS	2.5	U	2.5	U	2.5	U	*5*	*U*	*5*	*UN*	*5*	*UN*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	NS			
Barium	120000	ug/L	NS	165		589		779		158		156	N	173	N	983		922		1000		208		NS			
Beryllium	20	ug/L	NS	NS		0.75	U	0.75	U	NS		NS		NS		NS		NS		NS		1.5	U	NS			
Cadmium	80	ug/L	NS	0.75	U	0.75	U	0.75	U	1.5	U	1.5	U	1.5	U	0.785	J	1.14	J	0.845	J	1.5	U	NS			
Chromium	--	ug/L	NS	1.25	U	3.28	J	4.22	J	2.3	JN	56.5	N*	49.8	N*	88.1		61.6		43.5		5.81		NS			
Lead	100	ug/L	NS	1.5	U	3.49	J	4.87	J	3	U	3	U	3	U	21.5		17.4		6.17		3	U	NS			
Nickel	2000	ug/L	NS	NS		5	U	5	U	10	U	24.2		31.8		58.5		45		29.6		7.33	J	NS			
Selenium	800	ug/L	NS	2.5	U	5	U	5	U	5	U	5	U	5	UN	5	UN	5	UN	5	UN	5	U	NS			
Silver	800	ug/L	NS	1.25	U	1.25	U	1.25	U	2.5	U	2.5	UN	2.5	UN	2.5	UN	2.5	UN	2.5	UN	2.5	U	NS			
Aluminum	--	--	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS			
Manganese	--	--	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS			
Mercury	40	ug/L	NS	0.1	U	NS		NS		0.1	U	NS		NS		NS		NS		NS		NS		NS			

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Weldon, Watchung Screenings 009 Approved		Weldon, Watchung Screenings 010 Approved		Weldon, Watchung Screenings 011 Approved		Weldon, Watchung Screenings 012 Approved		Weldon, Watchung Screenings 013 Approved		Weldon, Watchung Screenings 014 Approved		Weldon, Watchung Screenings 015 Approved	
Submittal Response Date:				7/23/2014		8/12/2014		9/2/2014		9/5/2014		9/18/2014		9/24/2014		9/30/2014	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	59		61		62		65		67		70		71A	
Cyanide	1600	23000	20	0.134	U	0.122	U	0.134	U	0.137	U	0.046	J	0.124	U	0.126	U
Aluminum[1]	78000	NA	6000	**13600**		**13000**		**13900**		**17400**	**J**	**14400**		**10600**		**11200**	
Antimony	31	450	6	0.96	JN	0.888	J	0.567	U	1.1	N	0.525	U	0.753	J	0.532	U
Arsenic	19	19	19	1.43		1.74		1.57		1.77		1.87		1.4		1.18	
Barium	16000	59000	2100	21.6		18.8		44.9		33.8		44.3		31.6		41.2	
Beryllium	16	140	0.7	0.394		0.391		0.378		0.0489		0.445		0.339		0.331	
Cadmium	78	78	2	0.182	J	0.126	U	0.068	U	0.071	U	0.058	J	0.066	U	0.064	U
Cobalt	1600	590	90	28.4		27.6		26.3		31.7	N	30.6		22.8		21.6	
Copper	3100	45000	11000	81.2		82.5		83.5		57.3		65		66		62.4	
Lead	400	800	90	1.27	N	2.04		2.5		2.36		2.33		2.1		4.48	
Manganese[1]	11000	59000	65	**297**		**291**		**330**		**374**		**374**		**301**		**302**	
Mercury	23	65	0.1	0.005	U	0.004	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Nickel (soluble salts)	1600	23000	48	**52.8**		**59.1**		**51.3**		**53.4**		**57.1**		45.6		40.6	
Selenium	390	5700	11	1.09		1.68		1.42		1.24	N	1.16		1.27	N	1.03	
Silver[1]	390	5700	1	**1.14**		0.888		**1.33**		**1.97**		**2.1**		**1.19**		**2.01**	
Thallium	5	79	3	0.939	U	0.84	U	0.453	U	0.471	U	0.42	U	0.439	U	0.425	U
Vanadium	78	1100	NA	50		49		55.9		60		53.7		42.1		41.5	
Zinc[1]	23000	110000	930	44.8		44.8		45.1		58.2		49.7		39.8		39.2	
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0252	U	0.0034	U	0.0036	U	0.0037	U	0.0238	U	0.0238	U	0.0238	U
Total EPH (mg/kg)	1000	1000	1000	3.455	J	4.885	J	2.715	J	4.175	J	6.46		3.03	U	3.03	U
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
beta-HCH (beta-BHC)	0.4	2	0.002	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Heptachlor	0.4	0.7	0.5	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Aldrin	0.04	0.2	0.2	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Heptachlor epoxide	0.07	0.3	0.01	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000724	U	0.000664	U	0.000708	U	0.000728	U	0.000672	U	0.000668	U	0.000666	U
Dieldrin	0.04	0.2	0.003	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
4,4'-DDE	2	9	18	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Endrin	23	340	1	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
4,4'-DDD	3	13	4	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Endosulfan sulfate	470	6800	2	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
4,4'-DDT	2	8	11	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Methoxychlor	390	5700	160	0.000362	U	0.000332	U	0.000354	U	0.000364	U	0.000336	U	0.000334	U	0.000333	U
Chlordane (alpha and gamma)	0.2	1	0.05	0.000724	U	0.000664	U	0.000708	U	0.000728	U	0.000672	U	0.00668	U	0.000666	U
Toxaphene	0.6	3	0.3	0.0037	U	0.0034	U	0.0036	U	0.0037	U	0.0034	U	0.0034	U	0.0034	U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0731	U	0.0672	U	0.0715	U	0.0736	U	0.068	U	0.0676	U	0.0673	U
Benzaldehyde	6100	68000	NA	0.0366	U	0.0336	U	0.0357	UQ	0.0368	U	0.034	U	0.0338	U	0.0336	U
Phenol	18000	210000	8	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Bis(2-chloroisopropyl)ether	23	67	5	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Acetophenone	2	5	3	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
4-Methylphenol (p-Creosol)	31	340	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Hexachloroethane	35	140	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Nitrobenzene	31	340	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Isophorone	510	2000	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4-Dimethylphenol	1200	14000	1	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4-Dichlorophenol	180	2100	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Naphthalene	6	17	25	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Hexachloro-1,3,butadiene	6	25	0.9	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Caprolactam	31000	340000	12	0.0731	U	0.0672	U	0.0715	U	0.0736	U	0.068	U	0.0676	U	0.0673	U
2-Methylnaphthalene	230	2400	8	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Hexachlorocyclopentadiene	45	110	320	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4,6-Trichlorophenol	19	74	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4,5-Trichlorophenol	6100	68000	68	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
1,1-Biphenyl	3100	34000	140	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2-Nitroaniline	39	23000	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Acenaphthylene	NA	300000	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0366	U	0.0672	U	0.0714	U	0.0736	U	0.068	U	0.0676	U	0.0672	U
2,6-Dinitrotoluene	0.7	3	NA	0.0732	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Acenaphthene	3400	37000	110	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
2,4-Dinitrophenol[2]	120	1400	0.3	0.29	U	0.27	U	0.29	U	0.29	U	0.27	U	0.27	U	0.27	U
2,4-Dinitrotoluene	0.7	3	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Diethylphthalate	49000	550000	88	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U

Approval Status:				Weldon, Watchung Screenings 016 Approved		Weldon, Watchung Screenings 017 Approved		Weldon, Watchung Screenings 018 Approved		Weldon, Watchung Screenings 018 Approved		Weldon Watching Screenings 019 Approved					
Submittal Response Date:				11/18/2014		11/18/2014		4/12/2016		5/31/2016		6/9/2016					
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	75		76		134		147		151					
Cyanide	1600	23000	20	0.136	U	0.128	U	0.126	U	0.077	J	0.121	U				
Aluminum[1]	78000	NA	6000	**12100**		**11900**		**12200**		**13400**		**12300**					
Antimony	31	450	6	0.694	J	0.769	J	0.531	U	0.541	UN	0.533	UN				
Arsenic	19	19	19	1.3		1.26		1.17		1.4		1.2					
Barium	16000	59000	2100	27.3		27.9		29.5		21.6		19.2					
Beryllium	16	140	0.7	0.317		0.323		0.334		0.387		0.37					
Cadmium	78	78	2	0.069	U	0.064	U	0.313		1.03		1.03					
Cobalt	1600	590	90	22.9		22.7		19.8		23.1		22.6					
Copper	3100	45000	11000	66.5		55.2		50.2		72.1		75.5					
Lead	400	800	90	1.31		1.26		2.46		3.59		4.32					
Manganese[1]	11000	59000	65	**266**		**252**		**250**		**279**		**278**					
Mercury	23	65	0.1	0.005	U	0.005	U	0.012	J	0.0007	U	0.008	J				
Nickel (soluble salts)	1600	23000	48	44.4		43.5		36.6		41.8		40.9					
Selenium	390	5700	11	0.683	J	0.755	J	0.614	J	0.216	U	0.213	U				
Silver[1]	390	5700	1	0.116	U	0.106	U	0.106	U	0.108	UN	0.107	UN				
Thallium	5	79	3	0.463	U	0.426	U	0.424	U	0.433	U	0.427	U				
Vanadium	78	1100	NA	48		47.1		44.1		48.3		46.1					
Zinc[1]	23000	110000	930	35.8		34.3		33.5		34.8		34.3					
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0266	U	0.0245	U	0.0279	U	0.0306	U	0.0238	U				
Total EPH (mg/kg)	1000	1000	1000	9.15		8.11		3.01	U	12.1		10					
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
beta-HCH (beta-BHC)	0.4	2	0.002	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Heptachlor	0.4	0.7	0.5	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Aldrin	0.04	0.2	0.2	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Heptachlor epoxide	0.07	0.3	0.01	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.000752	U	0.000698	U	0.000662	U	0.000678	U	0.000333	U				
Dieldrin	0.04	0.2	0.003	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
4,4'-DDE	2	9	18	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Endrin	23	340	1	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
4,4'-DDD	3	13	4	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Endosulfan sulfate	470	6800	2	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
4,4'-DDT	2	8	11	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Methoxychlor	390	5700	160	0.000376	U	0.000349	U	0.000331	U	0.000339	U	0.000333	U				
Chlordane (alpha and gamma)	0.2	1	0.05	0.000752	U	0.000698	U	0.000662	U	0.000678	U	0.000333	U				
Toxaphene	0.6	3	0.3	0.0038	U	0.0035	U	0.0033	U	0.0034	U	0.0034	U				
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0762	U	0.0706	U	0.0669	U	0.0685	U	0.0672	U				
Benzaldehyde	6100	68000	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	UQ	0.0336	UQ				
Phenol	18000	210000	8	0.08	J	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Bis(2-chloroisopropyl)ether	23	67	5	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2-Methylphenol (o-Creosol)	310	3400	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Acetophenone	2	5	3	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
4-Methylphenol (p-Creosol)	31	340	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Hexachloroethane	35	140	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Nitrobenzene	31	340	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Isophorone	510	2000	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2,4-Dimethylphenol	1200	14000	1	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2,4-Dichlorophenol	180	2100	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Naphthalene	6	17	25	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U				
Hexachloro-1,3,butadiene	6	25	0.9	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Caprolactam	31000	340000	12	0.0762	U	0.0706	U	0.0669	U	0.0685	U	0.0336	U				
2-Methylnaphthalene	230	2400	8	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U				
Hexachlorocyclopentadiene	45	110	320	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2,4,6-Trichlorophenol	19	74	0.2	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2,4,5-Trichlorophenol	6100	68000	68	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
1,1-Biphenyl	3100	34000	140	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
2-Nitroaniline	39	23000	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Acenaphthylene	NA	300000	NA	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U				
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0762	U	0.0706	U	0.0668	U	0.0684	U	0.0336	U				
2,6-Dinitrotoluene	0.7	3	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Acenaphthene	3400	37000	110	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U				
2,4-Dinitrophenol[2]	120	1400	0.3	0.3	U	0.28	U	0.27	U	0.27	U	0.27	U				
2,4-Dinitrotoluene	0.7	3	NA	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				
Diethylphthalate	49000	550000	88	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U				

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				Weldon, Watchung Screenings 009 Approved		Weldon, Watchung Screenings 010 Approved		Weldon, Watchung Screenings 011 Approved		Weldon, Watchung Screenings 012 Approved		Weldon, Watchung Screenings 013 Approved		Weldon, Watchung Screenings 014 Approved		Weldon, Watchung Screenings 015 Approved	
Submittal Response Date:				7/23/2014		8/12/2014		9/2/2014		9/5/2014		9/18/2014		9/24/2014		9/30/2014	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	59		61		62		65		67		70		71A	
Fluorene	2300	24000	170	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.17	U	0.17	U
N-Nitrosodiphenylamine	99	390	0.4	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Hexachlorobenzene	0.3	1	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Atrazine	210	2400	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Pentachlorophenol	3	10	0.3	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Phenanthrene	NA	300000	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Anthracene	17000	30000	2400	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Carbazole	24	96	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Di-n-butyl phthalate	6100	68000	760	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Fluoranthene	2300	24000	1300	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzidine	0.7	0.7	0.7	0.0731	U	0.0672	U	0.0715	U	0.0736	U	0.068	U	0.0676	U	0.0673	U
Pyrene	1700	18000	840	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Butyl benzyl phthalate	1200	14000	230	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
3,3-Dichlorobenzidine	1	4	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Chrysene	62	230	80	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Di-n-octyl phthalate	2400	27000	3300	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzo(k)fluoranthene	6	23	25	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzo(a)pyrene	0.2	0.2	0.2	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Benzo(ghi)perylene	380000	30000	NA	0.0366	U	0.0336	U	0.0357	U	0.0368	U	0.034	U	0.0338	U	0.0336	U
Dichlorodifluoromethane	490	230000	39	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Chloromethane (Methyl chloride)	4	12	NA	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Vinyl chloride	0.7	2	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Bromomethane (Methyl bromide)	25	59	0.04	0.00069	U	0.00063	U	0.00067	U	0.00069	U	0.00064	U	0.00063	U	0.00063	U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Trichlorofluoromethane	23000	340000	34	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Tertiary butyl alcohol	1400	11000	0.3	0.0172	U	0.0158	U	0.0168	U	0.0173	U	0.016	UQ	0.0159	U	0.0158	U
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Acrolein	0.5	1	0.5	0.0172	U	0.0158	U	0.0168	U	0.0173	U	0.016	UQ	0.0159	U	0.0158	UQ
Acrylonitrile	0.9	3	0.5	0.0017	U	0.0016	U	0.0017	U	0.0017	U	0.0016	U	0.0016	U	0.0016	U
Acetone (2-Propanone)	70000	NA	19	0.0094	J	0.0362		0.0017	U	0.0086	J	0.0016	U	0.0016	U	0.0212	
Carbon disulfide	7800	110000	6	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	UQ	0.00032	U	0.00032	U
Methyl acetate	78000	NA	22	0.00069	U	0.0011	J	0.00067	U	0.00069	U	0.00064	U	0.00063	U	0.00063	U
Methylene chloride (Dichloromethane)	34	97	0.01	0.00034	U	0.00032	U	0.00034	U	0.00079	J	0.00032	U	0.0015	J	0.00032	U
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,1-Dichloroethane	8	24	0.2	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0052	U	0.0148	J	0.005	U	0.0052	U	0.0048	U	0.0048	U	0.0047	U
Carbon tetrachloride	0.6	2	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Chloroform	0.6	2	0.4	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,1,1-Trichloroethane	290	4200	0.3	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Benzene	2	5	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,2-Dichloroethane	0.9	3	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,2-Dichloropropane	2	5	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
4-Methyl-2-pentanone	NA	NA	NA	NS		NS		NS		NS		NS		NS		NS	
Toluene	6300	91000	7	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00068	U	0.00064	U	0.00068	U	0.0007	U	0.00064	U	0.00064	U	0.00064	U
1,1,2-Trichloroethane	2	6	0.02	0.00069	U	0.00063	U	0.00067	U	0.00069	U	0.00064	U	0.00063	U	0.00063	U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Chlorobenzene	510	7400	0.6	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Ethyl benzene	7800	110000	13	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Total Xylenes	12000	170000	19	0.00103	U	0.00095	U	0.00101	U	0.00104	U	0.00096	U	0.00095	U	0.00095	U
Styrene	90	260	3	0.00034	U	0.00085	J	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
Bromoform	81	280	0.03	0.001	U	0.00095	U	0.001	U	0.001	U	0.00096	U	0.00095	U	0.00095	U
Isopropylbenzene	NA	NA	NA	NS		NS		NS		NS		NS		NS		NS	
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00034	U	0.00032	U	0.00034	U	0.00035	U	0.00032	U	0.00032	U	0.00032	U

Approval Status:				Weldon, Watchung Screenings 015 Approved		Weldon, Watchung Screenings 016 Approved		Weldon, Watchung Screenings 017 Approved		Weldon, Watchung Screenings 018 Approved		Weldon, Watchung Screenings 018 Approved		Weldon Watching Screenings 019 Approved			
Submittal Response Date:				9/30/2014		11/18/2014		11/18/2014		4/12/2016		5/31/2016		6/9/2016			
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	71A		75		76		134		147		151			
Fluorene	2300	24000	170	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.17	U	0.19	U	0.18	U	0.17	U	0.17	U	0.17	U		
N-Nitrosodiphenylamine	99	390	0.4	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Hexachlorobenzene	0.3	1	0.2	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Atrazine	210	2400	0.2	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Pentachlorophenol	3	10	0.3	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Phenanthrene	NA	300000	NA	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.001	J	0.0336	U		
Anthracene	17000	30000	2400	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
Carbazole	24	96	NA	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Di-n-butyl phthalate	6100	68000	760	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Fluoranthene	2300	24000	1300	0.0336	U	0.0381	U	0.0353	U	0.0017	J	0.001	J	0.0336	U		
Benzidine	0.7	0.7	0.7	0.0673	U	0.0762	U	0.0706	U	0.0669	U	0.0685	U	0.0672	U		
Pyrene	1700	18000	840	0.0336	U	0.0381	U	0.0353	U	0.001	J	0.001	J	0.0336	U		
Butyl benzyl phthalate	1200	14000	230	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
3,3-Dichlorobenzidine	1	4	0.2	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.001	J	0.0336	U		
Chrysene	62	230	80	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Di-n-octyl phthalate	2400	27000	3300	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0342	U	0.0336	U		
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
Benzo(k)fluoranthene	6	23	25	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
Benzo(a)pyrene	0.2	0.2	0.2	0.0336	U	0.0381	U	0.0353	U	0.0334	U	0.0017	U	0.0336	U		
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0336	U	0.0381	U	0.0353	U	0.002	J	0.0017	U	0.0336	U		
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0336	U	0.0381	U	0.0353	U	0.0017	U	0.0017	U	0.0336	U		
Benzo(ghi)perylene	380000	30000	NA	0.0336	U	0.0381	U	0.0353	U	0.0013	J	0.0017	U	0.0336	U		
Dichlorodifluoromethane	490	230000	39	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Chloromethane (Methyl chloride)	4	12	NA	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Vinyl chloride	0.7	2	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Bromomethane (Methyl bromide)	25	59	0.04	0.00063	U	0.00072	U	0.00066	U	0.00063	U	0.00064	U	0.00063	U		
Chloroethane (Ethyl chloride)	220	1100	NA	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Trichlorofluoromethane	23000	340000	34	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Tertiary butyl alcohol	1400	11000	0.3	0.0158	U	0.0179	U	0.0166	U	0.0157	U	0.0161	U	0.0158	U		
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Acrolein	0.5	1	0.5	0.0158	UQ	0.0179	U	0.0166	U	0.0157	U	0.0161	U	0.0158	U		
Acrylonitrile	0.9	3	0.5	0.0016	U	0.0018	U	0.0017	U	0.0016	U	0.0016	U	0.0016	U		
Acetone (2-Propanone)	70000	NA	19	0.0212		0.0018	U	0.0017	U	0.0016	U	0.0016	U	0.0016	U		
Carbon disulfide	7800	110000	6	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Methyl acetate	78000	NA	22	0.00063	U	0.00072	U	0.00066	U	0.00063	U	0.00064	U	0.00063	U		
Methylene chloride (Dichloromethane)	34	97	0.01	0.0015	J	0.0025	J	0.0029	J	0.0015	J	0.00032	U	0.00032	U		
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,1-Dichloroethane	8	24	0.2	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.0047	U	0.0054	U	0.005	U	0.0047	U	0.0048	U	0.0047	U		
Carbon tetrachloride	0.6	2	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Chloroform	0.6	2	0.4	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,1,1-Trichloroethane	290	4200	0.3	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Benzene	2	5	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,2-Dichloroethane	0.9	3	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,2-Dichloropropane	2	5	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
4-Methyl-2-pentanone	NA	NA	NA	NS		NS		NS		NS		0.0016	U	0.0016	U		
Toluene	6300	91000	7	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.00064	U	0.00072	U	0.00066	U	0.00062	U	0.00064	U	0.00064	U		
1,1,2-Trichloroethane	2	6	0.02	0.00063	U	0.00072	U	0.00066	U	0.00063	U	0.00064	U	0.00063	U		
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Chlorobenzene	510	7400	0.6	0.00032	U	0.00036	UQ	0.00033	UQ	0.00031	U	0.00032	U	0.00032	U		
Ethyl benzene	7800	110000	13	0.00032	U	0.00036	UQ	0.00033	UQ	0.00031	U	0.00032	U	0.00032	U		
Total Xylenes	12000	170000	19	0.00095	U	0.00108	U	0.00099	U	0.00094	U	0.00096	U	0.00095	U		
Styrene	90	260	3	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
Bromoform	81	280	0.03	0.00095	U	0.0011	U	0.00099	U	0.00094	U	0.00097	U	0.00095	U		
Isopropylbenzene	NA	NA	NA	NS		NS		NS		NS		0.00032	U	0.00032	U		
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00032	U	0.00036	U	0.00033	U	0.00031	U	0.00032	U	0.00032	U		

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Weldon, Watchung Screenings 009**	**Weldon, Watchung Screenings 010**	**Weldon, Watchung Screenings 011**	**Weldon, Watchung Screenings 012**	**Weldon, Watchung Screenings 013**	**Weldon, Watchung Screenings 014**	**Weldon, Watchung Screenings 015**	**Weldon, Watchung Screenings 016**	**Weldon, Watchung Screenings 017**	**Weldon, Watchung Screenings 018**	**Weldon, Watchung Screenings 018**	**Weldon Watching Screenings 019**
				Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved
Submittal Response Date:				7/23/2014	8/12/2014	9/2/2014	9/5/2014	9/18/2014	9/24/2014	9/30/2014	11/18/2014	11/18/2014	4/12/2016	5/31/2016	6/9/2016
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	59	61	62	65	67	70	71A	75	76	134	147	151
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00034 U	0.00032 U	0.00034 U	0.00035 U	0.00032 U	0.00032 U	0.00032 U	0.00036 U	0.00033 U	0.00031 U	0.00032 U	0.00032 U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0034 U	0.0032 U	0.0034 U	0.0035 U	0.0032 U	0.0032 U	0.0032 U	0.0036 U	0.0033 U	0.0031 U	0.0032 U	0.0032 U
1,2,4-Trichlorobenzene	73	820	0.7	0.00034 U	0.00032 U	0.00034 U	0.00035 U	0.00032 UQ	0.00032 U	0.00032 U	0.00036 U	0.00033 U	0.00031 U	0.00032 U	0.00032 U
DICAMBA	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
DICHLORPROP	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
2,4-D	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
2,4,5-TP (Silvex)	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
2,4,5-T	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
2,4-DB	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
DINOSEB	NA	NA	NA	0.0183 U	0.0168 U	0.0179 U	0.0184 U	0.017 U	0.0169 U	0.0168 U	0.0191 U	0.0176 U	0.0167 U	0.0171 U	0.0168 U
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.43 U	0.4 U	0.42 U	0.41 U	0.4 U	0.42 U	0.42 U	0.44 U	0.42 U	0.47	0.32 J	0.2 J

SPLP Parameter[3]	**SPLP Guidance**	**Units**												
Arsenic	3	ug/L	*5 U*	*5 U*	2.5 U	2.5 U	2.5 U	NS	*3.29 J*	2.5 U	2.5 U	NS	NS	NS
Barium	120000	ug/L	644	864	843	850	497	NS	893	1330	1180	NS	NS	NS
Beryllium	20	ug/L	1.5 U	1.5 U	0.75 U	0.75 U	0.75 U	NS	0.75 U	0.75 U	0.75 U	NS	NS	NS
Cadmium	80	ug/L	1.5 U	1.5 U	0.75 U	0.75 U	0.75 U	NS	0.75 U	0.75 U	0.75 U	NS	NS	NS
Chromium	--	ug/L	15	9.21	8.31	17.7	12.4	NS	22.4	18.9	26.2	NS	NS	NS
Lead	100	ug/L	36.9	5.92 J	4.62 J	5.87 J	71.9	NS	10.2	5.53 J	8.61	NS	NS	NS
Nickel	2000	ug/L	30	27	20.7	41.9	31.2	NS	61.3	44.5	54.5	NS	NS	NS
Selenium	800	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	NS	NS	NS
Silver	800	ug/L	2.5 U	2.5 U	1.25 U	1.25 J	1.25 U	NS	1.94 J	1.25 UN	1.25 UN	NS	NS	NS
Aluminum	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	40	ug/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

Approval Status:				**Weldon, Watching DGA 001**		**Weldon, Watchung - QP 005**		**Weldon, Watchung - QP 004**		**Weldon, Watchung - QP 003**		**Weldon, Watchung - QP 002**		**Weldon, Watchung - QP 001**	
				Approved		Approved		Rejected		Approved		Rejected		Approved	
Submittal Response Date:				9/5/2014		9/9/2014		9/12/2014		5/7/2014		12/12/2013		10/29/2013	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	64		66		63		50		39		34A	
Cyanide	1600	23000	20	0.115	J	0.778		0.168	J	0.11	J	0.489		0.264	J
Aluminum[1]	78000	NA	6000	**13200**		**9570**		**12700**		**13700**		**20800**		**13800**	
Antimony	31	450	6	1.07	UN	0.54	U	1.17	UN	0.951	J	1.18	UN	0.57	U
Arsenic	19	19	19	1.63		1.07		1.58		1.85		0.425	J	0.31	J
Barium	16000	59000	2100	212		82.9		60.6		74.1		167		149	
Beryllium	16	140	0.7	0.128	U	0.296		0.14	U	**1.24**	**N**	0.182	J	0.27	
Cadmium	78	78	2	0.128	U	0.065	U	0.14	U	0.125	U	0.142	UN	0.07	U
Cobalt	1600	590	90	20		17.9		22.4		26.3	N	34.5		20.5	
Copper	3100	45000	11000	57.9		67.2		60.7		75.8		111		50.5	
Lead	400	800	90	2.46		1.18		3.29		3.71		**95.7**		3.91	
Manganese[1]	11000	59000	65	**323**		**230**		**427**		**414**		**530**		**320**	
Mercury	23	65	0.1	0.005	U	0.014		0.005	U	0.005	U	0.005	U	0.004	J
Nickel (soluble salts)	1600	23000	48	33.5		36.6		29		41.8		55.4		41.5	
Selenium	390	5700	11	0.812	J	1.09		0.75	J	1.24		3.65		0.23	U
Silver[1]	390	5700	1	0.669		0.939		0.808		**2.07**		**1.03**		0.115	U
Thallium	5	79	3	0.855	U	0.432	U	0.933	U	0.83	U	0.947	U	0.455	U
Vanadium	78	1100	NA	42		37.2		51.4		53.6		81.4		46.2	
Zinc[1]	23000	110000	930	31.6		28.8		36.4		25.4	N	50.7		37	
Polychlorinated biphenyls (PCBs)	0.2	1	0.2	0.0035	U	0.0245	U	0.0036	U	0.0034	U	0.0036	U	0.0665	U
Total EPH (mg/kg)	1000	1000	1000	5	J	3.17	U			4.498	J			10.46	
alpha-HCH (alpha-BHC)	0.1	0.5	0.002	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
beta-HCH (beta-BHC)	0.4	2	0.002	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Lindane (gamma-HCH) (gamma-BHC)	0.4	2	0.002	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Heptachlor	0.4	0.7	0.5	0.00035	U	0.000348	U	0.002		0.000335	U	0.000353	U	0.000948	U
Aldrin	0.04	0.2	0.2	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Heptachlor epoxide	0.07	0.3	0.01	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Endosulfan I and Endosulfan II (alpha and beta)	470	6800	4	0.0007	U	0.000696	U	0.000722	U	0.00067	U	0.000353	U	0.001896	U
Dieldrin	0.04	0.2	0.003	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
4,4'-DDE	2	9	18	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Endrin	23	340	1	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.00948	U
4,4'-DDD	3	13	4	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Endosulfan sulfate	470	6800	2	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
4,4'-DDT	2	8	11	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Methoxychlor	390	5700	160	0.00035	U	0.000348	U	0.000361	U	0.000335	U	0.000353	U	0.000948	U
Chlordane (alpha and gamma)	0.2	1	0.05	0.0069	P	0.000696	U	**0.0514**	**P**	0.00067	U	0.000353	U	0.001896	U
Toxaphene	0.6	3	0.3	0.0035	U	0.0035	U	0.0036	U	0.0034	U	0.0036	U	0.0095	U
N-Nitrosodimethylamine	0.7	0.7	0.7	0.0707	U	0.0705	U	0.073	U	0.0678	U	0.0712	U	0.0743	U
Benzaldehyde	6100	68000	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Phenol	18000	210000	8	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Bis(2-chloroethyl)ether	0.4	2	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Bis(2-chloroisopropyl)ether	23	67	5	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2-Chlorophenol (o-Chlorophenol)	310	2200	0.8	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2-Methylphenol (o-Creosol)	310	3400	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,2-oxybis(1-Chloropropane)	NA	NA	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Acetophenone	2	5	3	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
4-Methylphenol (p-Creosol)	31	340	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
N-Nitroso-di-n-propylamine	0.2	0.3	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Hexachloroethane	35	140	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Nitrobenzene	31	340	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Isophorone	510	2000	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4-Dimethylphenol	1200	14000	1	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4-Dichlorophenol	180	2100	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Naphthalene	6	17	25	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Hexachloro-1,3,butadiene	6	25	0.9	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Caprolactam	31000	340000	12	0.0707	U	0.0705	U	0.073	U	0.0678	U	0.0712	U	0.0743	U
2-Methylnaphthalene	230	2400	8	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Hexachlorocyclopentadiene	45	110	320	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4,6-Trichlorophenol	19	74	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4,5-Trichlorophenol	6100	68000	68	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
1,1-Biphenyl	3100	34000	140	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2-Nitroaniline	39	23000	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Acenaphthylene	NA	300000	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4-Dinitrotoluene/2,6-Dinitrotoluene (mixture)	0.7	3	0.2	0.0706	U	0.0704	U	0.073	U	0.0339	U	0.0356	U	0.0744	U
2,6-Dinitrotoluene	0.7	3	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Acenaphthene	3400	37000	110	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
2,4-Dinitrophenol[2]	120	1400	0.3	0.28	U	0.28	U	0.29	U	0.27	UQ	0.28	U	0.3	U
2,4-Dinitrotoluene	0.7	3	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Diethylphthalate	49000	550000	88	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

				Weldon, Watching DGA 001		Weldon, Watchung - QP 005		Weldon, Watchung - QP 004		Weldon, Watchung - QP 003		Weldon, Watchung - QP 002		Weldon, Watchung - QP 001	
Approval Status:				Approved		Approved		Rejected		Approved		Rejected		Approved	
Submittal Response Date:				9/5/2014		9/9/2014		9/12/2014		5/7/2014		12/12/2013		10/29/2013	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	64		66		63		50		39		34A	
Fluorene	2300	24000	170	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	6	68	0.3	0.18	U	0.18	U	0.18	U	0.17	U	0.18	U	0.19	U
N-Nitrosodiphenylamine	99	390	0.4	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Azobenzene (1,2-Diphenylhydrazine)	0.7	2	0.7	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Hexachlorobenzene	0.3	1	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Atrazine	210	2400	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Pentachlorophenol	3	10	0.3	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Phenanthrene	NA	300000	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Anthracene	17000	30000	2400	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Carbazole	24	96	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Di-n-butyl phthalate	6100	68000	760	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Fluoranthene	2300	24000	1300	0.0353	U	0.0352	U	0.11	J	0.0339	U	0.0356	U	0.0372	U
Benzidine	0.7	0.7	0.7	0.0707	U	0.0705	U	0.073	U	0.0678	U	0.0712	U	0.0743	U
Pyrene	1700	18000	840	0.0353	U	0.0352	U	0.0927	J	0.0339	U	0.0356	U	0.0372	U
Butyl benzyl phthalate	1200	14000	230	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
3,3-Dichlorobenzidine	1	4	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Benzo(a)anthracene (1,2-Benzathracene)	0.6	2	0.8	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Chrysene	62	230	80	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Bis(2-ethylhexyl)phthalate	35	1140	1200	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Di-n-octyl phthalate	2400	27000	3300	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	0.6	2	2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Benzo(k)fluoranthene	6	23	25	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Benzo(a)pyrene	0.2	0.2	0.2	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Indeno(1,2,3-cd)pyrene	0.6	2	7	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Dibenzo(a,h)anthracene	0.2	0.2	0.8	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Benzo(ghi)perylene	380000	30000	NA	0.0353	U	0.0352	U	0.0365	U	0.0339	U	0.0356	U	0.0372	U
Dichlorodifluoromethane	490	230000	39	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Chloromethane (Methyl chloride)	4	12	NA	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Vinyl chloride	0.7	2	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Bromomethane (Methyl bromide)	25	59	0.04	0.00066	U	0.00066	U	0.00069	U	0.00064	U	0.0011	U	0.0023	U
Chloroethane (Ethyl chloride)	220	1100	NA	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Trichlorofluoromethane	23000	340000	34	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Tertiary butyl alcohol	1400	11000	0.3	0.0166	U	0.0165	U	0.0171	U	0.0159	U	0.0264	U	0.0115	UQ
1,1-Dichloroethene (1,1-Dichloroethylene)	11	150	0.008	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Acrolein	0.5	1	0.5	0.0166	U	0.0165	U	0.0171	U	0.0159	U	0.0264	U	0.0115	U
Acrylonitrile	0.9	3	0.5	0.0017	U	0.0017	U	0.0017	U	0.0016	U	0.0026	U	0.0115	U
Acetone (2-Propanone)	70000	NA	19	0.0017	U	0.0017	U	0.0017	U	0.26		0.0026	U	0.0115	UQ
Carbon disulfide	7800	110000	6	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Methyl tert-butyl ether (MTBE)	110	320	0.2	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Methyl acetate	78000	NA	22	0.00066	U	0.00066	U	0.00069	U	0.00064	U	0.0011	U	0.0023	U
Methylene chloride (Dichloromethane)	34	97	0.01	0.00033	U	0.00033	U	0.00034	U	0.0009	J	0.0017	JB	0.0019	J
1,2-Dichloroethene (trans) (t-1,2-Dichloroethylene)	300	780	0.6	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,1-Dichloroethane	8	24	0.2	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
2-Butanone (Methyl ethyl ketone) (MEK)	3100	44000	0.9	0.005	U	0.005	U	0.0051	U	0.12		0.0079	U	0.0115	UQ
Carbon tetrachloride	0.6	2	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,2-Dichloroethene (cis) (c-1,2-Dichloroethylene)	230	560	0.3	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Chloroform	0.6	2	0.4	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,1,1-Trichloroethane	290	4200	0.3	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Benzene	2	5	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,2-Dichloroethane	0.9	3	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Trichloroethene (TCE)(Trichloroethylene)	7	20	0.01	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,2-Dichloropropane	2	5	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Bromodichloromethane (Dichlorobromomethane)	1	3	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
4-Methyl-2-pentanone	NA	NA	NA	NS		NS		NS		NS		0.0026	U	NS	
Toluene	6300	91000	7	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,3-Dichloropropene (cis and trans) (summed)	2	7	0.005	0.000666	U	0.00066	U	0.00068	U	0.00064	U	0.00053	U	0.0046	U
1,1,2-Trichloroethane	2	6	0.02	0.00066	U	0.00066	U	0.00069	U	0.00064	U	0.0011	U	0.0023	U
Dibromochloromethane (Chlorodibromomethane)	3	8	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,2-Dibromoethane (ethylene dibromide)	0.008	0.004	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Tetratchloroethene (PCE)(Tetrachloroethylene)	2	5	0.005	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Chlorobenzene	510	7400	0.6	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Ethyl benzene	7800	110000	13	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Total Xylenes	12000	170000	19	0.00099	U	0.00099	U	0.00103	U	0.0013		0.00163	U	0.0069	U
Styrene	90	260	3	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
Bromoform	81	280	0.03	0.00099	U	0.00099	U	0.001	U	0.00095	U	0.0016	U	0.0023	U
Isopropylbenzene	NA	NA	NA	NS		NS		NS		NS		0.00053	U	NS	
1,1,2,2,-Tetratchloroethane	1	3	0.007	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,3-Dichlorobenzene (m-Dichlorobenzene)	5300	59000	19	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,4-Dichlorobenzene (p-Dichlorobenzene)	5	13	2	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U

Backfill Sample Comparison to NJDEP Soil Standards

Study Area 6

Honeywell International Inc.

Jersey City, New Jersey

				Weldon, Watching DGA 001		Weldon, Watchung - QP 005		Weldon, Watchung - QP 004		Weldon, Watchung - QP 003		Weldon, Watchung - QP 002		Weldon, Watchung - QP 001	
Approval Status:				Approved		Approved		Rejected		Approved		Rejected		Approved	
Submittal Response Date:				9/5/2014		9/9/2014		9/12/2014		5/7/2014		12/12/2013		10/29/2013	
Submittal Number:	**RDCSRS (2012)**	**NRDCSRS (2012)**	**IGW (2013)**	64		66		63		50		39		34A	
1,2-Dichlorobenzene (o-Dichlorobenzene)	5300	59000	17	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
1,2-Dibromo-3-chloropropane[2]	0.08	0.2	0.005	0.0033	U	0.0033	U	0.0034	U	0.0032	U	**0.0053**	**U**	0.0023	U
1,2,4-Trichlorobenzene	73	820	0.7	0.00033	U	0.00033	U	0.00034	U	0.00032	U	0.00053	U	0.0023	U
DICAMBA	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
DICHLORPROP	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
2,4-D	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
2,4,5-TP (Silvex)	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
2,4,5-T	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
2,4-DB	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
DINOSEB	NA	NA	NA	0.0176	U	0.0176	U	0.0183	U	0.0169	U	NS		NS	
Hexavalent Chromium (Study Area 6 Backfill Criteria: 1 mg/kg)	1	1	1	0.66		0.43	U	0.61		0.42	U	0.44	U	0.89	

SPLP Parameter[3]	**SPLP Guidance**	**Units**									
Arsenic	3	ug/L	NS	NS	NS	*5*	*U*	NS	NS		
Barium	120000	ug/L	NS	NS	NS	192		NS	NS		
Beryllium	20	ug/L	NS	NS	NS	1.5	U	NS	NS		
Cadmium	80	ug/L	NS	NS	NS	1.5	U	NS	NS		
Chromium	--	ug/L	NS	NS	NS	3.25	J	NS	NS		
Lead	100	ug/L	NS	NS	NS	3	U	NS	NS		
Nickel	2000	ug/L	NS	NS	NS	10	U	NS	10	U	
Selenium	800	ug/L	NS	NS	NS	5	U	NS	NS		
Silver	800	ug/L	NS	NS	NS	2.5	U	NS	NS		
Aluminum	--	--	NS	NS	NS	NS		NS	847		
Manganese	--	--	NS	NS	NS	NS		NS	33.5		
Mercury	40	ug/L	NS	NS	NS	NS		NS	NS		

Legend

Bold - >IGW

Underline - >NRDCSRS

Highlight - >RDCSRS

Italics - > SPLP

NA = Not Available

NS = Not Sampled

U = Not Detected

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits

N = Spiked sample recovery not within control limits

Notes:

1.) In accordance with the NJDEP's Frequently Asked Questions for the Impact to Ground Water Pathway in Soil Remediation Standards, the GWQS for aluminum, manganese, silver, and zinc are secondary (i.e. they are not based on health considerations); therefore, the NJDEP has determined that the IGW pathway does not need to be addressed for these contaminants, unless there is reason to believe their presence is due to a site discharge.

2.) For samples in which the reported 1,2-Dibromo-3-chloropropane and 2,4-Dinitrophenol level exceeds the IGW standard, the analytical lab has provided an e-mail confirming that 1,2-Dibromo-3-chloropropane or 2,4-Dinitrophenol is below the reported level and below IGW.

3) Three SPLP samples were taken per submittal. The highest value of the three samples is reported in this table. SPLP reported only when a parameter exceeded IGW.

4) These samples represent material used in both SA-6 North and SA-6 South.

*All metals and total EPH reported in mg/kg. All other parameters reported in ug/kg.

TILCON NEW YORK INC.

PHONE: 973-366-7741 • 625 MT. HOPE ROAD • WHARTON, NEW JERSEY 07885 • FAX: 973-659-3902

September 28, 2016

ENTACT, LLC
575 State Route 440
Jersey City, NJ 07305

Attn: Caroline Panico
Re: Honeywell SA6 South Cap Toe Drains

Caroline,

Tilcon NY Inc. New Jersey Division confirms that the materials produced from our Mt. Hope Quarry are defined as virgin Gneiss mined at Mt. Hope Quarry, 625 Mt. Hope Road, Block No(s) 20001, 70001, 20101 – Lot No(s) 5.01, 5.02, 7, 2, 6 Wharton Borough, Morris County NJ. The material is identified on the job with Tilcon NJ delivery tickets.

The material produced at the Mt. Hope quarry is processed through the plant to the various sizes with the source remaining the same. The 1 ½" stone is produced from the same quarry/material as the DGA.

Attached is also the analytical data for your reference.

Please feel free to contact me for any additional information.
Thank You,

Aleksandra Rogozinski
Quality Control Supervisor
Tilcon New York, Inc.
(973) 659-3790
arogozinski@tilconny.com

TILCON-NY **Mt. Hope Quarry** Fax 973-659-3978

625 Mount Hope Rd. • Wharton, N.J. 07946 • 973-366-7741

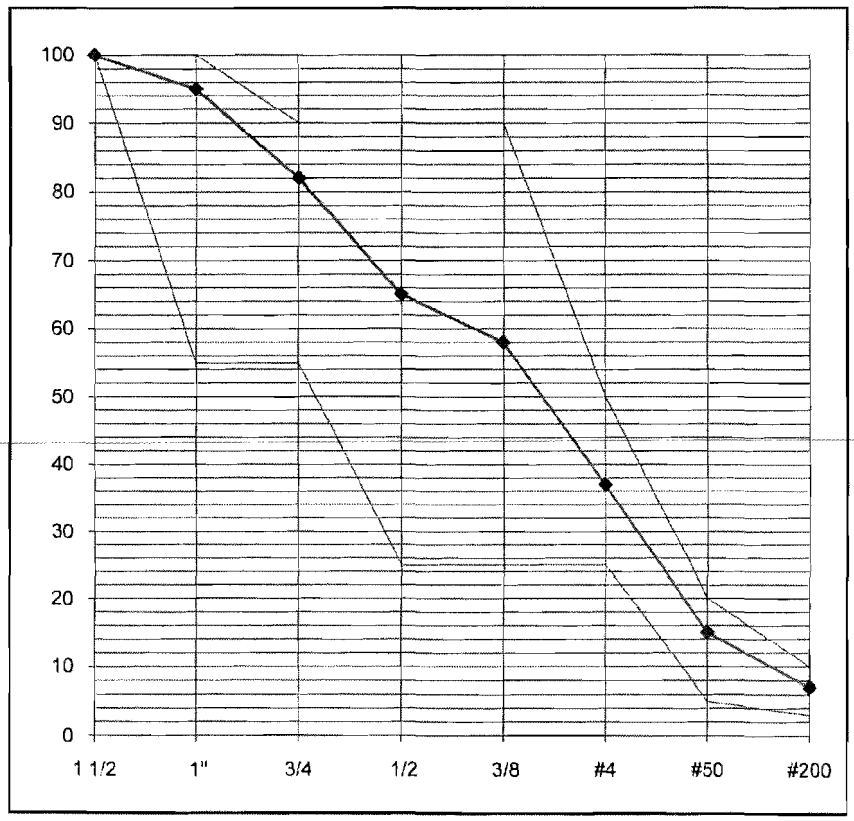
Typical Gradation,DGABC

Project
Honeywell SA6 Jersey City, NJ

Contractor
Entact

Sp. Gr	2.71
Loose	95.7
Rodded	104

	Typical	Prod. Target	
	% Pass	Low	High
1 1/2	100	100	100
1"	95	55	100
3/4	82	55	90
1/2	65	25	90
3/8	58	25	90
#4	37	25	50
#50	15	5	20
#200	7	3	10



Tilcon Inc confirms that DGABC available at Mt. Hope Quarry conforms to section 901 of the ***New Jersey Department of Transportation StandardSpecifications for Road and Bridge Construction.*** The material is defined as virgin Gneiss mined at Mt. Hope Quarry, 625 Mount Hope Road, Block 20001-Lot 6.01 Wharton Borough, Morris County NJ. The material is identified on the job with Tilcon delivery tickets.

The unit weights and voids are for process control and should be verified by the contractor before use.

APPENDIX M

COMPACTION TESTS

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-01-1	7/13/2016	686056.7	602102.5	11.70	107.6	7.8	117	8.6	92.0	90	1	GDL Cover Soil		V5N
1	CS-02-1	7/13/2016	686078.8	602160.6	12.30	111.1	7.5	117	8.6	95.0	90	1	GDL Cover Soil		V5N
1	CS-03-1	7/13/2016	686035.6	602132.4	12.50	107.5	7.8	117	8.6	92.0	90	1	GDL Cover Soil		V5N
1	CS-04-1	7/13/2016	685983.2	602018.1	12.90	111.1	7.5	117	8.6	95.0	90	1	GDL Cover Soil		V5N
1	CS-05-1	7/13/2016	685959.4	602142.7	13.50	110	7.5	117	8.6	94.0	90	1	GDL Cover Soil		V5N
1	CS-06-1	7/13/2016	685999.9	602165.7	15.70	112.15	7	117	8.6	96.0	90	1	GDL Cover Soil		V5N
1	CS-07-1	7/13/2016	686052.5	602190.6	12.30	110	8.4	117	8.6	94.0	90	1	GDL Cover Soil		V5N
1	CS-08-1	7/13/2016	685932.8	602188.2	14.00	107.5	7.8	117	8.6	91.9	90	2	GDL Cover Soil		V5N
1	CS-09-1	7/13/2016	685996.5	602222	15.90	108.16	8.3	117	8.6	93.0	90	2	GDL Cover Soil		V5N
1	CS-10-1	7/13/2016	686031.2	602252.7	12.40	111.1	7.2	117	8.6	95.0	90	2	GDL Cover Soil		V5N
1	CS-11-1	7/18/2016	686019.3	602311.2	13.10	121.1	5.2	117	8.6	103.5	90	3	GDL Cover Soil		V5N
1	CS-12-1	7/18/2016	686002.8	602277.9	13.00	116.6	5.3	117	8.6	99.7	90	3	GDL Cover Soil		V5N
1	CS-13-1	7/18/2016	685956.2	602253.6	16.30	115.9	5.1	117	8.6	99.1	90	3	GDL Cover Soil		V5N
1	CS-14-1	7/18/2016	685902.6	602234.8	14.50	117.2	7.9	117	8.6	100.2	90	3	GDL Cover Soil		V5N
1	SF-01-1	7/18/2016	686054.2	602111.9	13.40	117.5	3.9	112.2	9.7	104.7	95	1	Structural Fill	Final Elevation	V5N
1	SF-02-1	7/18/2016	686072.1	602155.3	13.41	118.1	1.8	112.2	9.7	105.3	95	1	Structural Fill		V5N
2	SF-02-2	7/18/2016	686067.9	602166.2	13.80	113.1	2.5	112.2	9.7	100.8	95	1	Structural Fill	Final Elevation	V5N
1	SF-03-1	7/18/2016	686058.0	602202.1	13.40	114.9	1.6	112.2	9.7	102.4	95	1	Structural Fill		V5N
1	SF-04-1	7/18/2016	686035.3	602247.1	13.30	115.0	2.2	112.2	9.7	102.5	95	2	Structural Fill		V5N
1	HC-24-1	8/29/2016	685713.6	602653.3	21.60	115.4	8.5	126	9.5	91.6	90	6	Horizon C	Back Scatter	V5N
1	HC-25-1	8/29/2016	685766.9	602684.5	18.80	116.7	8.8	126	9.5	92.6	90	6	Horizon C	Back Scatter	V5N
1	HC-26-1	8/29/2016	685809.6	602705.3	18.70	118.9	8.4	126	9.5	94.4	90	6	Horizon C	Back Scatter	V5N
1	HC-92-1	9/16/2016	685103.9	603560.3	13.90	105.7	7.5	126	9.5	83.9	90	12	Horizon C	Back Scatter; back blade	V5N
1	HC-01-1	7/20/2016	686011.1	602089.8	12.90	120.5	5.2	126	9.5	95.6	90	1	Horizon C	Back Scatter	V5N
1	SF-12-1	7/20/2016	685987.4	602075.7	13.50	107.0	3.8	112.2	9.7	95.4	95	1	Structural Fill		V5N
1	SF-13-1	7/20/2016	685963.8	602121.8	14.20	107.6	3.7	112.2	9.7	95.9	95	1	Structural Fill		V5N
1	SF-14-1	7/20/2016	685931.2	602176.8	14.90	108.5	3.5	112.2	9.7	96.7	95	2	Structural Fill		V5N
1	CS-15-1	7/22/2016	685859.2	602274.7	15.30	113.6	5.3	117	8.6	97.1	90	3	GDL Cover Soil		V5N
1	CS-16-1	7/22/2016	685889.8	602275.9	15.50	115.1	7.5	117	8.6	98.4	90	3	GDL Cover Soil		V5N
1	CS-17-1	7/22/2016	685930.0	602308.4	16.90	114.7	5.2	117	8.6	98.0	90	3	GDL Cover Soil		V5N
1	CS-18-1	7/22/2016	685978.5	602322.4	13.70	115.2	6.3	117	8.6	98.5	90	3	GDL Cover Soil		V5N
1	CS-19-1	7/22/2016	685995.4	602358.6	13.60	112.3	7.3	117	8.6	96.0	90	3	GDL Cover Soil		V5N
1	CS-20-1	7/22/2016	685974.2	602407.6	14.20	110.5	8.5	117	8.6	94.4	90	3	GDL Cover Soil		V5N
1	CS-21-1	7/22/2016	685955.3	602367.3	14.20	115.2	4.6	117	8.6	98.5	90	3	GDL Cover Soil		V5N
1	CS-22-1	7/22/2016	685908.8	602343.5	15.00	121.8	9.2	117	8.6	104.1	90	3	GDL Cover Soil		V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-23-1	7/22/2016	685867.1	602319.4	16.10	113.1	5.3	117	8.6	96.7	90	3	GDL Cover Soil		V5N
1	HC-02-1	7/20/2016	685997.1	602121.8	13.40	120.0	5.0	126	9.5	95.2	90	1	Horizon C	Back Scatter	V5N
1	HC-03-1	7/20/2016	686032.1	602156.7	12.40	119.3	5.6	126	9.5	94.7	90	1	Horizon C	Back Scatter	V5N
2	SF-03-2	7/22/2016	686050.7	602208.4	14.20	114.8	1.7	112.2	9.7	102.3	95	1	Structural Fill	Final Elevation	V5N
2	SF-04-2	7/22/2016	686035.2	602238.3	14.20	115.6	1.4	112.2	9.7	103.0	95	1	Structural Fill	Final Elevation	V5N
1	HC-04-1	7/20/2016	686008.8	602201.9	16.20	122.0	5.4	126	9.5	96.8	90	1	Horizon C	Back Scatter	V5N
1	HC-05-1	7/20/2016	685970.9	602168.3	14.40	119.5	5.6	126	9.5	94.8	90	1	Horizon C	Back Scatter	V5N
1	SF-05-1	7/28/2016	686021.4	602296.2	14.40	107.5	8.2	112.2	9.7	95.8	95	3	Structural Fill	Final Elevation	V5N
2	SF-12-2	7/28/2016	685986.7	602075.0	14.00	108.8	7.5	112.2	9.7	97.0	95	1	Structural Fill	Final Elevation	V5N
2	SF-13-2	7/28/2016	685958.4	602125.9	15.00	107.6	8.0	112.2	9.7	95.9	95	1	Structural Fill	Final Elevation	V5N
1	SF-15-1	7/28/2016	685894.5	602235.3	15.80	106.7	8.3	112.2	9.7	95.1	95	3	Structural Fill		V5N
1	CS-24-1	8/3/2016	685812.8	602367.6	16.10	108.1	8.3	117	8.6	92.4	90	4	GDL Cover Soil		V5N
1	CS-25-1	8/3/2016	685841.8	602355.4	16.40	107.6	8.9	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-26-1	8/3/2016	685887.8	602387.1	18.10	108.9	8.8	117	8.6	93.1	90	4	GDL Cover Soil		V5N
1	CS-27-1	8/3/2016	685931.8	602410.4	15.10	107.6	9.5	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-28-1	8/3/2016	685951.7	602456.4	14.70	108.9	8.5	117	8.6	93.1	90	4	GDL Cover Soil		V5N
1	CS-29-1	8/3/2016	685908.7	602454.7	15.80	110.0	6.5	117	8.6	94.0	90	4	GDL Cover Soil		V5N
1	CS-30-1	8/3/2016	685864.2	602431.3	16.00	107.6	8.8	117	8.6	92.0	90	4	GDL Cover Soil		V5N
1	CS-31-1	8/3/2016	685820.3	602408.9	16.90	110.0	6.1	117	8.6	94.0	90	4	GDL Cover Soil		V5N
1	HC-06-1	7/22/2016	685943.5	602217.1	16.60	121.2	8.2	126	9.5	96.2	90	1	Horizon C	Back Scatter	V5N
1	HC-07-1	7/22/2016	685985.9	602241.3	16.50	123.9	10.2	126	9.5	98.3	90	1	Horizon C	Back Scatter	V5N
1	HC-08-1	7/28/2016	685953.9	602285.9	17.12	114.2	8.9	126	9.5	90.6	90	2	Horizon C	Back Scatter	V5N
1	HC-09-1	7/28/2016	685921.7	602262.1	15.00	113.5	9.2	126	9.5	90.1	90	2	Horizon C	Back Scatter	V5N
1	HC-10-1	8/5/2016	685897.1	602316.3	15.80	117.5	8.2	126	9.5	93.3	90	2	Horizon C	Back Scatter	V5N
1	HC-11-1	8/5/2016	685939.6	602343.2	17.70	119.5	7.1	126	9.5	94.8	90	3	Horizon C	Back Scatter	V5N
1	SF-06-1	8/5/2016	686001.6	602337.9	14.70	110.0	2.3	112.2	9.7	98.0	95	3	Structural Fill	Final Elevation	V5N
1	SF-07-1	8/5/2016	685981.7	602383.3	15.20	111.0	1.1	112.2	9.7	98.9	95	3	Structural Fill	Final Elevation	V5N
2	SF-14-2	8/5/2016	685921.2	602172.6	15.20	110.0	1.8	112.2	9.7	98.0	95	2	Structural Fill	Final Elevation	V5N
2	SF-15-2	8/5/2016	685896.6	602231.8	16.40	110.0	1.8	112.2	9.7	98.0	95	3	Structural Fill	Final Elevation	V5N
1	SF-16-1	8/5/2016	685843.1	602309.5	16.40	111.0	1.1	112.2	9.7	98.9	95	3	Structural Fill	Final Elevation	V5N
1	CS-32-1	8/10/2016	685796.3	602441.1	17.30	106.1	8.8	117	8.6	90.7	90	4	GDL Cover Soil		V5N
1	CS-33-1	8/10/2016	685845.9	602479.3	16.50	105.6	10.0	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-34-1	8/10/2016	685890.1	602491.3	18.50	105.9	7.2	117	8.6	90.5	90	5	GDL Cover Soil		V5N
1	CS-35-1	8/10/2016	685926.5	602522.2	11.00	108.3	9.6	117	8.6	92.6	90	5	GDL Cover Soil		V5N
1	CS-36-1	8/10/2016	685910.8	602551.9	15.70	105.9	9.8	117	8.6	90.5	90	5	GDL Cover Soil		V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-37-1	8/10/2016	685859.0	602544.1	19.20	110.0	7.8	117	8.6	94.0	90	5	GDL Cover Soil		V5N
1	CS-38-1	8/10/2016	685818.5	602520.0	19.60	106.0	10.2	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-39-1	8/10/2016	685771.2	602499.5	17.90	106.0	10.2	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-40-1	8/10/2016	685761.7	602455.7	17.10	112.2	7.8	117	8.6	95.9	90	5	GDL Cover Soil		V5N
1	CS-41-1	8/10/2016	685727.7	602509.9	17.80	105.6	9.2	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-42-1	8/10/2016	685750.8	602543.2	17.90	105.6	8.9	117	8.6	90.3	90	5	GDL Cover Soil		V5N
1	CS-43-1	8/10/2016	685790.6	602568.0	17.10	106.0	8.9	117	8.6	90.6	90	5	GDL Cover Soil		V5N
1	CS-44-1	8/10/2016	685829.9	602580.0	19.50	112.5	7.8	117	8.6	96.2	90	5	GDL Cover Soil		V5N
1	CS-45-1	8/10/2016	685883.5	602613.3	16.10	105.5	9.2	117	8.6	90.2	90	5	GDL Cover Soil		V5N
1	SF-08-1	8/10/2016	685947.6	602444.5	15.50	107.6	5.6	112.2	9.7	95.9	95	4	Structural Fill	Final Elevation	V5N
1	HC-12-1	8/5/2016	685923.2	602385.8	15.60	118.5	9.6	126	9.5	94.0	90	3	Horizon C	Back Scatter	V5N
1	HC-13-1	8/5/2016	685878.4	602355.3	18.70	116.5	11.6	126	9.5	92.5	90	3	Horizon C	Back Scatter	V5N
1	HC-14-1	8/5/2016	685857.5	602397.8	19.00	116.5	10.6	126	9.5	92.5	90	3	Horizon C	Back Scatter	V5N
1	HC-15-1	8/5/2016	685901.5	602426.6	16.00	117.5	8.9	126	9.5	93.3	90	3	Horizon C	Back Scatter	V5N
1	HC-16-1	8/11/2016	685877.5	602467.2	16.50	119.8	4.5	126	9.5	95.1	90	3	Horizon C	Back Scatter	V5N
1	SF-09-1	8/11/2016	685919.3	602481.2	16.30	107.8	5.2	112.2	9.7	96.1	95	4	Structural Fill	Final Elevation	V5N
1	SF-18-1	8/11/2016	685796.5	602421.3	18.00	107.8	5.0	112.2	9.7	96.1	95	4	Structural Fill		V5N
1	SF-19-1	8/11/2016	685765.4	602477.7	18.70	108.5	5.2	112.2	9.7	96.7	95	5	Structural Fill		V5N
1	CS-46-1	8/16/2016	685858.5	602654.7	16.70	106.7	5.4	117	8.6	91.2	90	6	GDL Cover Soil		V5N
1	CS-47-1	8/16/2016	685816.0	602640.9	14.90	117.6	6.3	117	8.6	100.5	90	6	GDL Cover Soil	Start Reduced Frequency	V5N
1	CS-48-1	8/16/2016	685772.5	602607.5	15.30	118.0	7.6	117	8.6	100.9	90	6	GDL Cover Soil		V5N
1	CS-49-1	8/16/2016	685725.8	602586.9	16.30	115.6	7.1	117	8.6	98.8	90	6	GDL Cover Soil		V5N
1	CS-50-1	8/16/2016	685696.7	602558.7	17.20	116.2	5.8	117	8.6	99.3	90	6	GDL Cover Soil		V5N
1	CS-51-1	8/16/2016	685666.9	602613.2	18.90	112.5	4.4	117	8.6	96.2	90	6	GDL Cover Soil		V5N
1	CS-52-1	8/16/2016	685706.9	602626.6	18.00	118.2	5.7	117	8.6	101.0	90	6	GDL Cover Soil		V5N
1	CS-53-1	8/16/2016	685738.4	602639.4	17.60	114.5	6.7	117	8.6	97.9	90	6	GDL Cover Soil		V5N
1	CS-54-1	8/16/2016	685793.1	602675.7	17.50	113.7	6.0	117	8.6	97.2	90	6	GDL Cover Soil		V5N
1	CS-55-1	8/16/2016	685830.0	602699.4	15.70	113.0	8.9	117	8.6	96.6	90	6	GDL Cover Soil		V5N
1	CS-94-1	8/19/2016	685064.3	603656.9	7.50	109.8	5.4	117	8.6	93.8	90	7	GDL Cover Soil		V5N
1	CS-95-1	8/19/2016	685177.8	603698.4	6.20	113.7	7.9	117	8.6	97.2	90	7	GDL Cover Soil		V5N
1	HC-17-1	8/11/2016	685824.6	602442.2	17.50	122.7	6.4	126	9.5	97.4	90	3	Horizon C	Back Scatter	V5N
1	HC-18-1	8/11/2016	685791.3	602476.8	20.80	118.5	5.8	126	9.5	94.0	90	3	Horizon C	Back Scatter	V5N
1	HC-19-1	8/11/2016	685833.9	602502.6	19.80	124.1	5.3	126	9.5	98.5	90	3	Horizon C	Back Scatter	V5N
1	SF-10-1	8/19/2016	685907.4	602542.6	16.80	120.0	2.4	112.2	9.7	107.0	95	5	Structural Fill		V5N
1	SF-17-1	8/19/2016	685816.7	602355.7	17.40	119.0	1.2	112.2	9.7	106.1	95	4	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
1	SF-20-1	8/19/2016	685723.9	602524.1	19.30	115.8	2.8	112.2	9.7	103.2	95	5	Structural Fill	Final Elevation	V5N
1	CS-57-1	8/24/2016	685725.4	602744.3	23.00	119.0	6.2	117	8.6	101.7	90	8	GDL Cover Soil		V5N
1	CS-58-1	8/24/2016	685648.5	602672.7	19.40	114.0	7.6	117	8.6	97.4	90	8	GDL Cover Soil		V5N
1	CS-59-1	8/24/2016	685678.3	602742.7	22.60	120.3	5.3	117	8.6	102.8	90	9	GDL Cover Soil		V5N
1	CS-60-1	8/24/2016	685783.3	602811.9	19.60	114.3	8.3	117	8.6	97.7	90	9	GDL Cover Soil		V5N
1	CS-61-1	8/24/2016	685983.1	602881.8	19.10	118.6	6.6	117	8.6	101.4	90	9	GDL Cover Soil		V5N
1	CS-62-1	8/24/2016	685690.9	602859.0	21.30	115.6	4.5	117	8.6	98.8	90	9	GDL Cover Soil		V5N
1	CS-63-1	8/24/2016	685600.9	602803.9	19.90	116.4	6.2	117	8.6	99.5	90	9	GDL Cover Soil		V5N
1	CS-64-1	8/24/2016	685711.9	602937.4	20.40	108.3	3.9	117	8.6	92.6	90	9	GDL Cover Soil		V5N
1	CS-65-1	8/24/2016	685611.8	602885.6	20.30	110.2	4.8	117	8.6	94.2	90	9	GDL Cover Soil		V5N
1	CS-66-1	8/24/2016	685705.6	603007.6	19.70	117.8	7.7	117	8.6	100.7	90	9	GDL Cover Soil		V5N
1	CS-67-1	8/24/2016	685615.9	602991.2	21.40	113.1	6.6	117	8.6	96.7	90	9	GDL Cover Soil		V5N
1	CS-68-1`	8/24/2016	685536.6	602916.2	19.40	112.3	6.2	117	8.6	96.0	90	9	GDL Cover Soil		V5N
1	SF-11-1	8/24/2016	685873.3	602605.8	17.50	115.1	2.4	112.2	9.7	103.7	95	5	Structural Fill		V5N
1	SF-24-1	8/24/2016	685854.9	602653.8	17.90	112.2	1.9	112.2	9.7	100.0	95	5	Structural Fill	Final Elevation	V5N
1	CS-56-1	8/29/2016	685809.2	602783.8	15.90	111.2	6.3	117	8.6	95.0	90	9	GDL Cover Soil	Moved point to Area 9	V5N
1	CS-69-1	8/29/2016	685642.2	603080.6	18.90	110.3	3.9	117	8.6	94.3	90	10W	GDL Cover Soil		V5N
1	CS-73-1	8/29/2016	685596.9	603156.9	17.20	113.3	5.7	117	8.6	96.8	90	10W	GDL Cover Soil		V5N
1	CS-75-1	8/29/2016	685451.4	603140.5	10.70	119.1	5.6	117	8.6	101.8	90	10	GDL Cover Soil	Corridor	V5N
1	DGA-1-1	8/29/2016	685498.1	603803.2	9.10	129.1	1.7	135.9	9.5	95.0	95	MUA	DGA	Driveway	V5N
1	DGA-2-1	8/29/2016	685479.7	603838.2	8.70	129.4	1.6	135.9	9.5	95.2	95	MUA	DGA	Driveway	V5N
1	DGA-3-1	8/29/2016	685462.6	603871.9	8.40	131.0	1.5	135.9	9.5	96.4	95	MUA	DGA	Driveway	V5N
1	HC-23-1	8/19/2016	685768.3	602522.6	18.50	116.8	9.7	126	9.5	92.7	90	5	Horizon C	Back Scatter	V5N
1	HC-28-1	8/31/2016	685753.3	602747.5	23.20	115.2	8.3	126	9.5	91.4	90	8	Horizon C	Back Scatter	V5N
1	HC-29-1	8/31/2016	685711.3	602718.5	23.00	113.4	10.9	126	9.5	90.0	90	8	Horizon C	Back Scatter	V5N
2	SF-10-2	8/29/2016	685907.0	602542.6	16.90	115.8	0.9	112.2	9.7	103.2	95	5	Structural Fill	Final Elevation	V5N
2	SF-11-2	8/29/2016	685878.3	602607.5	17.60	116.2	1.1	112.2	9.7	103.6	95	5	Structural Fill	Final Elevation	V5N
2	SF-18-2	8/29/2016	685782.4	602413.8	18.10	119.7	0.9	112.2	9.7	106.7	95	4	Structural Fill	Final Elevation	V5N
2	SF-19-2	8/29/2016	685755.2	602456.9	18.80	118.4	0.7	112.2	9.7	105.5	95	5	Structural Fill	Final Elevation	V5N
1	SF-21-1	8/29/2016	685788.0	602599.6	17.50	112.7	1.2	112.2	9.7	100.4	95	6	Structural Fill		V5N
2	SF-21-2	8/29/2016	685735.3	602583.2	18.40	117.9	1.0	112.2	9.7	105.1	95	6	Structural Fill	Final Elevation	V5N
1	SF-22-1	8/29/2016	685788.0	602599.6	16.40	115.8	1.3	112.2	9.7	103.2	95	6	Structural Fill		V5N
2	SF-22-2	8/29/2016	685777.9	602614.3	17.40	113.0	1.0	112.2	9.7	100.7	95	6	Structural Fill	Final Elevation	V5N
1	SF-23-1	8/29/2016	685822.7	602629.9	16.50	111.7	1.4	112.2	9.7	99.6	95	6	Structural Fill		V5N
2	SF-23-2	8/29/2016	685825.2	602646.2	17.50	121.4	1.0	112.2	9.7	108.2	95	6	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	SF-35-1	8/29/2016	685689.1	602585.9	19.30	117.3	0.9	112.2	9.7	104.5	95	6	Structural Fill		V5N
1	SF-36-1	8/29/2016	685656.5	602646.9	20.20	117.3	1.6	112.2	9.7	104.5	95	8	Structural Fill	Final Elevation	V5N
1	SF-37-1	8/29/2016	685618.4	602697.5	20.70	108.6	2.7	112.2	9.7	96.8	95	9	Structural Fill	Final Elevation	V5N
1	HC-30-1	8/31/2016	686686.8	602719.5	22.90	125.9	8.7	126	9.5	99.9	90	8	Horizon C	Back Scatter	V5N
1	HC-31-1	8/31/2016	685632.8	602740.5	20.40	123.4	10.8	126	9.5	97.9	90	9	Horizon C	Back Scatter	V5N
1	HC-32-1	8/31/2016	685685.6	602764.1	23.40	113.4	7.4	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-33-1	8/31/2016	685727.2	602785.9	24.00	113.4	7.8	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-34-1	8/31/2016	685766.6	602816.6	23.10	114.4	6.6	126	9.5	90.8	90	9	Horizon C	Back Scatter	V5N
1	HC-35-1	8/31/2016	685741.4	602861.8	23.70	115.8	6.9	126	9.5	91.9	90	9	Horizon C	Back Scatter	V5N
1	HC-36-1	8/31/2016	685690.7	602833.7	21.70	117.7	7.6	126	9.5	93.4	90	9	Horizon C	Back Scatter	V5N
1	HC-37-1	8/31/2016	685656.1	602815.9	20.80	113.4	8.1	126	9.5	90.0	90	9	Horizon C	Back Scatter	V5N
1	HC-38-1	8/31/2016	685609.9	602779.5	20.40	115.1	9.2	126	9.5	91.3	90	9	Horizon C	Back Scatter	V5N
1	HC-39-1	8/31/2016	685592.8	602825.4	20.30	118.1	10.2	126	9.5	93.7	90	9	Horizon C	Back Scatter	V5N
1	HC-40-1	8/31/2016	685635.7	602852.3	20.90	116.1	9.9	126	9.5	92.1	90	9	Horizon C	Back Scatter	V5N
1	HC-41-1	8/31/2016	685681.5	602878.3	21.90	121.1	8.2	126	9.5	96.1	90	9	Horizon C	Back Scatter	V5N
1	HC-42-1	8/31/2016	685732.8	602895.5	20.90	117.1	7.8	126	9.5	92.9	90	9	Horizon C	Back Scatter	V5N
1	HC-27-1	9/1/2016	685785.7	602767.0	22.40	115.4	8.6	126	9.5	91.6	90	8	Horizon C	Back Scatter	V5N
1	HC-43-1	9/2/2016	685692.1	602950.2	21.10	127.0	9.9	126	9.5	100.8	90	9	Horizon C	Back Scatter	V5N
2	SF-35-2	8/31/2016	685677.8	602581.4	19.50	110.5	0.9	112.2	9.7	98.5	95	6	Structural Fill	Final Elevation	V5N
1	SF-38-1	8/31/2016	685584.9	602752.8	20.80	110.9	1.7	112.2	9.7	98.8	95	9	Structural Fill	Final Elevation	V5N
1	SF-39-1	8/31/2016	685552.4	602813.4	20.90	109.0	1.4	112.2	9.7	97.1	95	9	Structural Fill	Final Elevation	V5N
1	SF-44-1	8/31/2016	685384.5	603107.9	11.70	109.1	1.7	112.2	9.7	97.2	95	10	Structural Fill	Corridor	V5N
1	SF-45-1	8/31/2016	685416.7	603122.6	11.40	114.9	2.3	112.2	9.7	102.4	95	10	Structural Fill	Corridor	V5N
1	SF-46-1	8/31/2016	685463.1	603138.2	11.50	117.0	2.6	112.2	9.7	104.3	95	10	Structural Fill	Corridor	V5N
1	SF-47-1	8/31/2016	685499.8	603155.4	11.80	113.5	1.5	112.2	9.7	101.2	95	10	Structural Fill	Corridor	V5N
1	SF-48-1	8/31/2016	685543.0	603169.7	12.40	122.2	1.8	112.2	9.7	108.9	95	10	Structural Fill	Corridor	V5N
1	SF-49-1	8/31/2016	685580.7	603190.4	14.10	114.0	2.4	112.2	9.7	101.6	95	10	Structural Fill	Corridor	V5N
1	CS-70-1	9/1/2016	685518.2	603005.1	22.20	107.7	3.9	117	8.6	92.1	90	10W	GDL Cover Soil		V5N
1	CS-71-1	9/1/2016	685425.6	603080.3	17.00	112.9	6.5	117	8.6	96.5	90	10W	GDL Cover Soil		V5N
1	CS-72-1	9/1/2016	685558.2	603808.0	21.10	106.3	4.7	117	8.6	91.3	90	10W	GDL Cover Soil		V5N
1	CS-74-1	9/1/2016	685553.7	603203.7	15.60	111.6	4.5	117	8.6	95.4	90	11	GDL Cover Soil		V5N
1	CS-76-1	9/1/2016	685407.5	603198.1	18.50	119.5	5.3	117	8.6	102.1	90	11	GDL Cover Soil		V5N
1	CS-77-1	9/1/2016	685455.1	603251.1	15.10	113.9	4.3	117	8.6	97.3	90	11	GDL Cover Soil		V5N
1	CS-78-1	9/1/2016	685525.3	603246.0	14.70	117.4	6.8	117	8.6	100.3	90	11	GDL Cover Soil		V5N
1	HC-44-1	9/2/2016	685685.5	602922.7	22.00	114.5	11.1	126	9.5	90.9	90	9	Horizon C	Back Scatter	V5N

FIELD DENSITY TEST SUMMARY LOG
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JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
2	SF-44-2	9/1/2016	685376.0	603128.1	12.90	113.7	2.3	112.2	9.7	101.3	95	10	Structural Fill	Corridor	V5N
2	SF-45-2	9/1/2016	685427.3	603121.1	12.40	111.6	0.7	112.2	9.7	99.5	95	10	Structural Fill	Corridor	V5N
2	SF-46-2	9/1/2016	685470.5	603140.4	12.50	112.4	2.3	112.2	9.7	100.2	95	10	Structural Fill	Corridor	V5N
2	SF-47-2	9/1/2016	685511.7	603155.8	12.90	109.0	2.8	112.2	9.7	97.1	95	10	Structural Fill	Corridor	V5N
3	SF-47-3	9/1/2016	685497.9	603142.1	13.70	106.8	1.9	112.2	9.7	95.2	95	10	Structural Fill	Corridor	V5N
2	SF-48-2	9/1/2016	685556.8	603171.4	13.80	115.0	2.6	112.2	9.7	102.5	95	10	Structural Fill	Corridor	V5N
3	SF-48-3	9/1/2016	685539.6	603160.2	14.50	110.6	1.7	112.2	9.7	98.6	95	10	Structural Fill	Corridor	V5N
2	SF-49-2	9/1/2016	685586.0	603189.3	15.50	113.9	2.1	112.2	9.7	101.5	95	10	Structural Fill	Corridor	V5N
3	SF-49-3	9/1/2016	685587.9	603182.3	16.70	110.4	2.3	112.2	9.7	98.4	95	10	Structural Fill	Corridor	V5N
1	HC-45-1	9/2/2016	685613.1	602897.6	20.90	120.4	11.2	126	9.5	95.6	90	9	Horizon C	Back Scatter	V5N
1	HC-46-1	9/2/2016	685561.8	602872.7	20.30	121.0	9.3	126	9.5	96.0	90	9	Horizon C	Back Scatter	V5N
1	HC-47-1	9/9/2016	685537.9	602916.9	20.00	118.8	8.4	126	9.5	94.3	90	9	Horizon C	Back Scatter	V5N
1	HC-48-1	9/9/2016	685583.8	602941.4	20.80	113.6	7.6	126	9.5	90.2	90	9	Horizon C	Back Scatter	V5N
3	SF-44-3	9/2/2016	685386.8	603098.2	13.50	114.6	1.5	112.2	9.7	102.1	95	10	Structural Fill	Corridor	V5N
4	SF-44-4	9/2/2016	685379.0	603091.5	14.30	112.2	1.4	112.2	9.7	100.0	95	10	Structural Fill	Corridor	V5N
3	SF-45-3	9/2/2016	685416.0	603110.5	13.40	112.0	1.4	112.2	9.7	99.8	95	10	Structural Fill	Corridor	V5N
4	SF-45-4	9/2/2016	685414.5	603134.8	14.60	117.7	2.4	112.2	9.7	104.9	95	10	Structural Fill	Corridor	V5N
3	SF-46-3	9/2/2016	685468.8	603132.3	13.60	109.4	2.3	112.2	9.7	97.5	95	10	Structural Fill	Corridor	V5N
4	SF-46-4	9/2/2016	685459.8	603149.2	14.20	115.6	4.5	112.2	9.7	103.0	95	10	Structural Fill	Corridor	V5N
4	SF-47-4	9/2/2016	685504.7	603162.0	15.00	111.7	1.9	112.2	9.7	99.6	95	10	Structural Fill	Corridor	V5N
4	SF-48-4	9/2/2016	685553.1	603160.5	15.90	115.6	1.9	112.2	9.7	103.0	95	10	Structural Fill	Corridor	V5N
4	SF-49-4	9/2/2016	685598.7	603192.5	17.10	115.0	1.5	112.2	9.7	102.5	95	10	Structural Fill	Corridor	V5N
5	SF-44-5	9/6/2016	685384.8	603100.8	15.70	112.6	1.3	112.2	9.7	100.4	95	10	Structural Fill	Corridor	V5N
5	SF-45-5	9/6/2016	685421.0	603123.8	15.50	111.2	0.6	112.2	9.7	99.1	95	10	Structural Fill	Corridor	V5N
5	SF-46-5	9/6/2016	685468.8	603153.0	15.50	114.8	1.6	112.2	9.7	102.3	95	10	Structural Fill	Corridor	V5N
5	SF-47-5	9/6/2016	685504.2	603163.1	16.00	112.2	2.0	112.2	9.7	100.0	95	10	Structural Fill	Corridor	V5N
5	SF-48-5	9/6/2016	685545.7	603167.0	17.00	114.0	1.0	112.2	9.7	101.6	95	10	Structural Fill	Corridor	V5N
5	SF-49-5	9/6/2016	685589.2	603187.0	17.70	115.4	0.7	112.2	9.7	102.9	95	10	Structural Fill	Corridor	V5N
1	SF-74-1	9/6/2016	684991.4	603626.7	10.00	110.1	2.2	112.2	9.7	98.1	95	7	Structural Fill		V5N
1	SF-75-1	9/6/2016	685034.3	603648.9	9.00	115.2	1.3	112.2	9.7	102.7	95	7	Structural Fill		V5N
1	SF-76-1	9/6/2016	685079.9	603671.0	8.10	116.6	1.1	112.2	9.7	103.9	95	7	Structural Fill		V5N
1	SF-77-1	9/6/2016	685125.3	603689.7	7.30	112.0	1.5	112.2	9.7	99.8	95	7	Structural Fill		V5N
1	SF-78-1	9/6/2016	685172.3	603710.2	7.70	108.3	1.5	112.2	9.7	96.5	95	7	Structural Fill		V5N
1	CS-88-1	9/9/2016	685132.1	603471.8	12.00	112.8	12.6	117	8.6	96.4	90	12	GDL Cover Soil		V5N
1	CS-89-1	9/9/2016	685169.3	603521.9	13.90	110.0	12.5	117	8.6	94.0	90	12	GDL Cover Soil		V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	CS-90-1	9/9/2016	685268.8	603557.9	7.20	125.5	5.3	117	8.6	107.3	90	12	GDL Cover Soil		V5N
1	CS-91-1	9/9/2016	685224.0	603612.4	6.10	123.9	4.4	117	8.6	105.9	90	12	GDL Cover Soil		V5N
1	CS-92-1	9/9/2016	685120.8	603577.5	13.30	117.7	12.5	117	8.6	100.6	90	12	GDL Cover Soil		V5N
1	CS-93-1	9/9/2016	685042.5	603563.7	10.70	112.8	12.6	117	8.6	96.4	90	12	GDL Cover Soil		V5N
1	HC-49-1	9/9/2016	685632.4	602967.4	22.10	120.9	8.3	126	9.5	96.0	90	9	Horizon C	Back Scatter	V5N
1	HC-50-1	9/9/2016	685653.4	602989.2	21.40	114.6	7.8	126	9.5	91.0	90	9	Horizon C	Back Scatter	V5N
1	HC-51-1	9/12/2016	685642.6	603022.5	21.10	117.7	7.3	126	9.5	93.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-52-1	9/12/2016	685608.9	603003.9	21.90	114.8	7.7	126	9.5	91.1	90	10W	Horizon C	Back Scatter	V5N
1	SF-25-1	9/9/2016	685816.9	602808.8	19.70	107.9	0.7	112.2	9.7	96.2	95	9	Structural Fill		V5N
1	SF-26-1	9/9/2016	685807.0	602858.9	19.90	107.2	0.9	112.2	9.7	95.5	95	9	Structural Fill		V5N
1	SF-27-1	9/9/2016	685764.8	602882.0	20.30	112.2	1.0	112.2	9.7	100.0	95	9	Structural Fill		V5N
1	SF-28-1	9/9/2016	685759.8	602946.2	20.90	107.7	1.0	112.2	9.7	96.0	95	9	Structural Fill		V5N
1	SF-29-1	9/9/2016	685724.7	602967.2	20.90	109.8	0.7	112.2	9.7	97.9	95	9	Structural Fill		V5N
1	SF-34-1	9/9/2016	685609.4	603156.3	18.80	107.3	1.4	112.2	9.7	95.6	95	10	Structural Fill	Final Elevation	V5N
1	SF-40-1	9/9/2016	685511.6	602875.5	20.20	116.1	1.3	112.2	9.7	103.5	95	9	Structural Fill	Final Elevation	V5N
6	SF-44-6	9/9/2016	685379.5	603113.0	16.70	119.9	1.2	112.2	9.7	106.9	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-45-6	9/9/2016	685417.8	603125.7	17.70	111.4	1.3	112.2	9.7	99.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-46-6	9/9/2016	685459.9	603141.3	17.20	118.2	1.2	112.2	9.7	105.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-47-6	9/9/2016	685503.4	603156.5	17.40	111.4	1.3	112.2	9.7	99.3	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-48-6	9/9/2016	685542.9	603167.8	18.00	109.7	0.5	112.2	9.7	97.8	95	10	Structural Fill	Corridor - Final Elevation	V5N
6	SF-49-6	9/9/2016	685585.9	603190.5	18.10	117.2	1.1	112.2	9.7	104.5	95	10	Structural Fill	Corridor - Final Elevation	V5N
1	HC-53-1	9/12/2016	685562.7	602969.1	20.70	113.7	5.2	126	9.5	90.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-54-1	9/12/2016	685924.9	602941.0	20.00	118.7	7.4	126	9.5	94.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-55-1	9/12/2016	685496.4	603002.0	22.20	121.1	7.0	126	9.5	96.1	90	10W	Horizon C	Back Scatter	V5N
1	HC-56-1	9/12/2016	685541.3	603022.2	20.60	117.7	6.4	126	9.5	93.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-57-1	9/12/2016	685582.8	603050.8	23.00	117.1	7.1	126	9.5	92.9	90	10W	Horizon C	Back Scatter	V5N
1	HC-58-1	9/12/2016	685623.4	603079.4	19.70	118.5	7.6	126	9.5	94.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-59-1	9/12/2016	685595.3	603109.6	18.70	113.4	7.2	126	9.5	90.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-60-1	9/12/2016	685558.4	603089.5	21.30	114.9	10.0	126	9.5	91.2	90	10W	Horizon C	Back Scatter	V5N
1	HC-61-1	9/12/2016	685513.2	603080.7	21.00	120.7	9.0	126	9.5	95.8	90	10W	Horizon C	Back Scatter	V5N
1	HC-62-1	9/12/2016	685479.1	603082.3	20.10	115.2	9.0	126	9.5	91.4	90	10W	Horizon C	Back Scatter	V5N
1	HC-63-1	9/12/2016	685464.5	603107.4	16.30	127.2	8.2	126	9.5	101.0	90	10W	Horizon C	Back Scatter	V5N
1	HC-64-1	9/12/2016	685549.8	603137.7	17.10	119.2	9.1	126	9.5	94.6	90	10W	Horizon C	Back Scatter	V5N
1	HC-84-1	9/16/2016	685149.3	603473.7	12.90	140.0	6.5	126	9.5	111.1	90	12	Horizon C	Back Scatter	V5N
1	HC-85-1	9/16/2016	685181.9	603500.3	14.50	132.8	7.4	126	9.5	105.4	90	12	Horizon C	Back Scatter	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
1	SF-31-1	9/12/2016	685698.8	603047.0	20.60	104.8	2.1	112.2	9.7	93.4	95	10W	Structural Fill	Area to be re-rolled	V5N
1	SF-32-1	9/12/2016	685674.9	603084.1	20.10	114.3	2.2	112.2	9.7	101.9	95	10W	Structural Fill	Final Elevation	V5N
1	SF-33-1	9/12/2016	685636.1	603109.1	19.80	116.7	1.4	112.2	9.7	104.0	95	10W	Structural Fill	Final Elevation	V5N
1	SF-41-1	9/12/2016	685488.9	602934.6	20.10	117.4	1.3	112.2	9.7	104.6	95	10W	Structural Fill	Final Elevation	V5N
1	SF-42-1	9/12/2016	685453.4	602993.1	18.80	113.6	1.3	112.2	9.7	101.2	95	10W	Structural Fill		V5N
1	SF-43-1	9/12/2016	685417.9	603050.3	18.00	120.5	1.6	112.2	9.7	107.4	95	10W	Structural Fill		V5N
2	SF-74-2	9/12/2016	685922.0	603639.7	11.10	107.4	1.4	112.2	9.7	95.7	95	7	Structural Fill	Final Elevation	V5N
2	SF-75-2	9/12/2016	685032.9	603647.8	10.20	111.3	1.9	112.2	9.7	99.2	95	7	Structural Fill		V5N
2	SF-76-2	9/12/2016	685078.6	603666.6	9.40	107.8	1.0	112.2	9.7	96.1	95	7	Structural Fill		V5N
2	SF-77-2	9/12/2016	685124.8	603686.5	8.30	122.6	0.4	112.2	9.7	109.3	95	7	Structural Fill		V5N
2	SF-78-2	9/12/2016	685171.5	603702.0	8.50	120.9	1.0	112.2	9.7	107.8	95	7	Structural Fill		V5N
1	CS-79-1	9/14/2016	685460.8	603320.9	12.30	108.4	4.4	117	8.6	92.6	90	13	GDL Cover Soil		V5N
1	CS-80-1	9/14/2016	685363.7	603260.3	14.80	112.2	4.0	117	8.6	95.9	90	13	GDL Cover Soil		V5N
1	CS-81-1	9/14/2016	685314.2	603305.3	16.60	111.4	2.4	117	8.6	95.2	90	13	GDL Cover Soil		V5N
1	CS-82-1	9/14/2016	685340.0	603361.1	14.60	109.4	3.6	117	8.6	93.5	90	13	GDL Cover Soil		V5N
1	CS-83-1	9/14/2016	685428.3	603400.0	10.40	105.4	3.7	117	8.6	90.1	90	13	GDL Cover Soil		V5N
1	CS-84-1	9/14/2016	685372.9	603440.9	8.70	112.6	4.6	117	8.6	96.2	90	13	GDL Cover Soil		V5N
1	CS-85-1	9/14/2016	685225.6	603341.5	13.50	107.2	4.5	117	8.6	91.6	90	13	GDL Cover Soil		V5N
1	CS-86-1	9/14/2016	685194.1	603420.0	11.10	108.7	4.3	117	8.6	92.9	90	13	GDL Cover Soil		V5N
1	CS-87-1	9/14/2016	685379.7	603494.2	7.80	114.4	4.7	117	8.6	97.8	90	13	GDL Cover Soil		V5N
1	SF-30-1	9/14/2016	685715.6	603030.6	20.40	109.0	2.5	112.2	9.7	97.1	95	9	Structural Fill		V5N
1	HC-86-1	9/16/2016	685218.9	603514.8	13.40	125.6	6.5	126	9.5	99.7	90	12	Horizon C	Back Scatter	V5N
1	HC-87-1	9/16/2016	685257.0	603523.4	9.70	137.8	8.5	126	9.5	109.4	90	12	Horizon C	Back Scatter	V5N
1	HC-88-1	9/16/2016	685222.5	603581.8	8.20	135.3	8.3	126	9.5	107.4	90	12	Horizon C	Back Scatter	V5N
1	HC-89-1	9/16/2016	685193.5	603514.6	12.40	121.4	7.5	126	9.5	96.3	90	12	Horizon C	Back Scatter	V5N
1	HC-90-1	9/16/2016	685154.9	603541.7	14.40	130.7	8.2	126	9.5	103.7	90	12	Horizon C	Back Scatter	V5N
1	HC-91-1	9/16/2016	685130.5	603507.9	15.30	126.3	6.2	126	9.5	100.2	90	12	Horizon C	Back Scatter	V5N
1	HC-92-1R	9/16/2016	685103.9	603560.3	13.90	131.2	7.8	126	9.5	104.1	90	12	Horizon C	Back Scatter; re-test	V5N
1	HC-93-1	9/16/2016	685158.5	603571.5	13.70	129.0	7.8	126	9.5	102.4	90	12	Horizon C	Back Scatter	V5N
1	HC-94-1	9/16/2016	685188.9	603612.2	8.60	135.5	7.0	126	9.5	107.5	90	12	Horizon C	Back Scatter	V5N
1	HC-95-1	9/16/2016	685154.8	603655.0	7.80	117.6	9.6	126	9.5	93.3	90	12	Horizon C	Back Scatter	V5N
1	HC-96-1	9/16/2016	685118.9	603631.3	9.50	113.4	9.5	126	9.5	90.0	90	12	Horizon C	Back Scatter	V5N
1	HC-97-1	9/16/2016	685068.2	603614.3	10.00	115.0	6.3	126	9.5	91.3	90	12	Horizon C	Back Scatter	V5N
1	HC-65-1	9/21/2016	685396.8	603159.5	16.50	122.8	12.4	126	9.5	97.5	90	13	Horizon C	Back Scatter	V5N
1	HC-66-1	9/21/2016	685443.4	603171.9	15.90	124.1	12.2	126	9.5	98.5	90	13	Horizon C	Back Scatter	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT		TEST	LOCATION			FIELD DRY	FIELD MOISTURE	PROCTOR MAXIMUM DRY	OPTIMUM MOISTURE	FIELD PERCENT	SPECIFIED PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
1	HC-67-1	9/21/2016	685504.6	603210.9	18.70	130.8	13.2	126	9.5	103.8	90	13	Horizon C	Back Scatter	V5N
1	SF-61-1	9/16/2016	685187.4	603409.9	12.30	115.1	1.1	112.2	9.7	102.6	95	12	Structural Fill		V5N
1	SF-62-1	9/16/2016	685220.9	603427.0	11.50	114.8	1.8	112.2	9.7	102.3	95	12	Structural Fill		V5N
1	SF-63-1	9/16/2016	685258.9	603458.9	9.70	116.0	1.8	112.2	9.7	103.4	95	12	Structural Fill		V5N
1	SF-64-1	9/16/2016	685298.0	603490.9	9.00	117.8	1.0	112.2	9.7	105.0	95	12	Structural Fill		V5N
1	SF-65-1	9/16/2016	685327.5	603571.4	8.70	118.9	1.4	112.2	9.7	106.0	95	12	Structural Fill		V5N
1	SF-66-1	9/16/2016	685294.2	603549.0	8.50	115.0	1.4	112.2	9.7	102.5	95	12	Structural Fill		V5N
1	SF-67-1	9/16/2016	685264.5	603588.1	7.50	114.9	1.3	112.2	9.7	102.4	95	12	Structural Fill	Final Elevation	V5N
1	SF-68-1	9/16/2016	685234.2	603626.7	7.10	120.5	1.7	112.2	9.7	107.4	95	12	Structural Fill		V5N
1	SF-69-1	9/16/2016	685202.1	603666.6	7.40	115.5	1.5	112.2	9.7	102.9	95	12	Structural Fill		V5N
1	SF-70-1	9/16/2016	685149.2	603437.2	13.00	117.3	1.1	112.2	9.7	104.5	95	12	Structural Fill		V5N
1	SF-71-1	9/16/2016	685105.7	603488.2	12.90	117.5	1.1	112.2	9.7	104.7	95	12	Structural Fill		V5N
1	SF-72-1	9/16/2016	685061.4	603541.1	12.10	119.4	1.5	112.2	9.7	106.4	95	12	Structural Fill		V5N
1	SF-73-1	9/16/2016	685019.3	603590.9	11.10	109.6	1.5	112.2	9.7	97.7	95	12	Structural Fill		V5N
3	SF-75-3	9/16/2016	685048.3	603631.9	10.80	112.4	1.1	112.2	9.7	100.2	95	7	Structural Fill	Final Elevation	V5N
1	HC-68-1	9/21/2016	685468.1	603245.9	15.60	126.8	12.5	126	9.5	100.6	90	13	Horizon C	Back Scatter	V5N
1	HC-69-1	9/21/2016	685415.3	603236.1	18.50	120.0	11.5	126	9.5	95.2	90	13	Horizon C	Back Scatter	V5N
1	HC-70-1	9/21/2016	685377.4	603205.9	19.00	120.2	12.5	126	9.5	95.4	90	13	Horizon C	Back Scatter	V5N
1	HC-71-1	9/21/2016	685343.8	603244.9	15.80	136.7	11.6	126	9.5	108.5	90	13	Horizon C	Back Scatter	V5N
1	HC-72-1	9/21/2016	685385.8	603275.1	15.00	125.8	12.5	126	9.5	99.8	90	13	Horizon C	Back Scatter	V5N
1	HC-73-1	9/21/2016	685455.7	603281.1	14.80	125.9	12.7	126	9.5	99.9	90	13	Horizon C	Back Scatter	V5N
1	HC-74-1	9/21/2016	685420.3	603319.5	13.60	133.3	13.8	126	9.5	105.8	90	13	Horizon C	Back Scatter	V5N
1	HC-75-1	9/21/2016	685356.5	603338.7	15.60	118.7	9.8	126	9.5	94.2	90	13	Horizon C	Back Scatter	V5N
1	HC-76-1	9/21/2016	685317.1	603293.5	17.40	114.0	10.5	126	9.5	90.5	90	13	Horizon C	Back Scatter	V5N
1	HC-77-1	9/21/2016	685280.8	603340.2	16.70	120.3	8.9	126	9.5	95.5	90	13	Horizon C	Back Scatter	V5N
1	HC-78-1	9/21/2016	685319.9	603353.4	15.80	128.0	8.9	126	9.5	101.6	90	13	Horizon C	Back Scatter	V5N
1	HC-79-1	9/21/2016	685392.9	603361.5	14.80	113.6	11.0	126	9.5	90.2	90	13	Horizon C	Back Scatter	V5N
1	HC-80-1	9/21/2016	685366.5	603390.4	14.10	113.4	11.0	126	9.5	90.0	90	13	Horizon C	Back Scatter	V5N
1	HC-81-1	9/21/2016	685330.2	603424.2	18.60	114.0	9.9	126	9.5	90.5	90	13	Horizon C	Back Scatter	V5N
1	HC-82-1	9/21/2016	685315.5	603390.5	14.90	118.9	9.6	126	9.5	94.4	90	13	Horizon C	Back Scatter	V5N
1	HC-83-1	9/21/2016	685251.5	603374.3	16.20	117.5	9.2	126	9.5	93.3	90	13	Horizon C	Back Scatter	V5N
1	HC-20-1	8/11/2016	685874.8	602528.7	19.50	117.0	5.2	126	9.5	92.9	90	3	Horizon C	Back Scatter	V5N
1	HC-21-1	8/19/2016	685852.9	602578.1	17.60	117.1	9.1	126	9.5	92.9	90	5	Horizon C	Back Scatter	V5N
1	HC-22-1	8/19/2016	685815.3	602550.0	20.10	118.5	8.9	126	9.5	94.0	90	5	Horizon C	Back Scatter	V5N
2	SF-25-2	9/21/2016	685815.2	602802.2	20.30	107.3	1.2	112.2	9.7	95.6	95	9	Structural Fill	Final Elevation	V5N

FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

LIFT NO.	TEST I.D.	TEST DATE	LOCATION NORTHING	LOCATION EASTING	LOCATION ELEV. (FT)	FIELD DRY DENSITY (PCF)	FIELD MOISTURE CONTENT (%)	PROCTOR MAXIMUM DRY DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	FIELD PERCENT COMPACTION	SPECIFIED PERCENT COMPACTION	AREA	LIFT MATERIAL	NOTES	TESTING COMPANY
2	SF-26-2	9/21/2016	685805.7	602859.6	20.20	109.0	1.2	112.2	9.7	97.1	95	9	Structural Fill	Final Elevation	V5N
2	SF-27-2	9/21/2016	685764.4	602879.3	21.60	111.9	1.1	112.2	9.7	99.7	95	9	Structural Fill	Final Elevation	V5N
2	SF-28-2	9/21/2016	685759.9	602945.9	21.30	105.1	0.9	112.2	9.7	93.7	95	9	Structural Fill	Area re-rolled	V5N
1	SF-31-1R	9/21/2016	685674.0	603030.0	20.60	106.6	1.9	112.2	9.7	95.0	95	10W	Structural Fill	Re-test from 9/12/16	V5N
1	SF-50-1	9/21/2016	685544.9	603236.4	16.10	116.3	3.7	112.2	9.7	103.7	95	11	Structural Fill		V5N
1	SF-51-1	9/21/2016	685512.5	603275.8	14.90	109.0	2.7	112.2	9.7	97.1	95	11	Structural Fill		V5N
1	SF-52-1	9/21/2016	685474.8	603320.8	13.50	111.2	2.0	112.2	9.7	99.1	95	13	Structural Fill		V5N
1	SF-53-1	9/21/2016	685451.1	603352.7	12.30	112.6	2.5	112.2	9.7	100.4	95	13	Structural Fill		V5N
1	SF-54-1	9/21/2016	685418.6	603393.2	11.20	112.2	1.8	112.2	9.7	100.0	95	13	Structural Fill		V5N
1	SF-55-1	9/21/2016	685388.8	603432.7	10.00	116.4	1.2	112.2	9.7	103.7	95	13	Structural Fill		V5N
1	SF-56-1	9/21/2016	685357.4	603473.3	9.20	109.9	1.1	112.2	9.7	98.0	95	13	Structural Fill		V5N
1	SF-57-1	9/21/2016	685345.4	603162.0	16.80	109.2	2.7	112.2	9.7	97.3	95	13	Structural Fill	Final Elevation	V5N
1	SF-58-1	9/21/2016	685313.8	603223.0	16.40	108.7	1.7	112.2	9.7	96.9	95	13	Structural Fill	Final Elevation	V5N
1	SF-59-1	9/21/2016	685280.5	603280.7	15.70	117.8	1.6	112.2	9.7	105.0	95	11	Structural Fill	Final Elevation	V5N
1	SF-60-1	9/21/2016	685237.1	603333.1	15.10	110.0	1.6	112.2	9.7	98.0	95	13	Structural Fill	Final Elevation	V5N
2	SF-65-2	9/21/2016	685327.5	603511.4	9.50	106.2	1.2	112.2	9.7	94.7	95	12	Structural Fill	Area to be re-rolled	V5N
2	SF-67-2	9/21/2016	685261.2	603594.2	8.50	110.8	1.4	112.2	9.7	98.8	95	12	Structural Fill		V5N
2	SF-68-2	9/21/2016	685235.2	603625.3	8.10	106.6	1.3	112.2	9.7	95.0	95	12	Structural Fill		V5N
2	SF-69-2	9/21/2016	685200.6	603661.2	8.40	111.1	2.1	112.2	9.7	99.0	95	12	Structural Fill		V5N
3	SF-76-3	9/21/2016	685079.7	603667.9	10.20	113.9	1.4	112.2	9.7	101.5	95	7	Structural Fill	Final Elevation	V5N
3	SF-77-3	9/21/2016	685126.3	603688.7	9.30	115.5	1.4	112.2	9.7	102.9	95	7	Structural Fill	Final Elevation	V5N
3	SF-78-3	9/21/2016	685171.1	603708.0	9.80	107.5	2.0	112.2	9.7	95.8	95	7	Structural Fill	Final Elevation	V5N
2	SF-28-2R	9/28/2016	685759.9	602945.9	21.30	110.0	1.3	112.2	9.7	98.0	95	9	Structural Fill	Re-test from 9/21/16	V5N
2	SF-29-2	9/28/2016	685724.2	602963.6	22.10	116.1	1.4	112.2	9.7	103.5	95	9	Structural Fill	Final Elevation	V5N
2	SF-30-2	9/28/2016	685721.9	603032.1	20.80	108.6	1.0	112.2	9.7	96.8	95	10W	Structural Fill	Final Elevation	V5N
2	SF-31-2	9/28/2016	685681.0	603029.6	21.10	107.2	1.3	112.2	9.7	95.5	95	10W	Structural Fill	Final Elevation	V5N
2	SF-42-2	9/28/2016	685452.8	602991.9	19.50	110.7	2.8	112.2	9.7	98.7	95	10W	Structural Fill	Final Elevation	V5N
2	SF-43-2	9/28/2016	685420.1	603045.0	18.80	107.3	2.4	112.2	9.7	95.6	95	10W	Structural Fill	Final Elevation	V5N
2	SF-50-2	9/28/2016	685545.7	603239.7	17.30	116.2	2.0	112.2	9.7	103.6	95	11	Structural Fill	Final Elevation	V5N
2	SF-51-2	9/28/2016	685573.3	603275.6	15.50	111.4	1.3	112.2	9.7	99.3	95	11	Structural Fill	Final Elevation	V5N
2	SF-52-2	9/28/2016	685477.1	603319.6	14.10	114.7	1.5	112.2	9.7	102.2	95	13	Structural Fill	Final Elevation	V5N
2	SF-53-2	9/28/2016	685450.4	603352.9	13.10	113.3	1.6	112.2	9.7	101.0	95	13	Structural Fill	Final Elevation	V5N
2	SF-54-2	9/28/2016	685422.3	603390.4	12.00	114.2	1.2	112.2	9.7	101.8	95	13	Structural Fill	Final Elevation	V5N
2	SF-55-2	9/28/2016	685390.8	603429.9	10.80	115.1	1.0	112.2	9.7	102.6	95	13	Structural Fill	Final Elevation	V5N
2	SF-56-2	9/28/2016	685358.3	603469.2	10.00	120.1	1.1	112.2	9.7	107.0	95	13	Structural Fill	Final Elevation	V5N

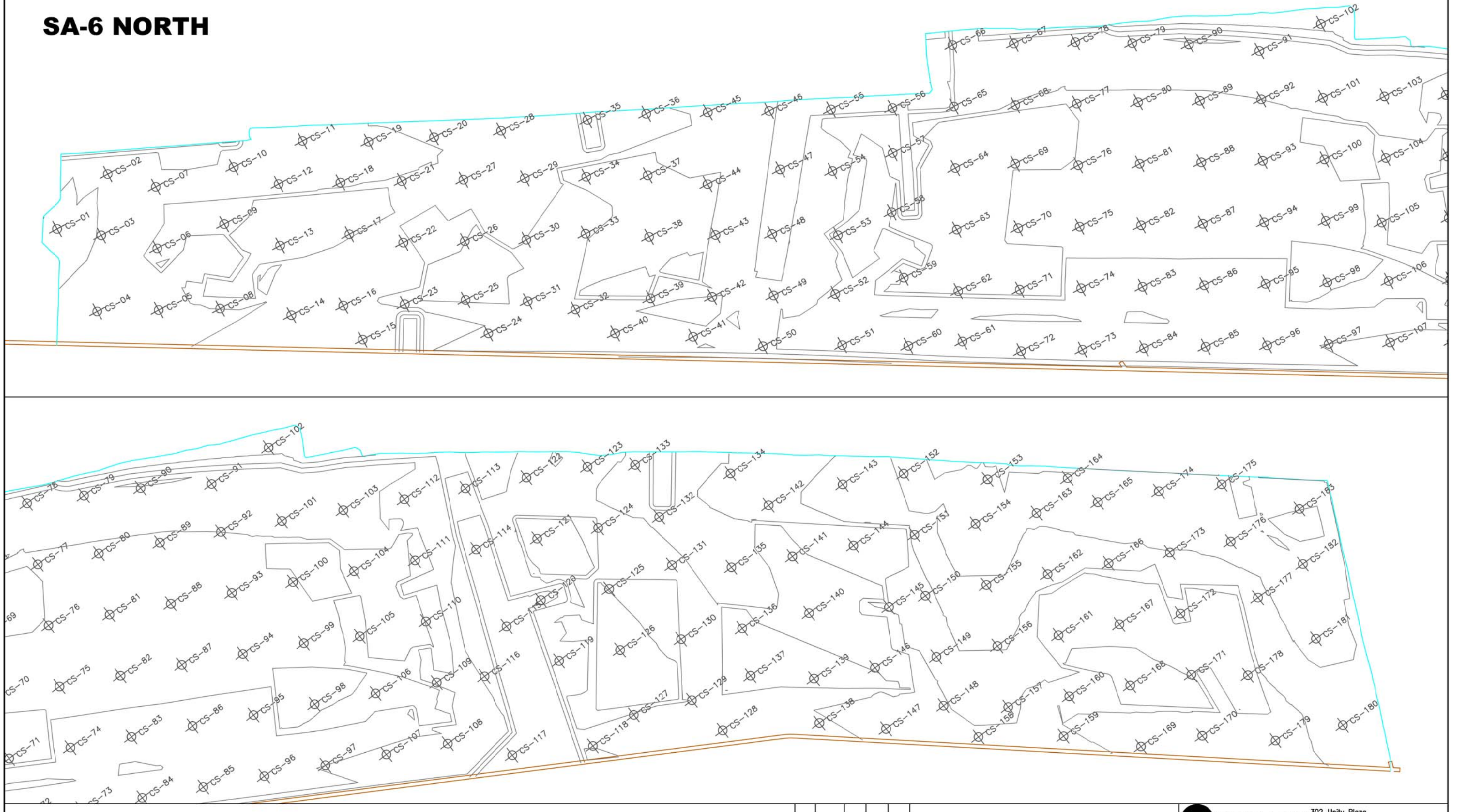
FIELD DENSITY TEST SUMMARY LOG
SA6 NORTH CAP
HONEYWELL STUDY AREA 6 REMEDIATION PROJECT
JERSEY CITY, NEW JERSEY

						FIELD	FIELD	PROCTOR	OPTIMUM	FIELD	SPECIFIED				
LIFT		TEST	LOCATION			DRY	MOISTURE	MAXIMUM DRY	MOISTURE	PERCENT	PERCENT				TESTING
NO.	TEST I.D.	DATE	NORTHING	EASTING	ELEV. (FT)	DENSITY (PCF)	CONTENT (%)	DENSITY (PCF)	CONTENT (%)	COMPACTION	COMPACTION	AREA	LIFT MATERIAL	NOTES	COMPANY
2	SF-61-2	9/28/2016	685193.4	603386.6	13.30	122.8	2.2	112.2	9.7	109.4	95	13	Structural Fill	Final Elevation	V5N
2	SF-62-2	9/28/2016	685223.2	603428.2	12.50	110.4	1.0	112.2	9.7	98.4	95	13	Structural Fill	Final Elevation	V5N
2	SF-63-2	9/28/2016	685259.7	603460.0	11.10	113.6	1.4	112.2	9.7	101.2	95	13	Structural Fill	Final Elevation	V5N
2	SF-64-2	9/28/2016	685299.4	603486.9	9.80	114.6	1.6	112.2	9.7	102.1	95	13	Structural Fill	Final Elevation	V5N
2	SF-65-2R	9/28/2016	685327.5	603511.4	9.50	119.8	1.1	112.2	9.7	106.8	95	13	Structural Fill	Re-test from 9/21	V5N
2	SF-66-2	9/28/2016	685298.5	603550.4	9.50	118.1	1.2	112.2	9.7	105.3	95	12	Structural Fill	Final Elevation	V5N
3	SF-67-3	9/28/2016	685263.1	603589.9	9.50	113.2	1.1	112.2	9.7	100.9	95	12	Structural Fill	Final Elevation	V5N
3	SF-68-3	9/28/2016	685233.3	603627.8	9.40	112.8	1.4	112.2	9.7	100.5	95	12	Structural Fill	Final Elevation	V5N
3	SF-69-3	9/28/2016	685201.4	603664.6	9.60	113.8	1.6	112.2	9.7	101.4	95	12	Structural Fill	Final Elevation	V5N
2	SF-70-2	9/28/2016	685149.5	603436.1	14.00	116.6	1.2	112.2	9.7	103.9	95	12	Structural Fill	Final Elevation	V5N
2	SF-71-2	9/28/2016	685102.8	603489.6	13.40	111.7	1.4	112.2	9.7	99.6	95	12	Structural Fill	Final Elevation	V5N
2	SF-72-2	9/28/2016	685058.3	603539.5	12.90	110.4	1.8	112.2	9.7	98.4	95	12	Structural Fill	Final Elevation	V5N
2	SF-73-2	9/28/2016	685017.1	603590.8	12.20	111.8	1.2	112.2	9.7	99.6	95	12	Structural Fill	Final Elevation	V5N

2.0 Test Location Drawings

- **GDL Cover Soil (Initial and Reduced Frequency)**
- **Horizon C**
- **Structural Fill**

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION ⊕CS-XX

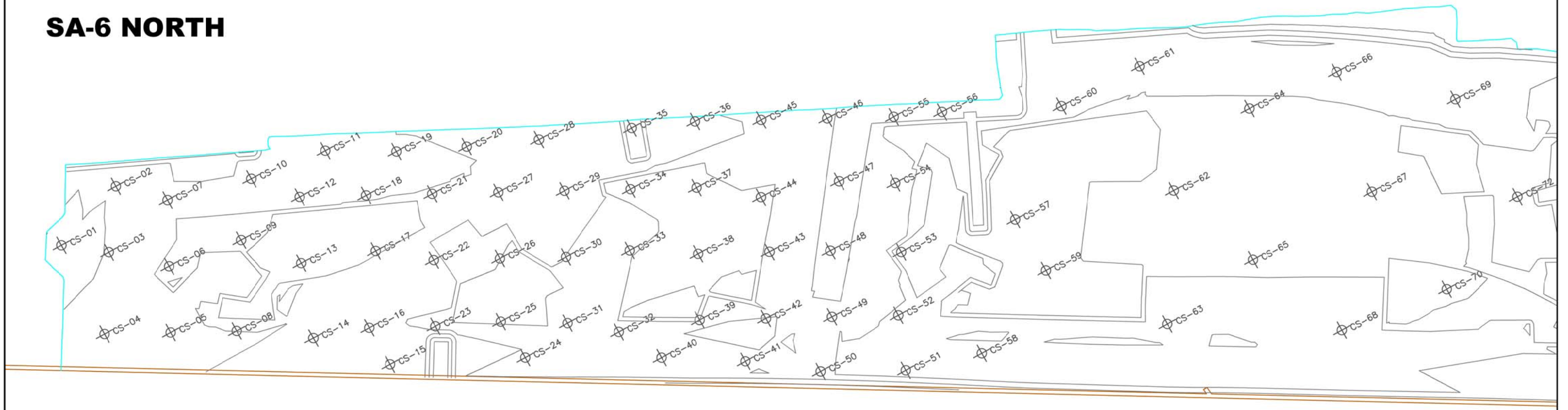
GDL COVER SOIL ELEVATION CONTOURS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME	GDL COVER SOIL COMPACTION LOCATIONS
PROJECT NAME & LOCATION	HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/12/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified by approval of RFI-076

LEGEND:

COMPACTION TEST LOCATION ⊕CS-XX

GDL COVER SOIL ELEVATION CONTOURS

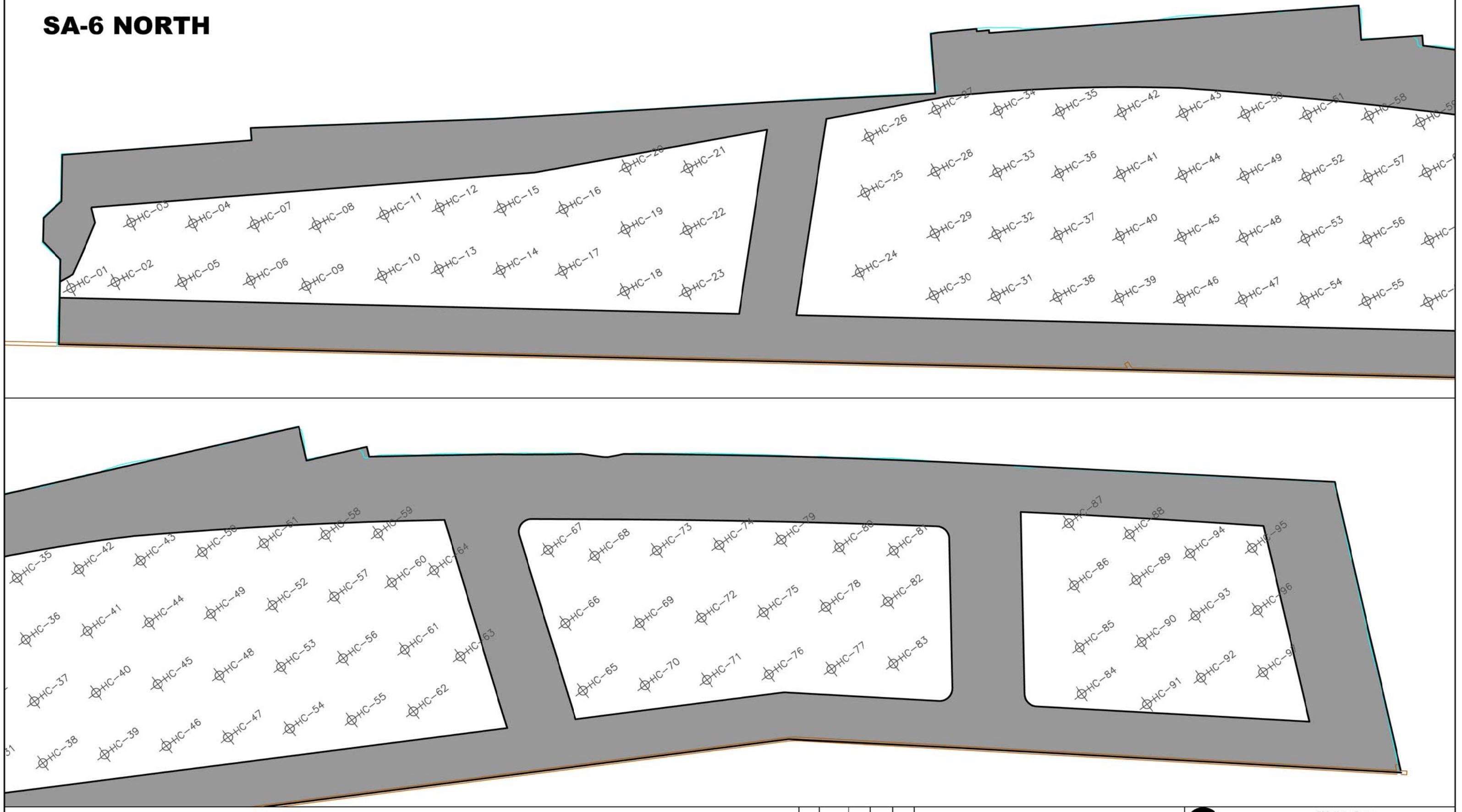
ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME: GDL COVER SOIL REDUCED FREQUENCY COMPACTION LOCATIONS

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	8/18/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION — HC-XX

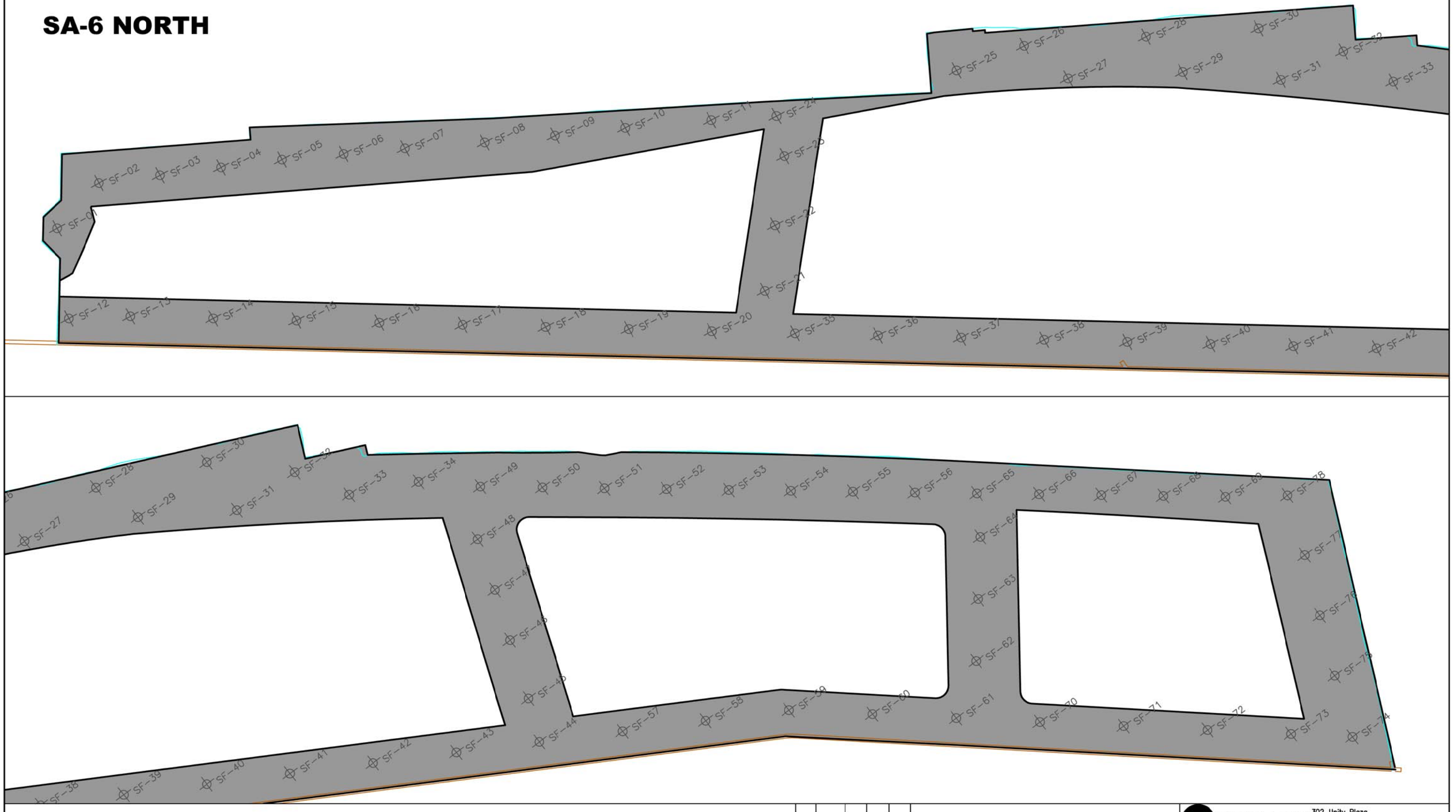
STRUCTURAL FILL LIMITS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

DRAWING NAME	HORIZON C COMPACTION LOCATIONS
PROJECT NAME & LOCATION	HONEYWELL SA-6 REMEDIATION JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/15/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

SA-6 NORTH



NOTES:

1) Testing locations are based on testing frequency specified in 012315 3.13 A. 2. a.

LEGEND:

COMPACTION TEST LOCATION — SF-XX

STRUCTURAL FILL LIMITS

ENTACT
302 Unity Plaza
Latrobe, PA 15650
412-357-1102

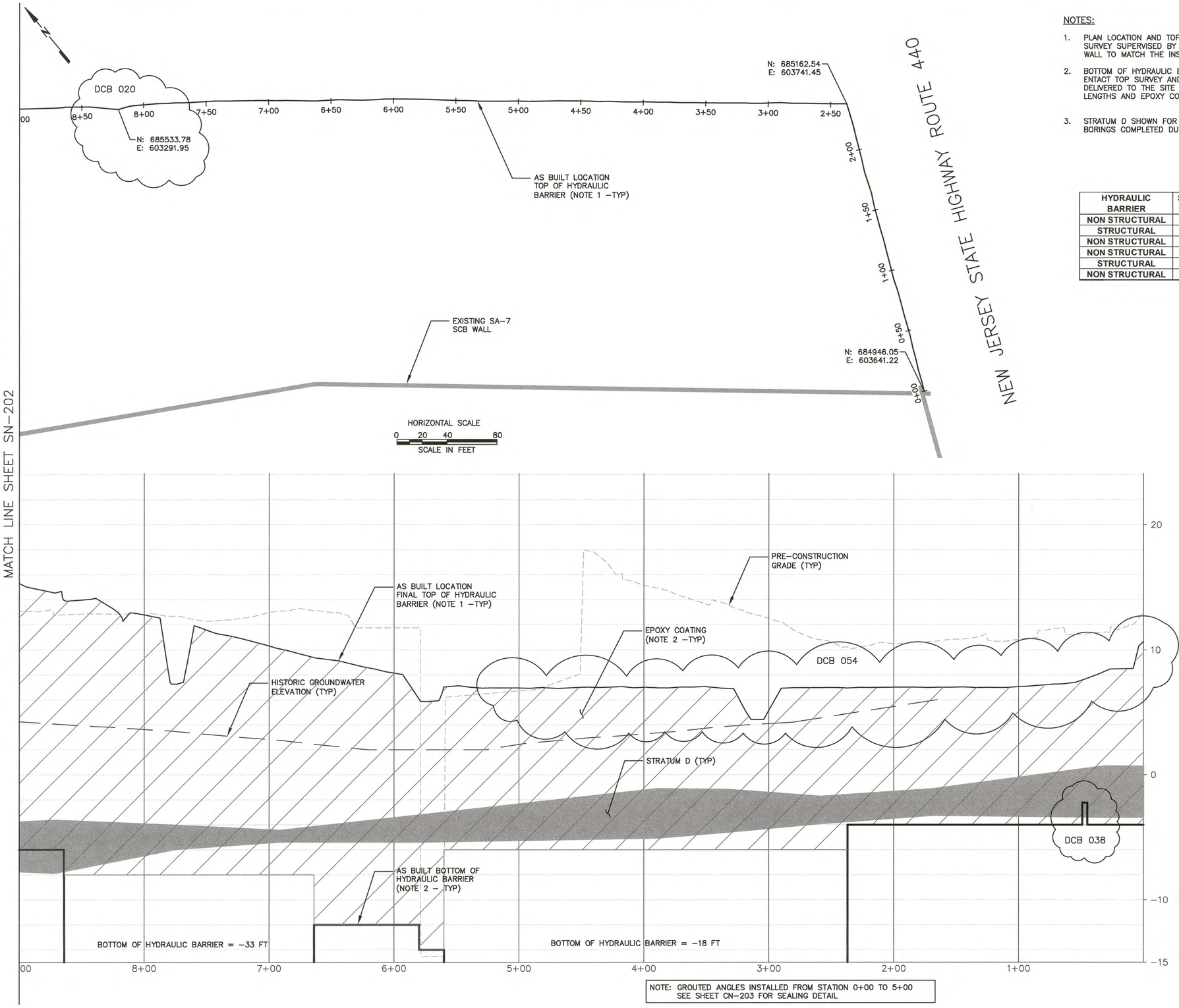
DRAWING NAME: STRUCTURAL FILL COMPACTION LOCATIONS

PROJECT NAME & LOCATION: HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

DRAWN BY	T. COLLIER	APPROVED BY			
DATE	7/15/16	DATE		SHEET NO.	1 OF 1
DRAWING NO.	1			PROJECT NO.	

APPENDIX N

SHEETPILE DOCUMENTATION



NOTE: GROUTED ANGLES INSTALLED FROM STATION 0+00 TO 5+00
SEE SHEET CN–203 FOR SEALING DETAIL

NOTES:

1. PLAN LOCATION AND TOP ELEVATION OF HYDRAULIC BARRIER BASED ON SURVEY SUPERVISED BY MASER CONSULTING AND UPON CUTTING OF THE WALL TO MATCH THE INSTALLED LINER GRADE.
2. BOTTOM OF HYDRAULIC BARRIER AND EXTENT OF EPOXY COATING BASED ON ENTACT TOP SURVEY AND SHEET PILE FABRICATION DRAWINGS. ALL SHEETS DELIVERED TO THE SITE WERE INSPECTED BY AMEC PERSONNEL TO VERIFY LENGTHS AND EPOXY COATING.
3. STRATUM D SHOWN FOR REFERENCE ONLY AND IS BASED ON GEOTECHNICAL BORINGS COMPLETED DURING THE PRELIMINARY DESIGN INVESTIGATION.

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
NON STRUCTURAL	0+00	2+37	-4	AZ 19-700
STRUCTURAL	2+37	5+60	-18	AZ 19-700
NON STRUCTURAL	5+60	5+80	-14	AZ 19-700
NON STRUCTURAL	5+80	6+64	-12	AZ 19-700
STRUCTURAL	6+64	8+64	-33	AZ 38-700N
NON STRUCTURAL	8+64	9+85	-6	AZ 19-700

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER 43507

NO.	DATE	REVISION	BY	APVD
2	12/8/16	DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	SGS
1	8/25/16	DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS

DSGN TDD | DR RJR | CHK TDD | APVD SGS

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

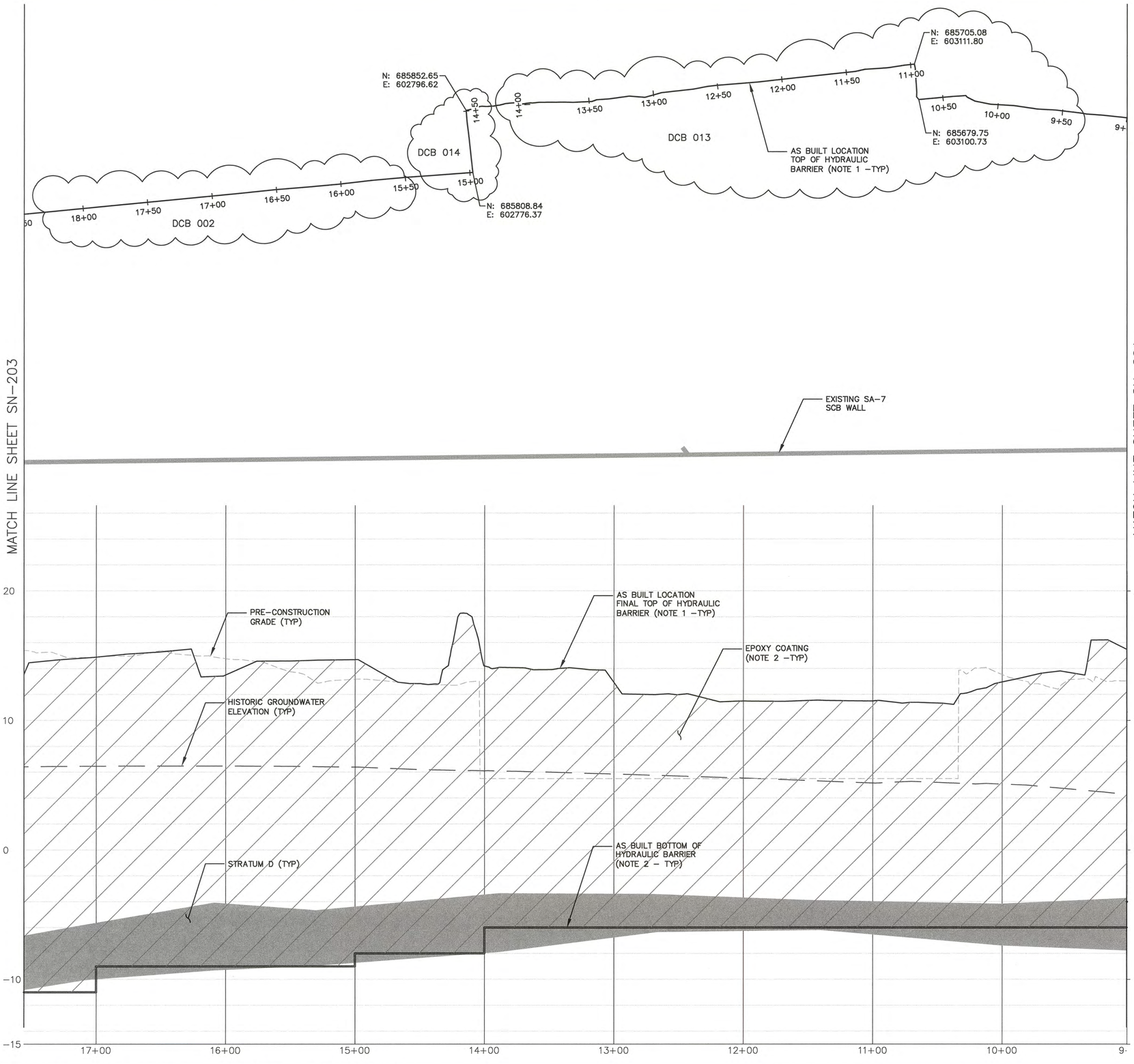
amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2829
NJ Cert of Authorization 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-201
SHEET	54 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USERS AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.

FILE NAME: C:\Donovan\SA-6 North\2013 Excavation Surfaces\SA-6 North VHB\SA-6 North VHB As Built.dwg PLOT DATE: Wed, 28 Dec 2016 PLOT TIME: 9:36 AM



NOTES:

1. REFER TO NOTES 1 THRU 3 ON SHEET SN–201

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
NON STRUCTURAL	8+64	9+85	-6	AZ 19-700
NON STRUCTURAL	9+85	14+00	-6	AZ 19-700
STRUCTURAL	14+00	19+00	SEE NOTE 4	AZ 19-700

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
LICENSE NUMBER 43507
NJ PROFESSIONAL ENGINEER

NO.	DATE	DSGN	DR	CHK	APVD
2	12/8/16	DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	RJR	TDD
1	8/25/16	DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS	SGS
NO.	DATE	REVISION	BY	APVD	SGS

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 888 - 2629
NJ Cert of Authorization 24GA28019000

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-202
SHEET	55 OF 70

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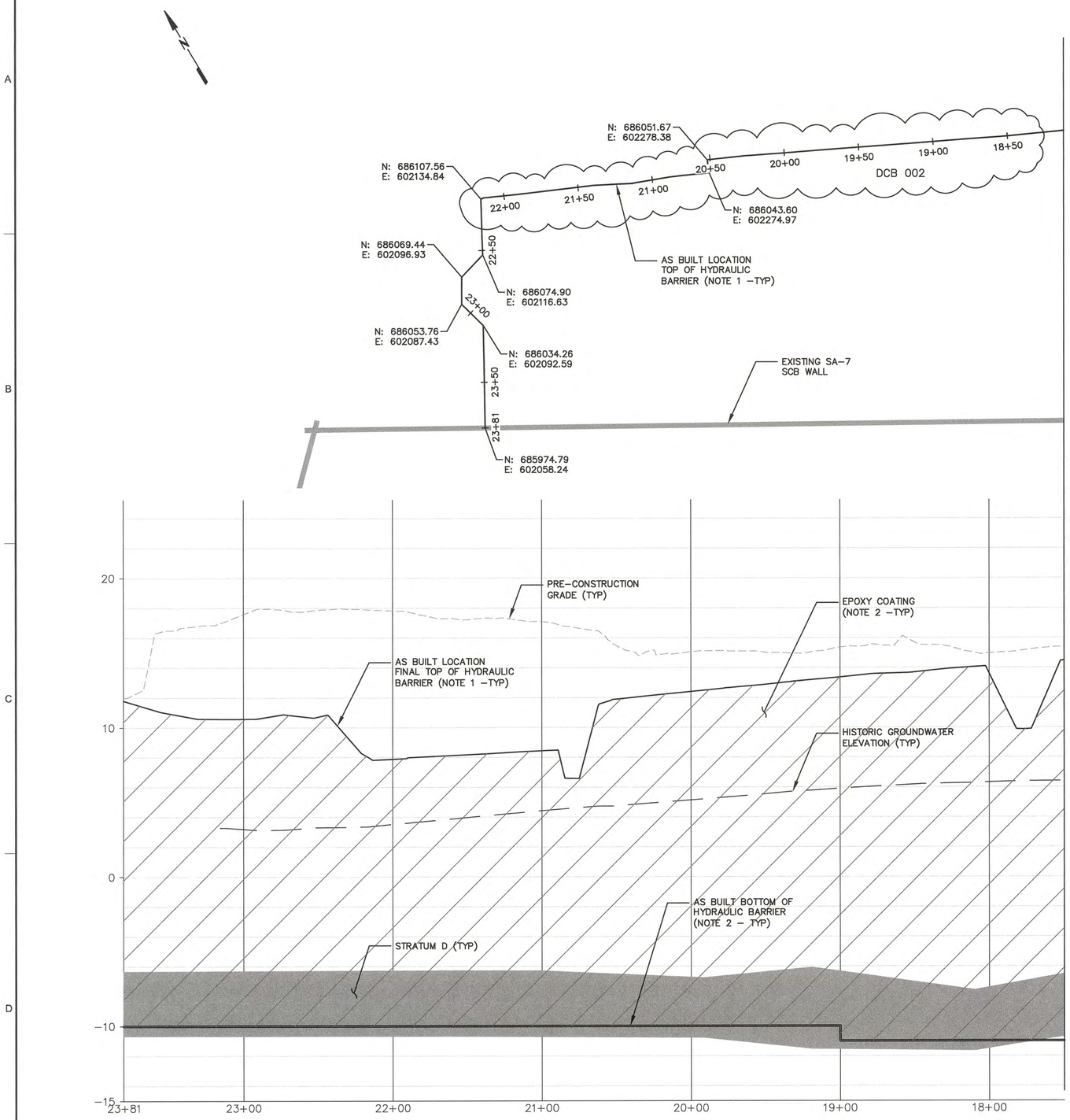
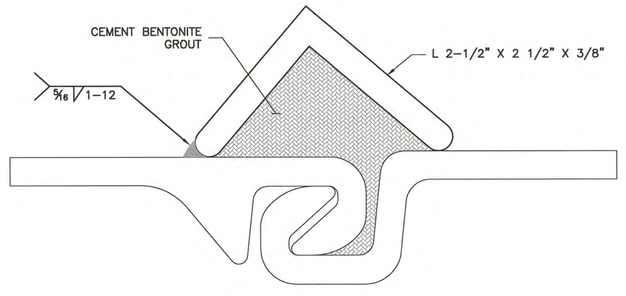


NOTES:

1. REFER TO NOTES 1 THRU 3 ON SHEET SN–201.

HYDRAULIC BARRIER	STATION BEGINS	STATION ENDS	TOE ELEVATION	SHEET PILE
STRUCTURAL	14+00	19+00	SEE NOTE 4	AZ 19-700
NON STRUCTURAL	19+00	23+38	-10	AZ 19-700



SEE NOTE HB19 ON SHEET GN–003

SHEET SEALING DETAIL F
NTS SN–201 CN–301

HORIZONTAL SCALE
0 20 40 80
SCALE IN FEET

VERTICAL SCALE
0 2 4 8
SCALE IN FEET

SAMUEL G. SHALLARD
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER 43507

NO.	DATE	DSGN	DR	CHK	APVD
2	12/8/16	TDD	RJR	TDD	SGS
1	8/25/16		REVISION		
			DECLARATION NO 3 - SA-6 NORTH VHB AS BUILT	TDD	SGS
			DECLARATION NO 3 - ISSUED FOR CLIENT REVIEW	TDD	SGS
				BY	APVD

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
AS BUILT DRAWINGS

HYDRAULIC BARRIER
PLAN AND PROFILE

amec foster wheeler
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619, (609) 689 - 2929
NJ Cert of Authorization 24GA28010600

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	6/7/13
PROJ	3480-12-0317
DWG	SN-203
SHEET	56 OF 70

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APPENDIX O

VIBRATION MONITORING
(CD ONLY)

Geocomp ENGINEERING

Technologies to manage risk for infrastructure

Atlanta
Boston
Chicago
New York
San Francisco

www.geocomp.com

Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

February 27th, 2014
For ENTACT, LLC

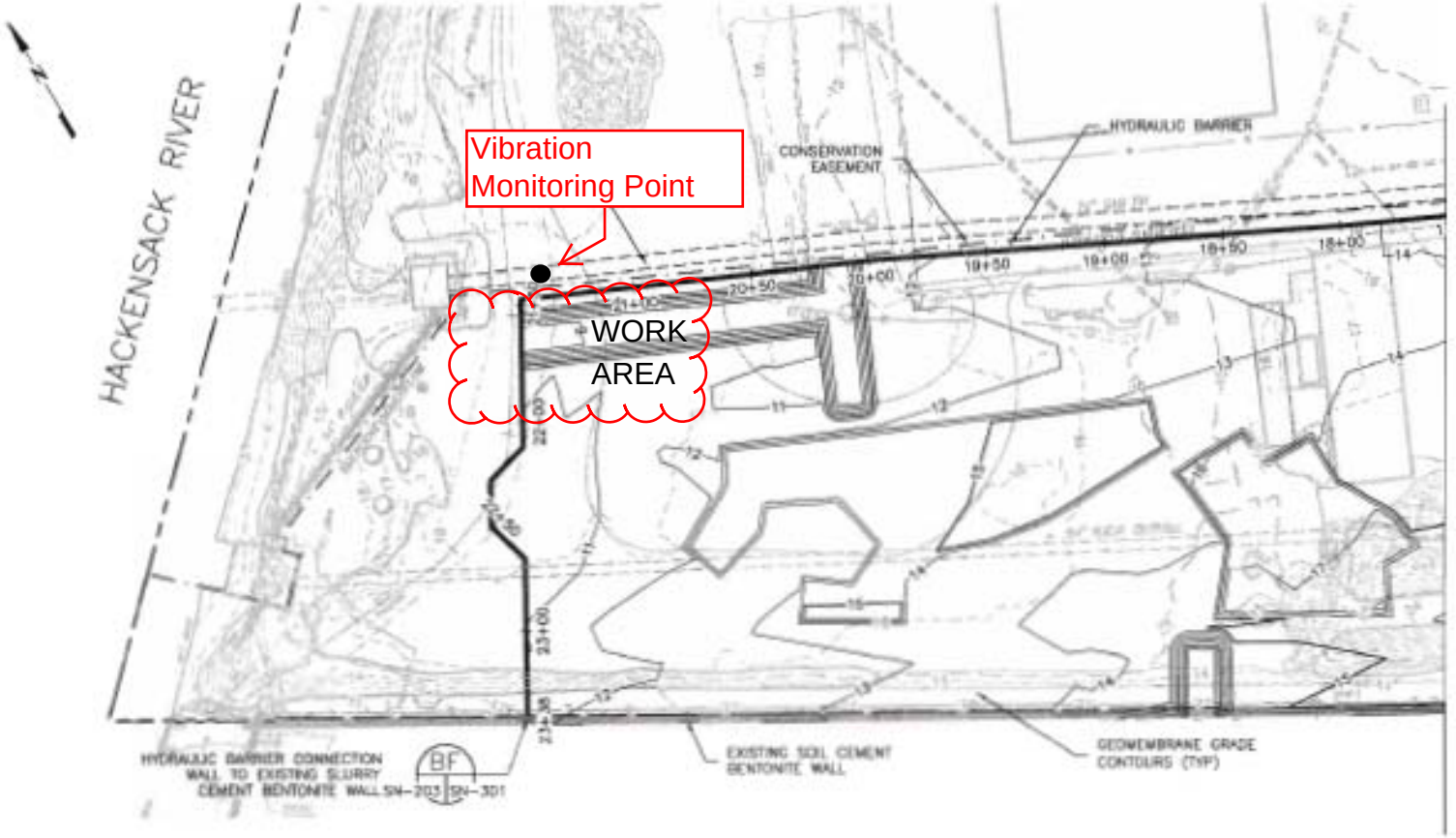
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 2:12 PM until 3:12 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

Four sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


Vibration
Monitoring Point
WORK
AREA
HACKENSACK RIVER
CONSERVATION
EASEMENT
HYDRAULIC BARRIER
EXISTING SOIL CEMENT
BENTONITE WALL
GEOMEMBRANE GRADE
CONTOURS (TYP)
HYDRAULIC BARRIER CONNECTION
WALL TO EXISTING SLURRY
CEMENT BENTONITE WALL SN-203 SN-301
BF

Event Report

Histogram Start Time	14:12:45 February 27, 2014
Histogram Finish Time Number	15:12:38 February 27, 2014
of Intervals Range	766.00 at 5 seconds
Sample Rate	Geo:10.00 in/s
Job Number:	1024sps
Notes	1

Location: SA-6 North 72" in Force Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q3715KE7.K90

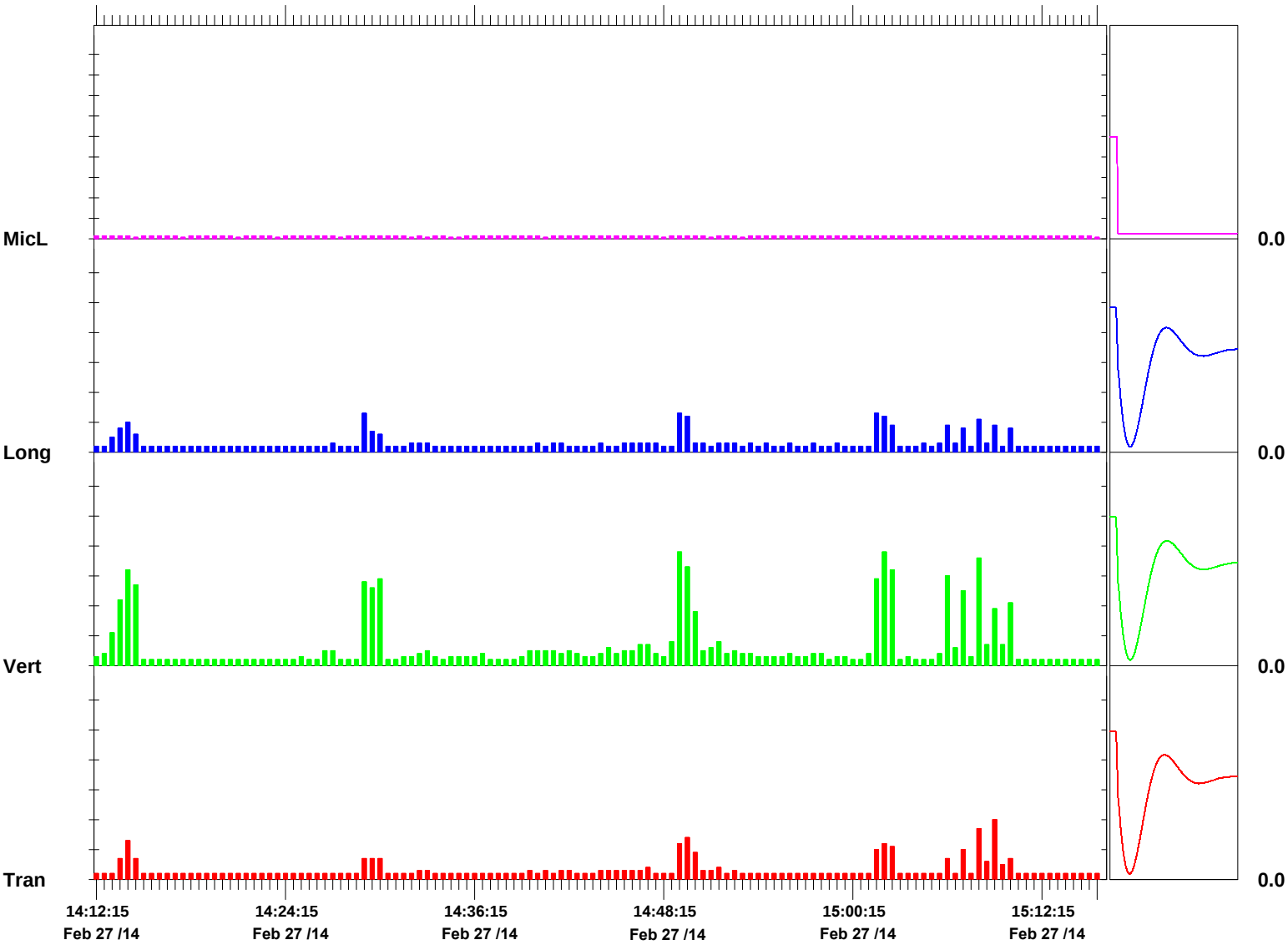
Post Event Notes

Extended Notes

Microphone
PSPL
ZC Freq
Channel Test

	Tran	Vert	Long	
PPV	0.1000	0.190	0.0650	in/s
ZC Freq	32	43	28	Hz
Date	Feb 27 /14	Feb 27 /14	Feb 27 /14	
Time	15:10:05	14:50:10	14:30:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.2	Hz
Overswing Ratio	4.2	4.1	4.2	

Peak Vector Sum 0.196 in/s on February 27, 2014 at 14:50:10



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Mic: 0.00050 psi(L)/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 5th, 2014
For ENTACT, LLC

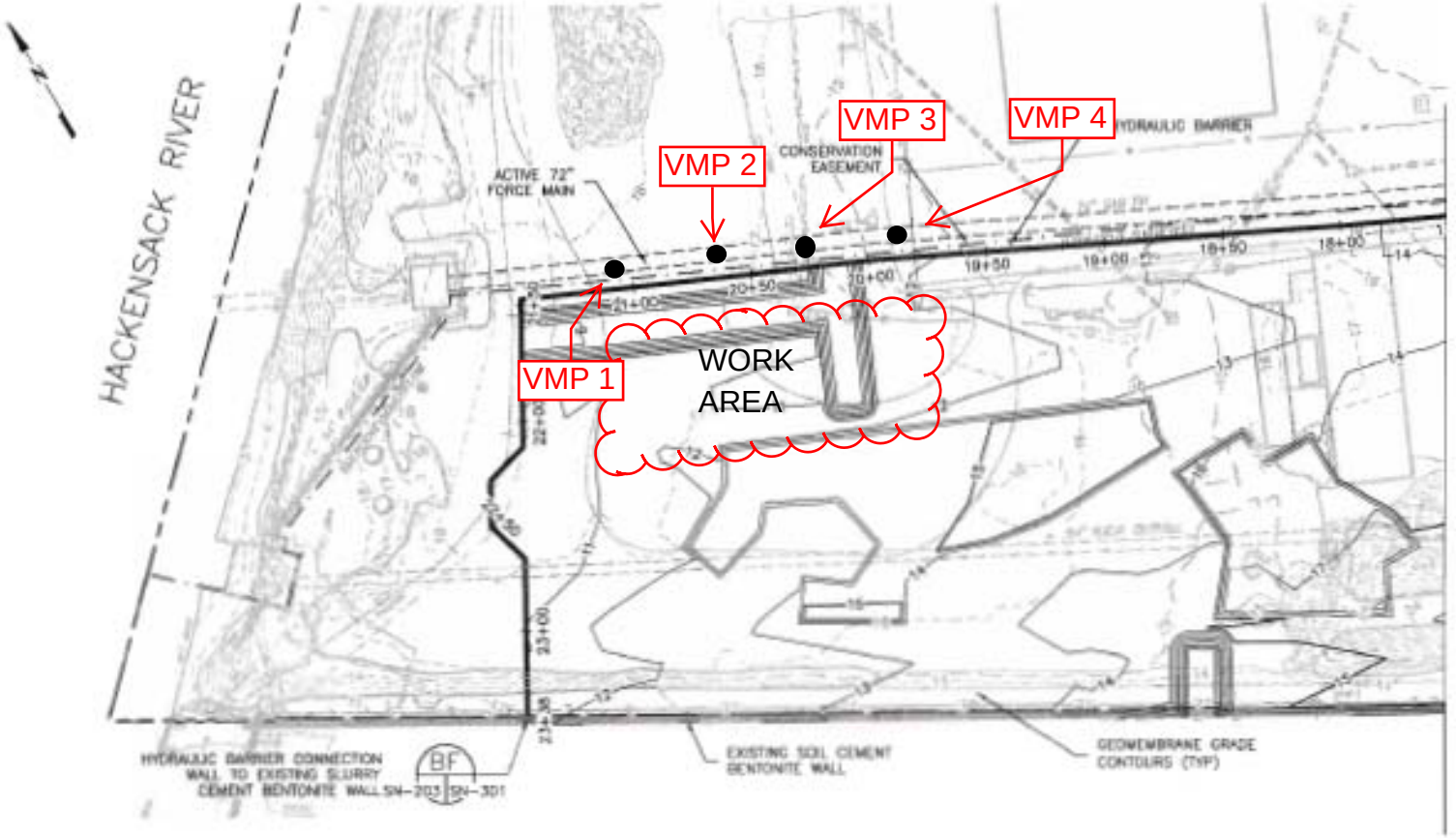
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 10:00 AM until 5:15 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

26 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


HACKENSACK RIVER
VMP 1
VMP 2
VMP 3
VMP 4
WORK AREA
ACTIVE 72" FORCE MAIN
CONSERVATION EASEMENT
HYDRAULIC BARRIER
EXISTING SOIL CEMENT BENTONITE WALL
GEOMEMBRANE GRADE CONTOURS (TYP)
HYDRAULIC BARRIER CONNECTION WALL TO EXISTING SLURRY CEMENT BENTONITE WALL SN-203 SN-301
BF

Event Report

Histogram Start Time	10:00 AM March 5, 2014	**Serial Number**	BA15371 V 10.60-8.17 BlastMate III/8
Histogram Finish Time	10:55 AM March 5, 2014	**Battery Level**	6.9 Volts
Number of Intervals	623.00 at 5 seconds	**Unit Calibration**	January 29, 2014 by Instantel
Range	Geo:10.00 in/s	**File Name**	Q3715KDW.3A0
Sample Rate	1024sps		
Job Number:	1		

Notes

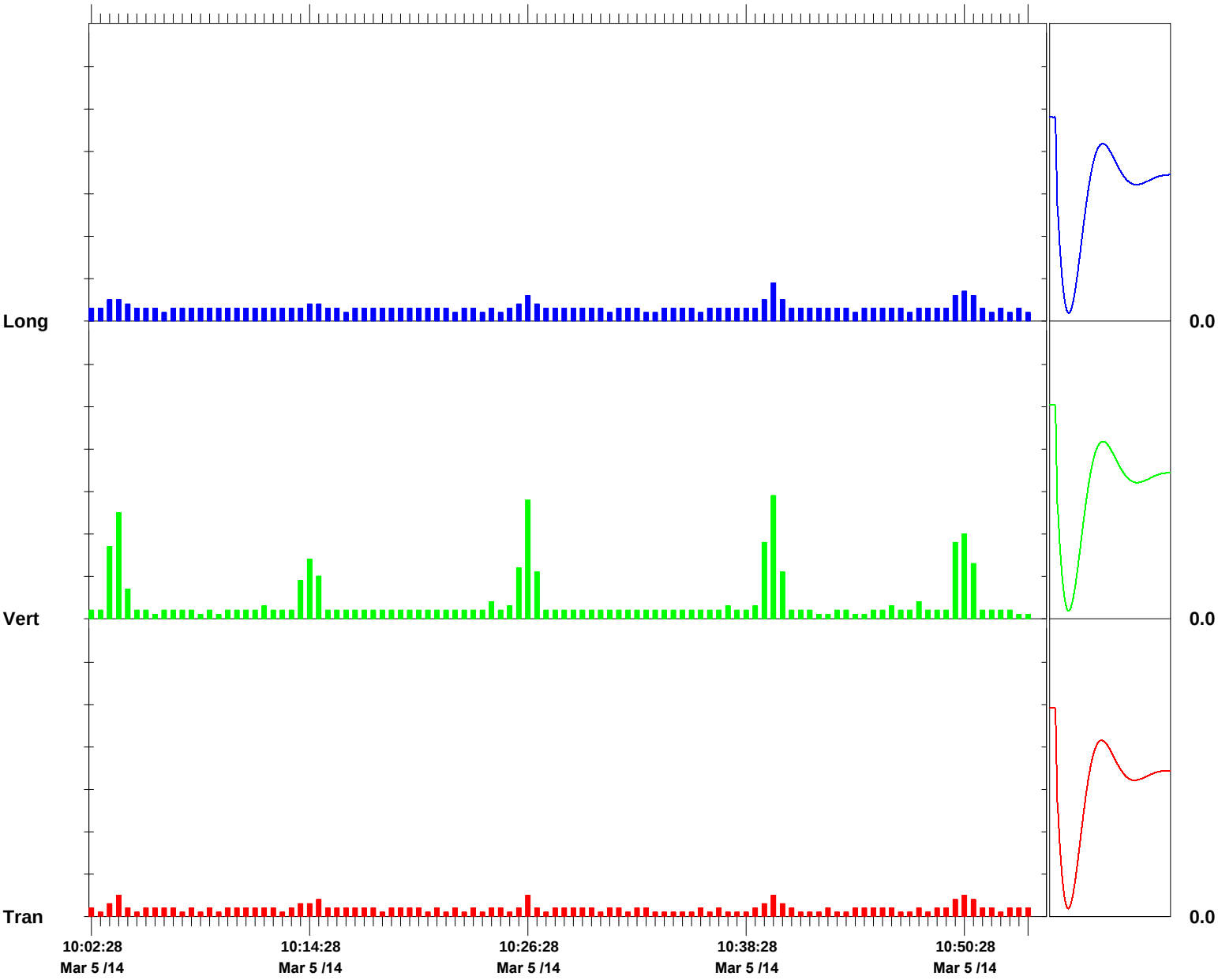
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

VMP 1

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.145	0.0450	in/s
ZC Freq	39	30	27	Hz
Date	Mar 5 /14	Mar 5 /14	Mar 5 /14	
Time	10:03:53	10:39:58	10:39:58	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.3	4.1	4.1	

Peak Vector Sum 0.146 in/s on September 1, 1995 at 12:39:58



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Event Report

Histogram Start Time 11:10:56 March 5, 2014
Histogram Finish Time 11:46:53 March 5, 2014
Number of Intervals 431.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

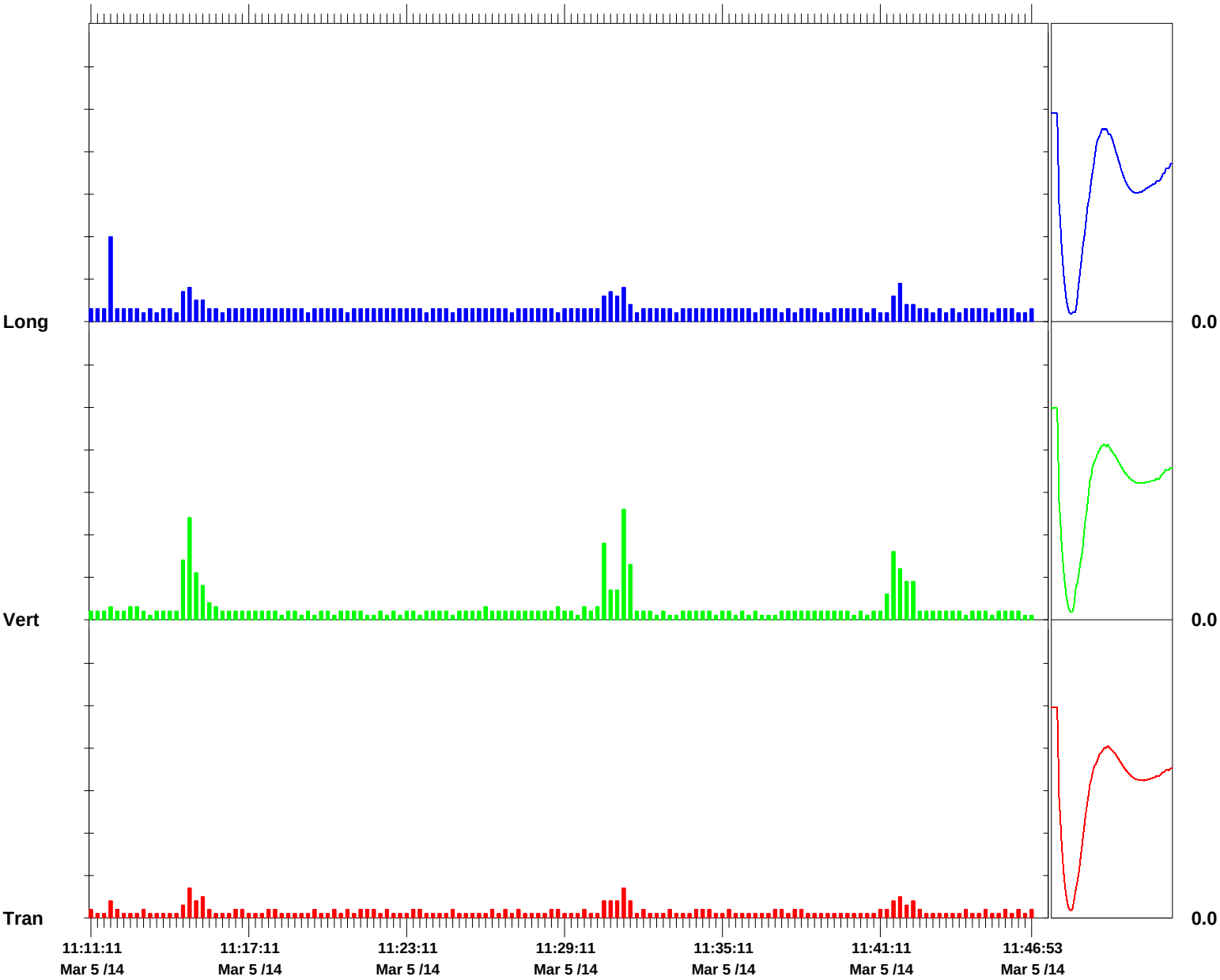
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.9 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F84C.E80

Post Event Notes
VMP 2

Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.130	0.1000	in/s
ZC Freq	43	37	13	Hz
Date	Mar 5 /14	Mar 5 /14	Mar 5 /14	
Time	11:14:56	11:31:21	11:11:56	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.4	Hz
Overswing Ratio	5.0	4.4	2.8	

Peak Vector Sum 0.131 in/s on March 5, 2014 at 11:31:21



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	11:47:42 March 5, 2014
Histogram Finish Time	12:07:17 March 5, 2014
Number of Intervals	234.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

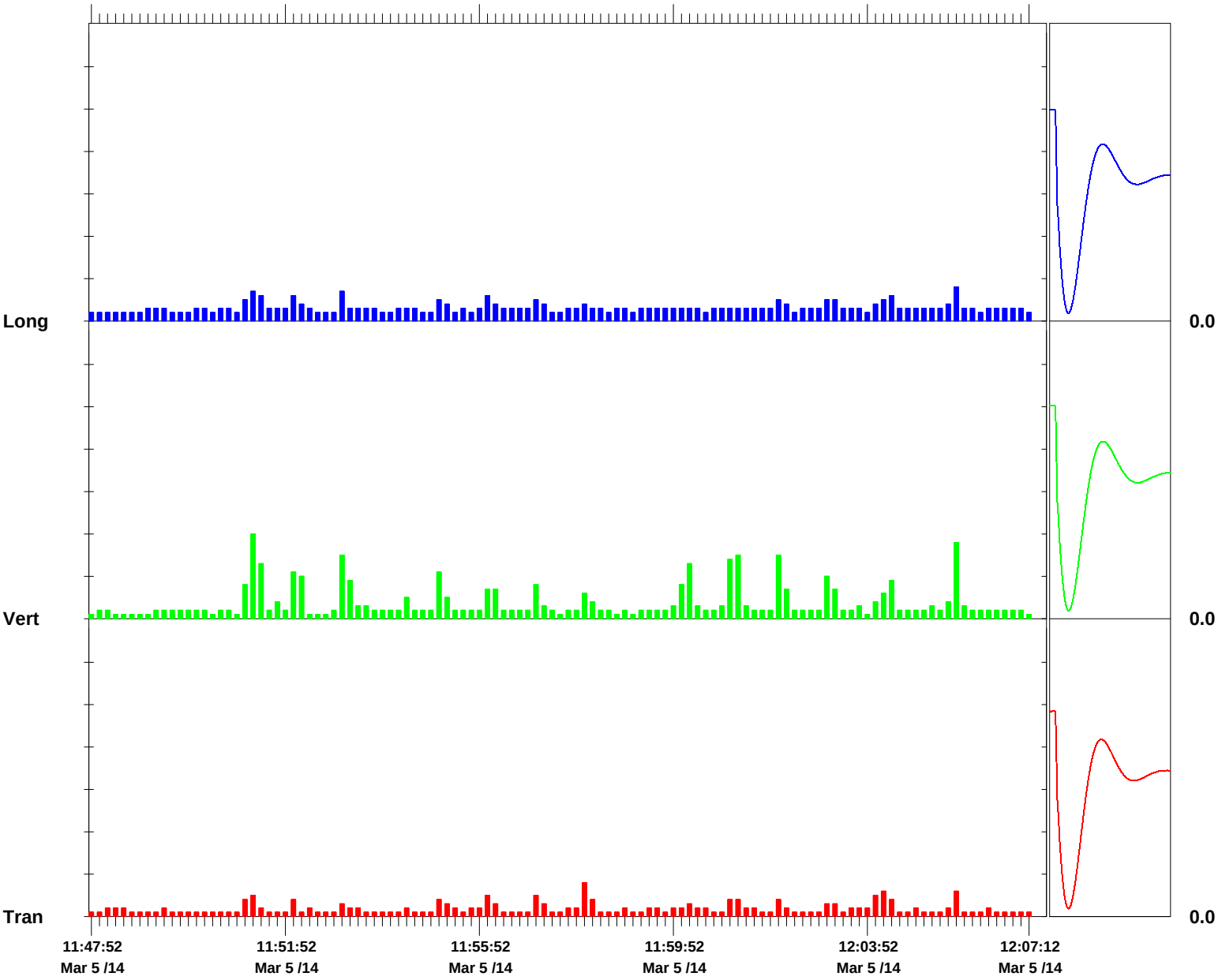
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F84E.3I0

Post Event Notes
VMP 2

Extended Notes

	Tran	Vert	Long	
PPV	0.0400	0.1000	0.0400	in/s
ZC Freq	34	39	28	Hz
Date	Mar 5 /14	Mar 5 /14	Mar 5 /14	
Time	11:58:02	11:51:07	12:05:37	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.2	4.1	4.2	

Peak Vector Sum 0.100 in/s on March 5, 2014 at 11:51:07



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 13:15:00 March 5, 2014
Histogram Finish Time 15:38:45 March 5, 2014
Number of Intervals 1725.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.9 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F84I.500

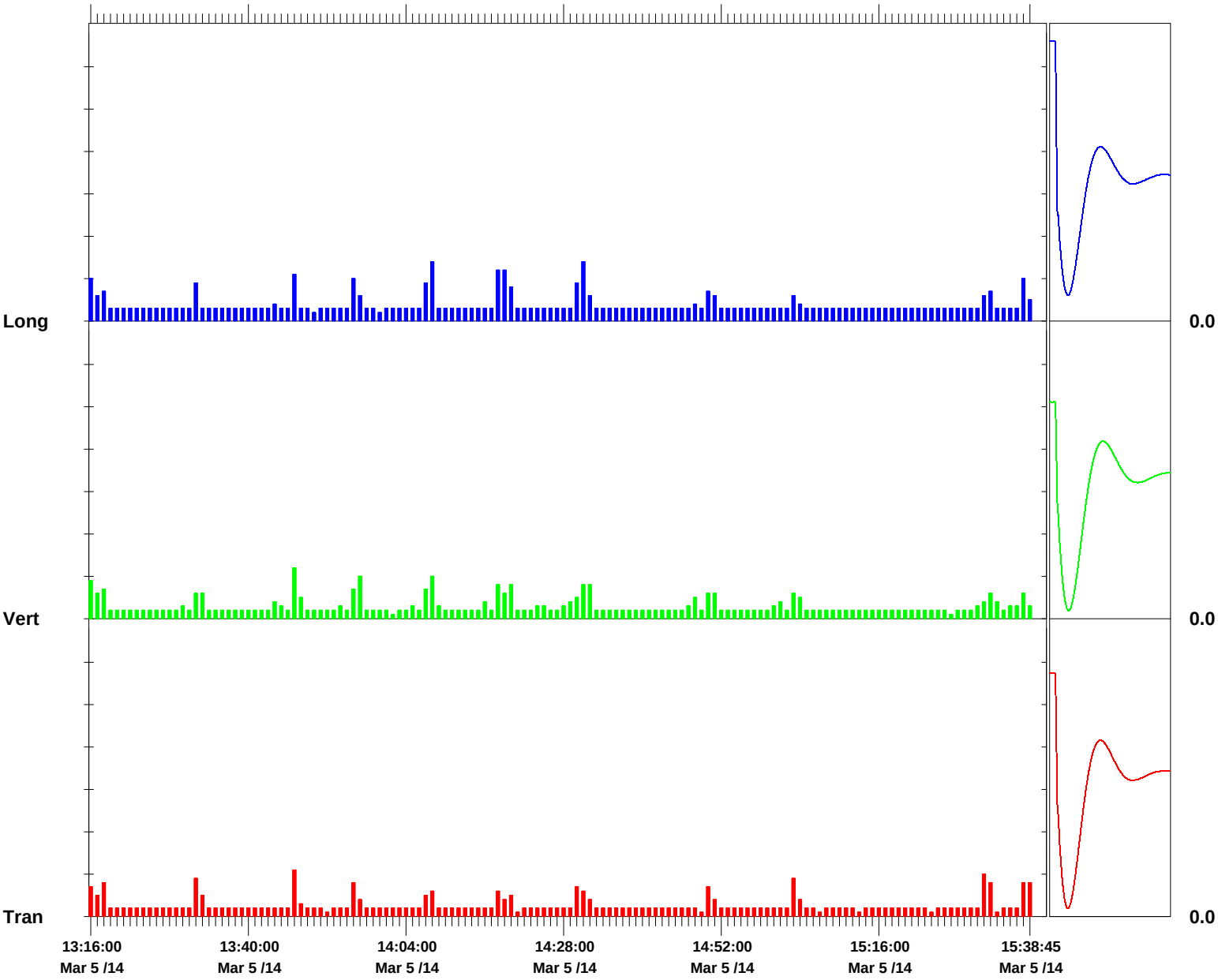
Post Event Notes

VMP 3

Extended Notes

	Tran	Vert	Long	
PPV	0.0550	0.0600	0.0700	in/s
ZC Freq	34	32	28	Hz
Date	Mar 5 /14	Mar 5 /14	Mar 5 /14	
Time	13:46:20	13:46:20	14:07:30	
Sensor Check	Passed	Passed	Check	
Frequency	7.6	7.3	7.8	Hz
Overswing Ratio	4.3	4.1	3.9	

Peak Vector Sum 0.0745 in/s on March 5, 2014 at 14:07:30



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	15:41:20 March 5, 2014
Histogram Finish Time	17:17:59 March 5, 2014
Number of Intervals	1159.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

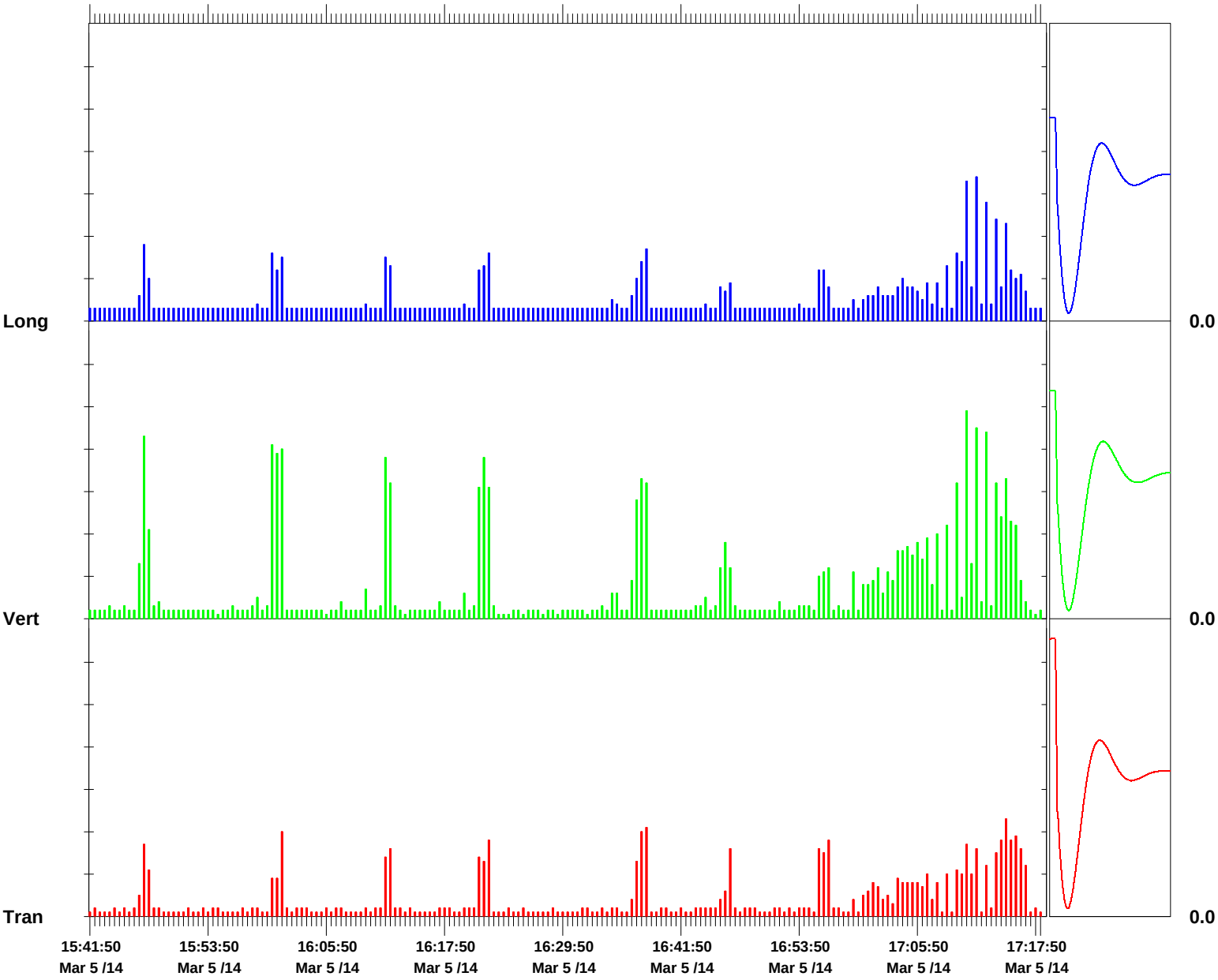
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F84O.WW0

Post Event Notes
VMP 4

Extended Notes

	Tran	Vert	Long	
PPV	0.115	0.245	0.170	in/s
ZC Freq	28	28	27	Hz
Date	Mar 5 /14	Mar 5 /14	Mar 5 /14	
Time	17:14:25	17:10:40	17:11:35	
Sensor Check	Check	Passed	Passed	
Frequency	7.8	7.3	7.5	Hz
Overswing Ratio	4.3	4.1	4.1	

Peak Vector Sum 0.266 in/s on March 5, 2014 at 17:11:35



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 6th, 2014
For ENTACT, LLC

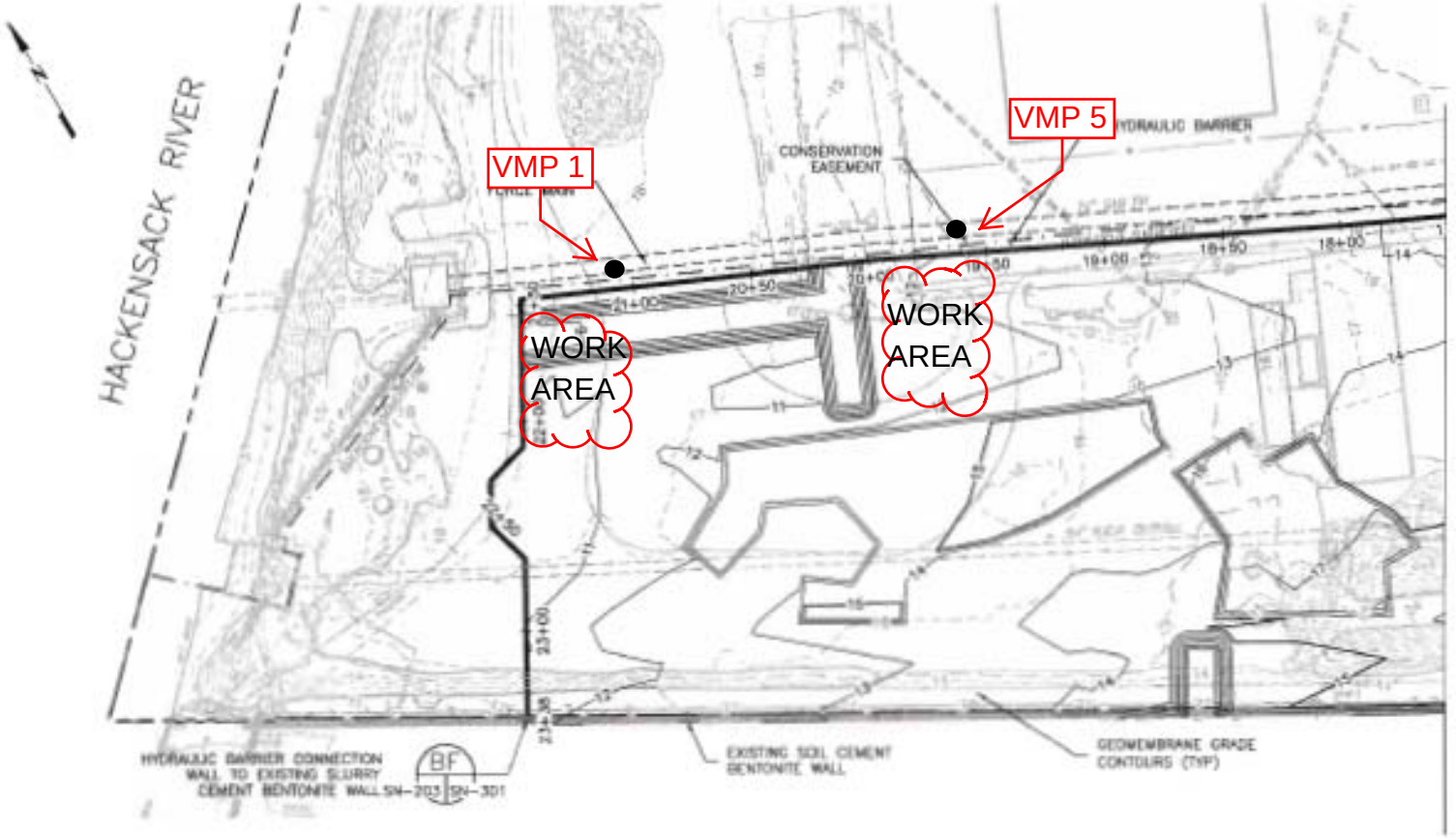
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 1:20 PM until 3:30 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

Five sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


VMP 1
VMP 5
WORK AREA
WORK AREA
HACKENSACK RIVER
CONSERVATION EASEMENT
HYDRAULIC BARRIER
EXISTING SOIL CEMENT BENTONITE WALL
GEOMEMBRANE GRADE CONTOURS (TYP)
HYDRAULIC BARRIER CONNECTION WALL TO EXISTING SLURRY CEMENT BENTONITE WALL SN-203 SN-301
BF

Event Report

Histogram Start Time	13:24:41 March 6, 2014
Histogram Finish Time	13:37:26 March 6, 2014
Number of Intervals	153.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

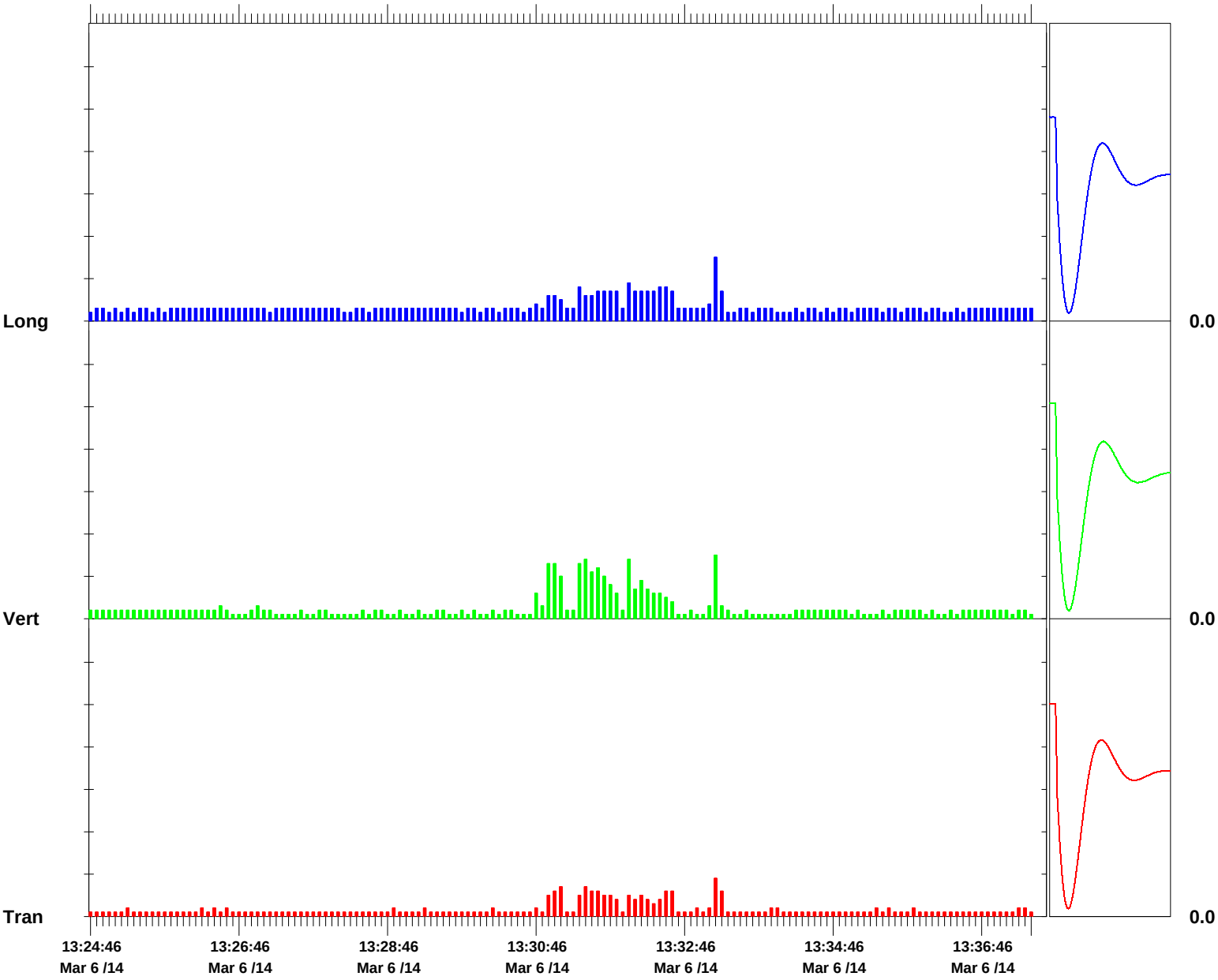
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F86D.950

Post Event Notes
VMP 1

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.0750	0.0750	in/s
ZC Freq	43	28	27	Hz
Date	Mar 6 /14	Mar 6 /14	Mar 6 /14	
Time	13:33:11	13:33:11	13:33:11	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.0886 in/s on March 6, 2014 at 13:33:11



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	13:49:49 March 6, 2014
Histogram Finish Time	15:29:00 March 6, 2014
Number of Intervals	1190.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

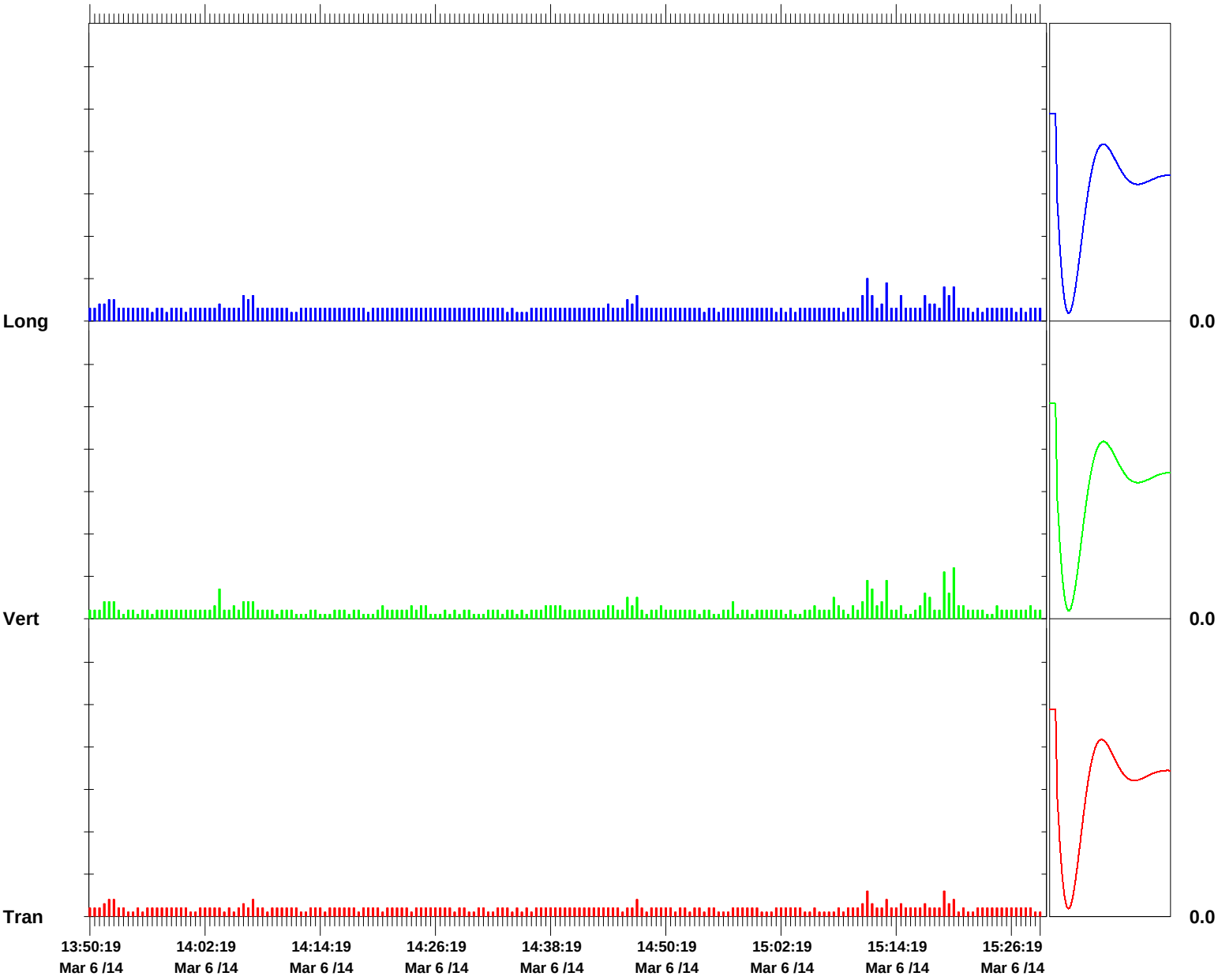
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F86E.F10

Post Event Notes
VMP 5

Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.0600	0.0500	in/s
ZC Freq	37	34	28	Hz
Date	Mar 6 /14	Mar 6 /14	Mar 6 /14	
Time	15:11:19	15:20:09	15:11:19	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.2	7.2	Hz
Overswing Ratio	4.2	4.1	4.2	

Peak Vector Sum 0.0610 in/s on March 6, 2014 at 15:20:09



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 7th, 2014
For ENTACT, LLC

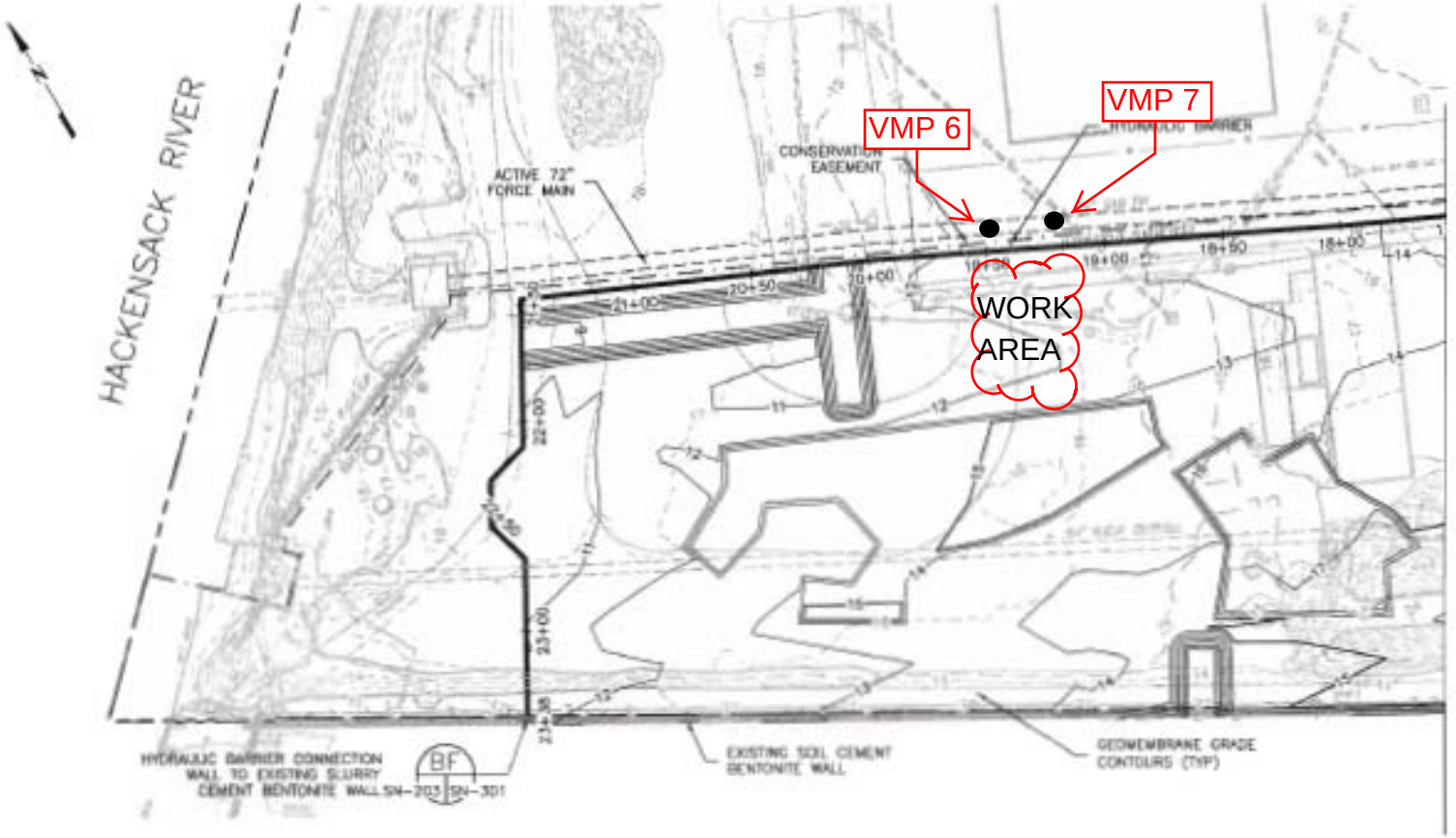
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 9:45 AM until 3:30 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

Twelve sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


HACKENSACK RIVER
VMP 6
VMP 7
WORK AREA
ACTIVE 72" FORCE MAIN
CONSERVATION EASEMENT
HYDRAULIC BARRIER
EXISTING SOIL CEMENT BENTONITE WALL
GEOMEMBRANE GRADE CONTOURS (TYP)
HYDRAULIC BARRIER CONNECTION WALL TO EXISTING SLURRY CEMENT BENTONITE WALL SN-203 SN-301
BF

Event Report

Histogram Start Time	09:46:05 March 7, 2014
Histogram Finish Time	14:57:11 March 7, 2014
Number of Intervals	3733.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

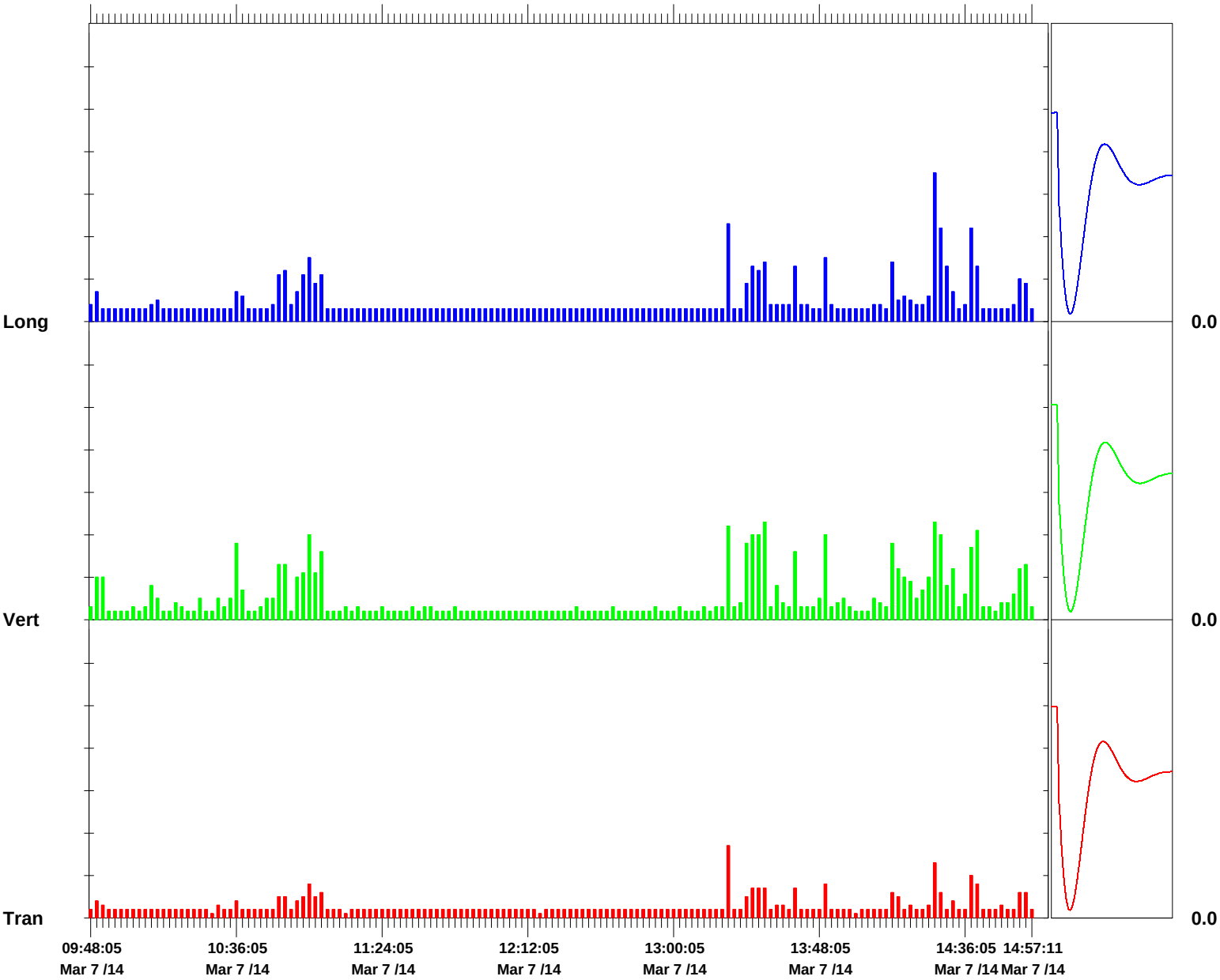
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F87X.ST0

Post Event Notes
VMP 6

Extended Notes

	Tran	Vert	Long	
PPV	0.0850	0.115	0.175	in/s
ZC Freq	43	26	28	Hz
Date	Mar 7 /14	Mar 7 /14	Mar 7 /14	
Time	13:16:35	13:28:20	14:25:15	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.3	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.183 in/s on March 7, 2014 at 14:25:15



Time Scale: 2 minutes /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 15:00:12 March 7, 2014
Histogram Finish Time 15:39:10 March 7, 2014
Number of Intervals 467.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

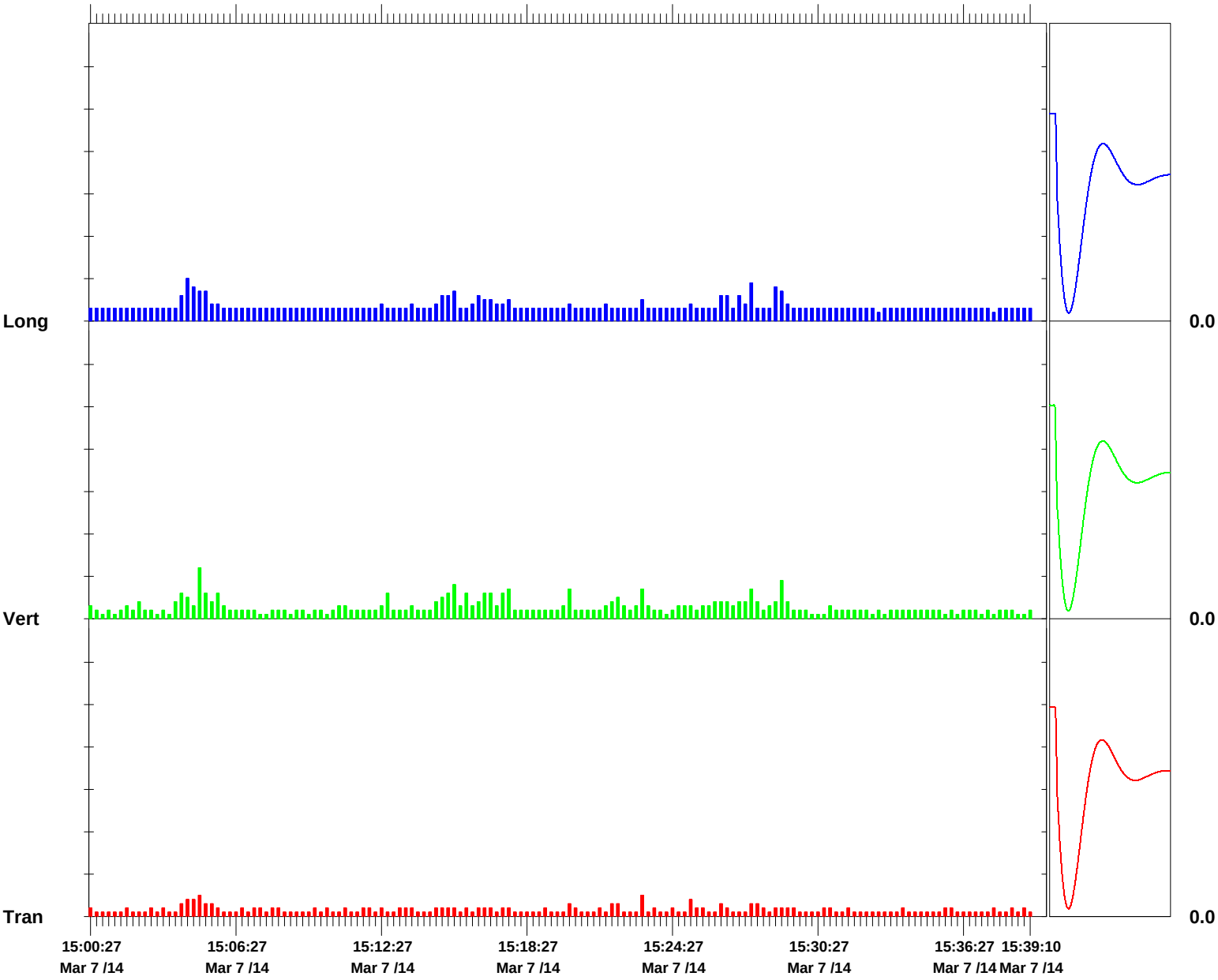
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.9 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F88C.CC0

Post Event Notes
VMP 7

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.0600	0.0500	in/s
ZC Freq	47	39	28	Hz
Date	Mar 7 /14	Mar 7 /14	Mar 7 /14	
Time	15:04:47	15:04:47	15:04:27	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.3	7.3	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.0634 in/s on March 7, 2014 at 15:04:47



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 8th, 2014
For ENTACT, LLC

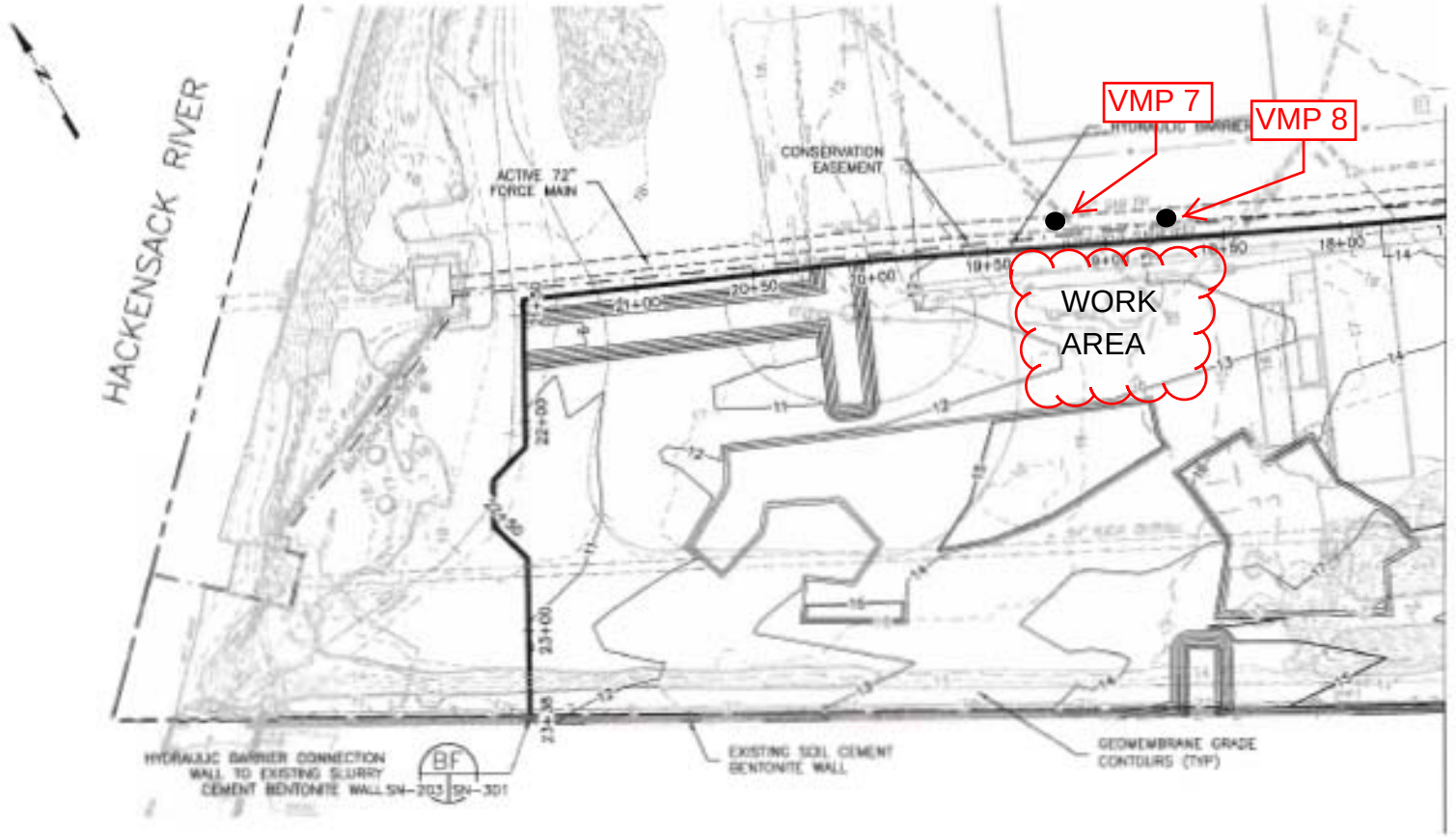
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 8:50 AM until 12:35 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

19 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


HACKENSACK RIVER
ACTIVE 72"
FORCE MAIN
CONSERVATION
EASEMENT
VMP 7
VMP 8
WORK
AREA
HYDRAULIC BARRIER CONNECTION
WALL TO EXISTING SLURRY
CEMENT BENTONITE WALL SN-203 SN-301
BF
EXISTING SOIL CEMENT
BENTONITE WALL
GEOMEMBRANE GRADE
CONTOURS (TYP)

Event Report

Histogram Start Time 08:50:20 March 8, 2014
Histogram Finish Time 10:40:45 March 8, 2014
Number of Intervals 1325.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

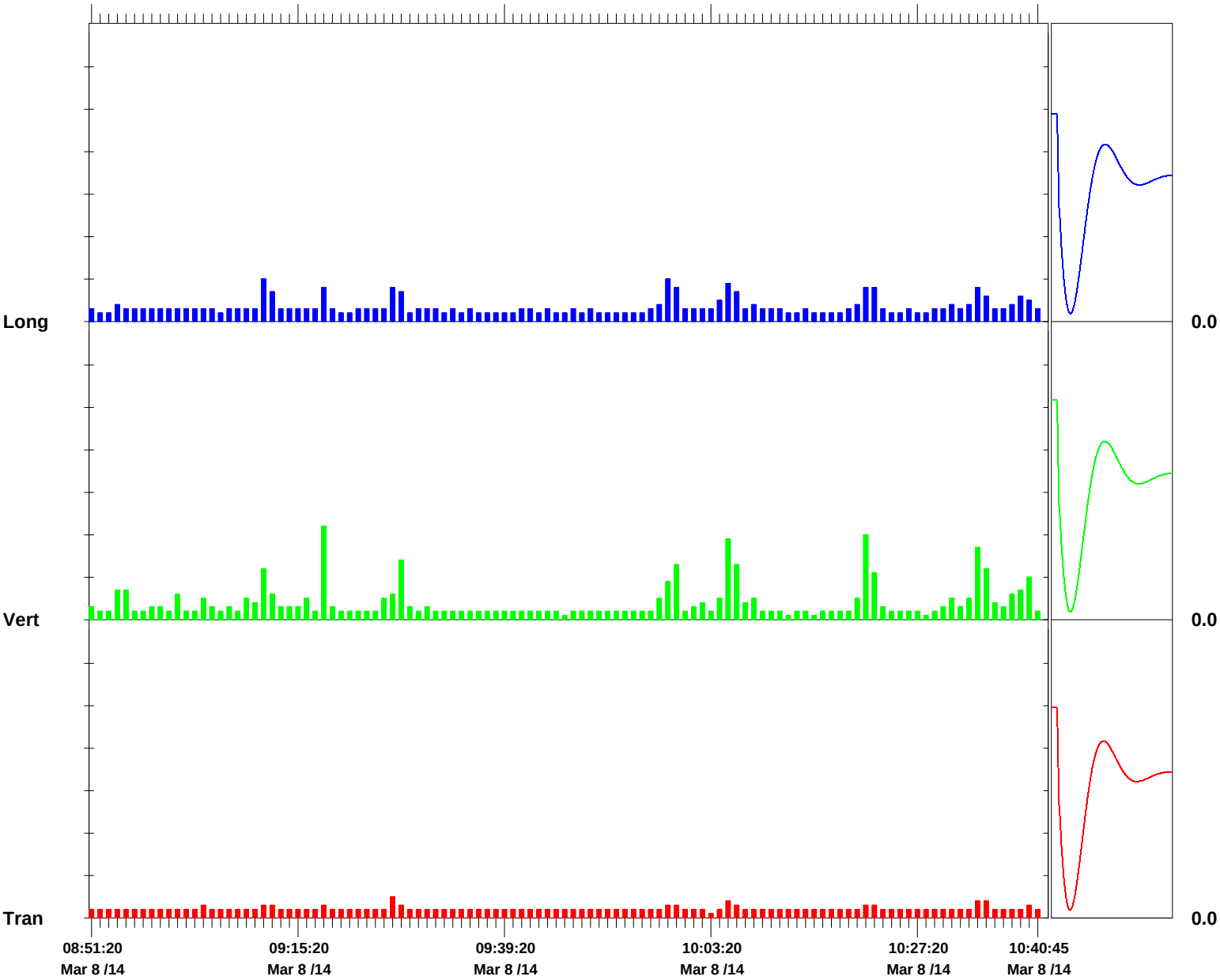
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F89P.VW0

Post Event Notes
VMP 7

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.110	0.0500	in/s
ZC Freq	51	16	28	Hz
Date	Mar 8 /14	Mar 8 /14	Mar 8 /14	
Time	09:26:20	09:17:35	09:11:15	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.2	Hz
Overswing Ratio	4.2	4.1	4.2	

Peak Vector Sum 0.113 in/s on March 8, 2014 at 09:17:35



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 10:43:17 March 8, 2014
Histogram Finish Time 12:36:05 March 8, 2014
Number of Intervals 1353.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

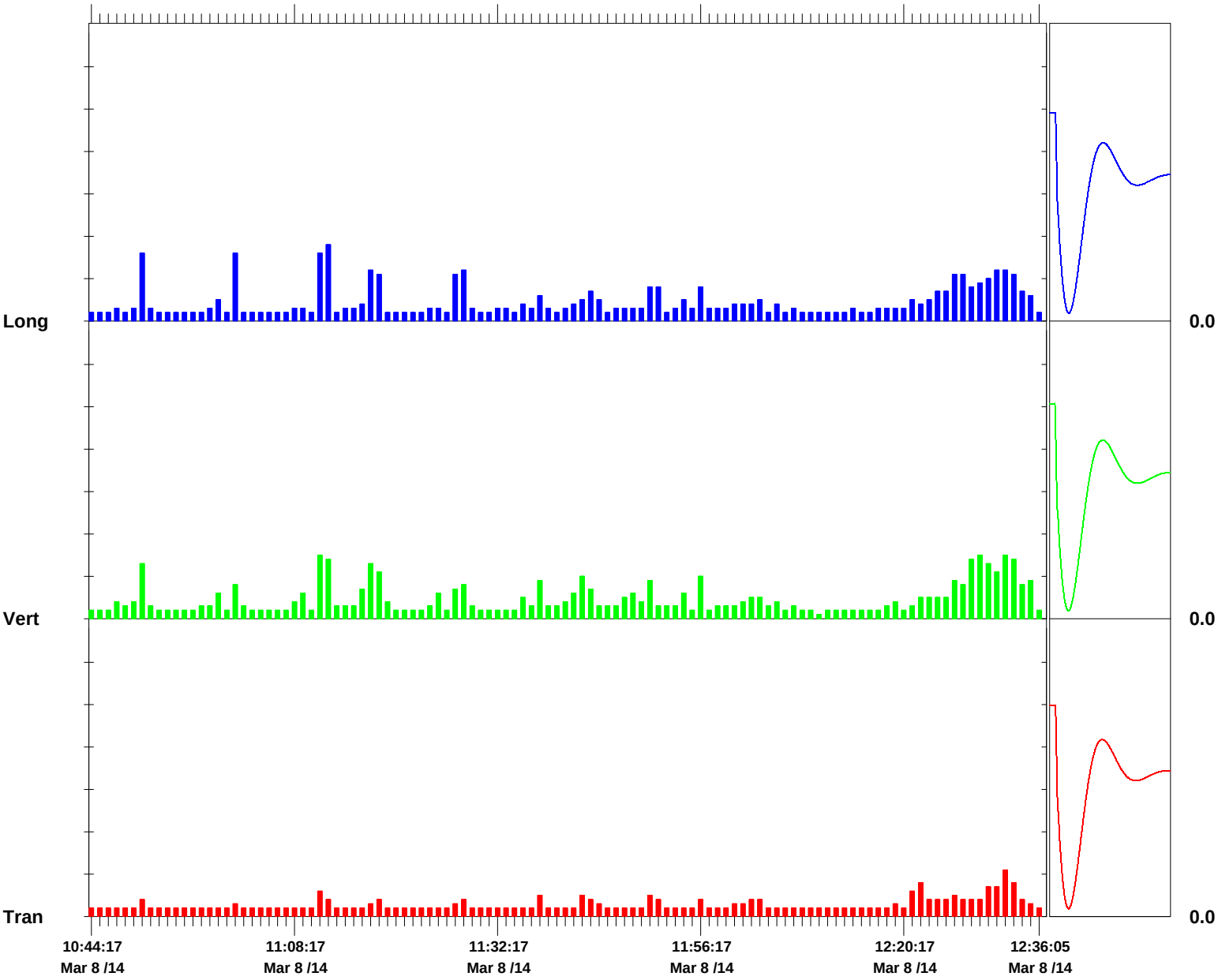
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F89V.450

Post Event Notes
VMP 8

Extended Notes

	Tran	Vert	Long	
PPV	0.0550	0.0750	0.0900	in/s
ZC Freq	30	13	30	Hz
Date	Mar 8 /14	Mar 8 /14	Mar 8 /14	
Time	12:31:52	11:10:52	11:11:22	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.3	7.2	Hz
Overswing Ratio	4.2	4.0	4.0	

Peak Vector Sum 0.0935 in/s on March 8, 2014 at 11:11:22



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 10th, 2014
For ENTACT, LLC

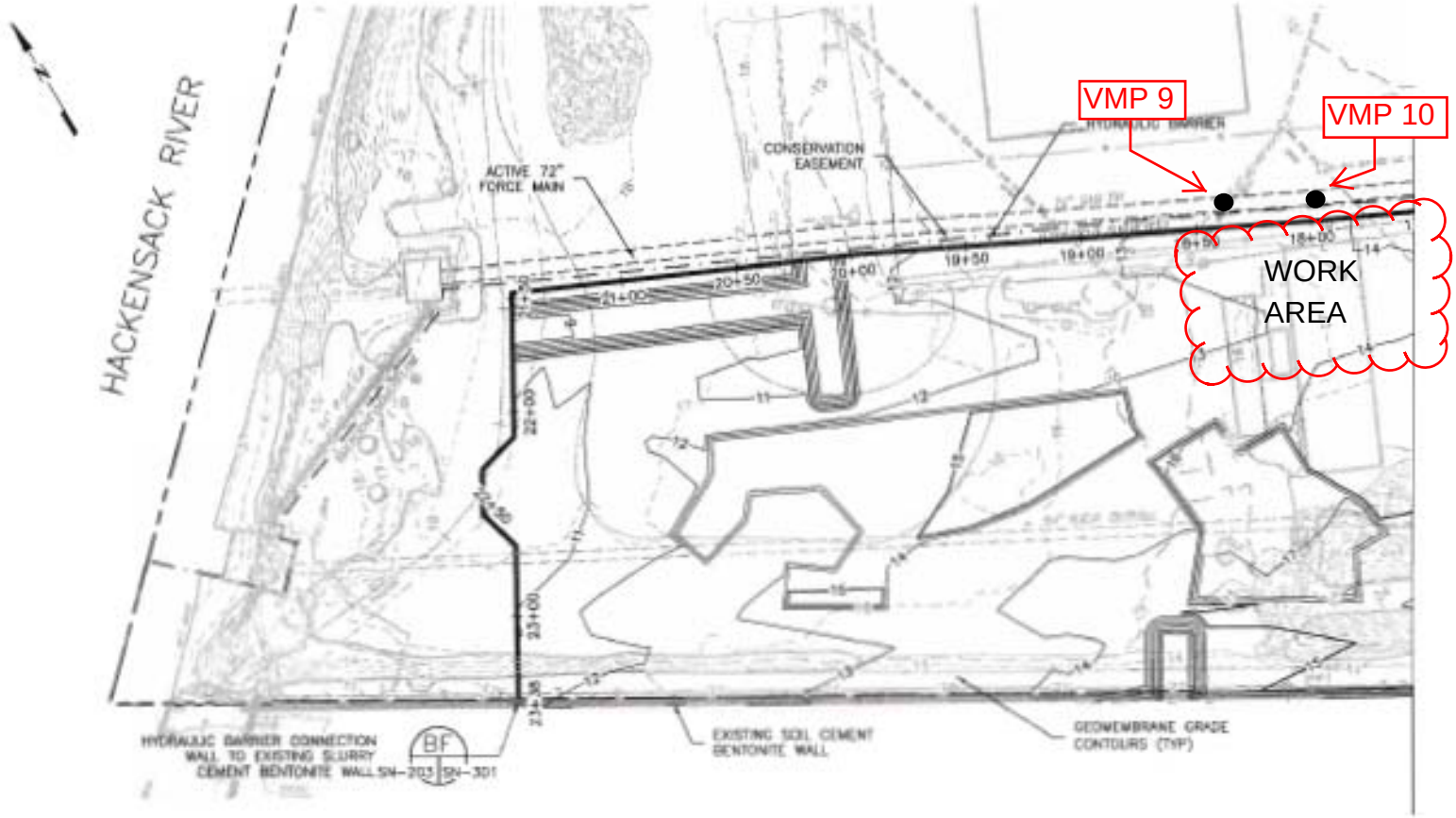
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

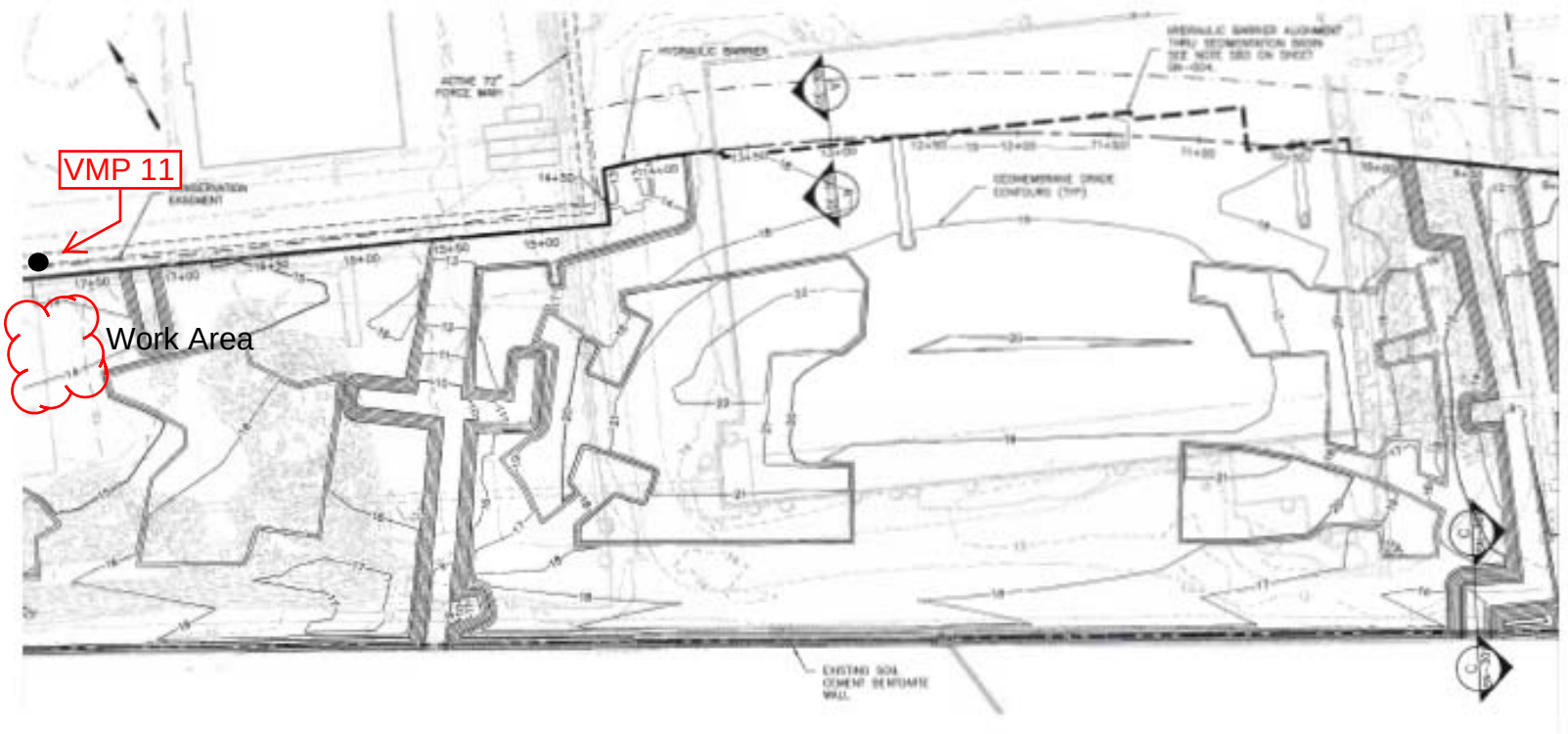
NOTES:

Summary of Work:
Sheet pile driving commenced at 11:30 AM and ended at 5:05 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

30 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


HACKENSACK RIVER
VMP 9
VMP 10
CONSERVATION EASEMENT
ACTIVE 72" FORCE MAIN
WORK AREA
HYDRAULIC BARRIER CONNECTION WALL TO EXISTING SLURRY CEMENT BENTONITE WALL SN-203 SN-301
EXISTING SOIL CEMENT BENTONITE WALL
GEOMEMBRANE GRADE CONTOURS (TYP)


VMP 11
Work Area

Event Report

Histogram Start Time	11:30:36 March 10, 2014
Histogram Finish Time	13:38:03 March 10, 2014
Number of Intervals	1529.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

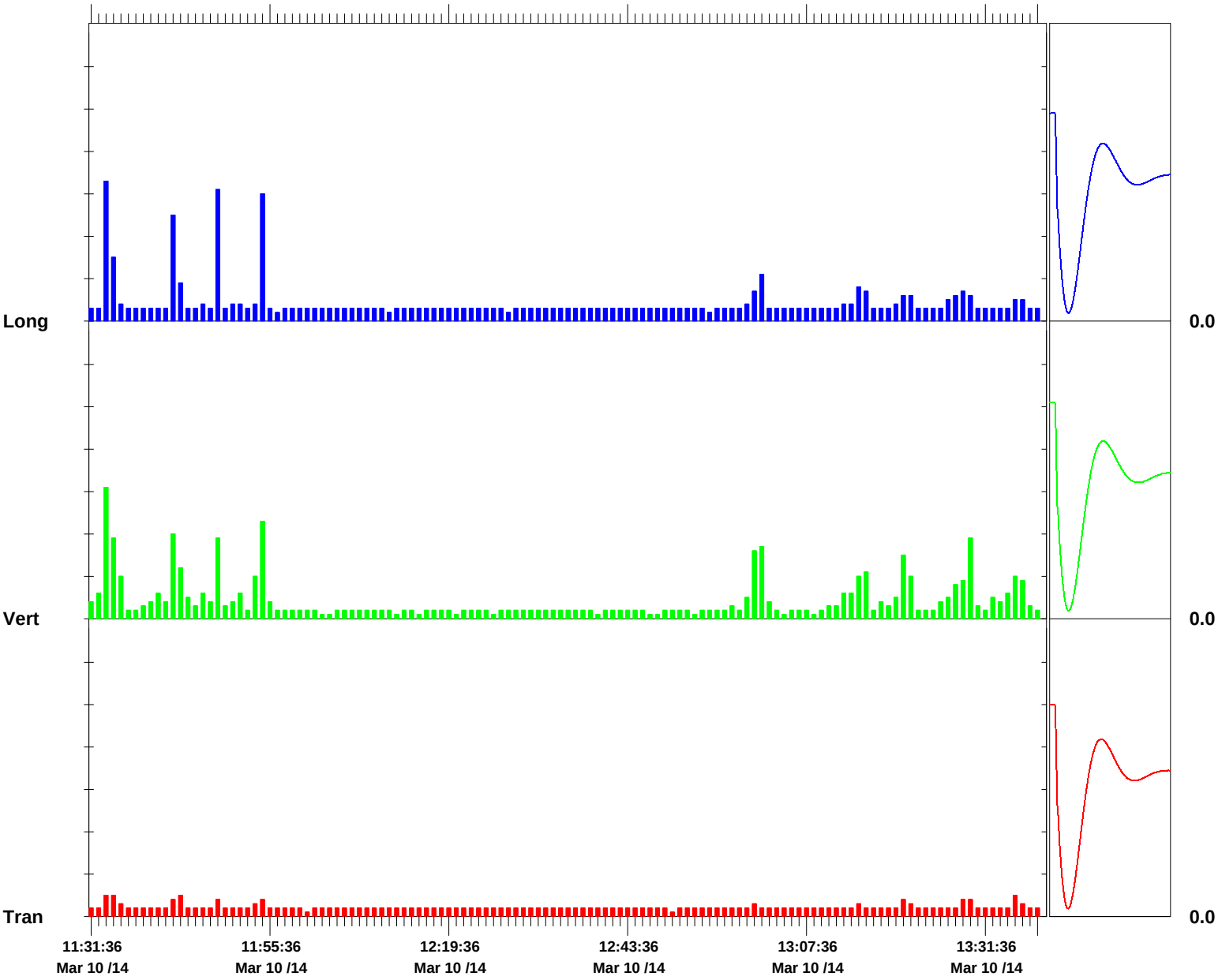
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8DM.N00

Post Event Notes
VMP 9

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.155	0.165	in/s
ZC Freq	34	22	51	Hz
Date	Mar 10 /14	Mar 10 /14	Mar 10 /14	
Time	11:33:21	11:33:21	11:33:26	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.3	Hz
Overswing Ratio	4.1	4.1	4.1	

Peak Vector Sum 0.186 in/s on March 10, 2014 at 11:54:36



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 13:40:24 March 10, 2014
Histogram Finish Time 15:15:31 March 10, 2014
Number of Intervals 1141.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

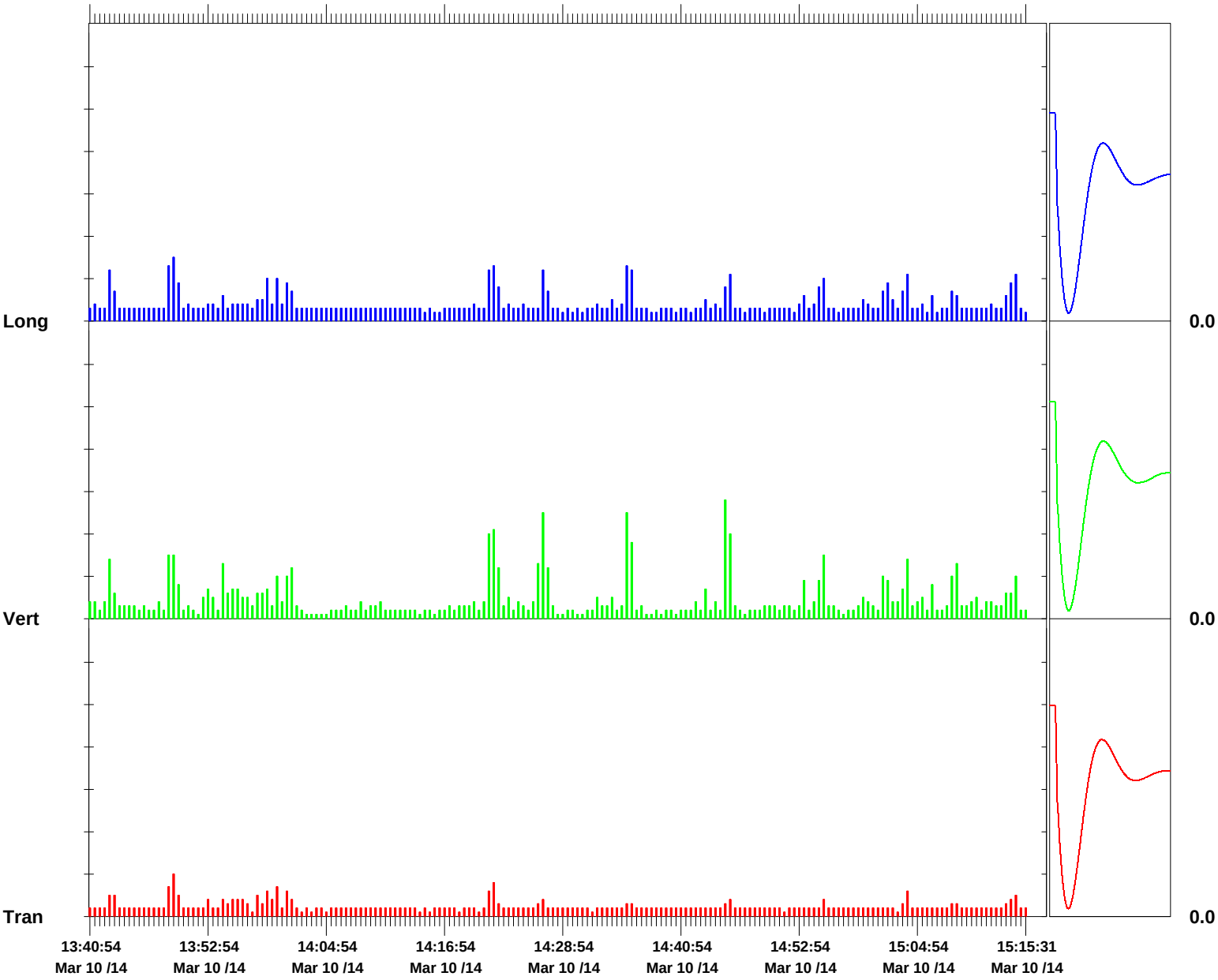
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8DS.NC0

Post Event Notes
VMP 10

Extended Notes

	Tran	Vert	Long	
PPV	0.0500	0.140	0.0750	in/s
ZC Freq	34	32	32	Hz
Date	Mar 10 /14	Mar 10 /14	Mar 10 /14	
Time	13:48:59	14:45:24	13:49:04	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.2	7.2	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.146 in/s on March 10, 2014 at 14:45:24



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	15:17:54 March 10, 2014
Histogram Finish Time	17:08:22 March 10, 2014
Number of Intervals	1325.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

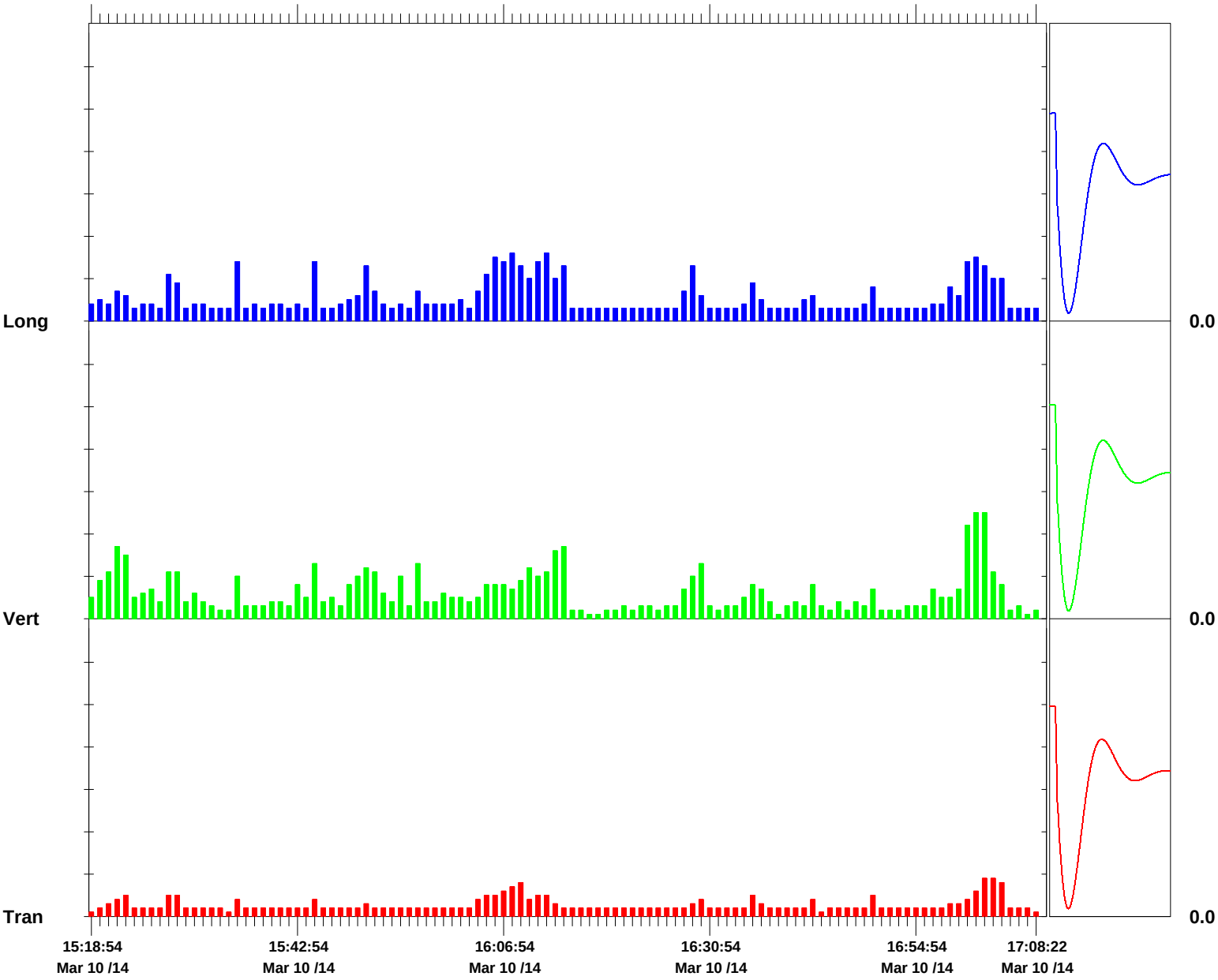
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8DX.5U0

Post Event Notes
VMP 11

Extended Notes

	Tran	Vert	Long	
PPV	0.0450	0.125	0.0800	in/s
ZC Freq	34	32	30	Hz
Date	Mar 10 /14	Mar 10 /14	Mar 10 /14	
Time	17:02:14	17:01:34	16:06:59	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.3	7.2	Hz
Overswing Ratio	4.1	4.0	4.1	

Peak Vector Sum 0.145 in/s on March 10, 2014 at 17:01:34



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 11th, 2014
For ENTACT, LLC

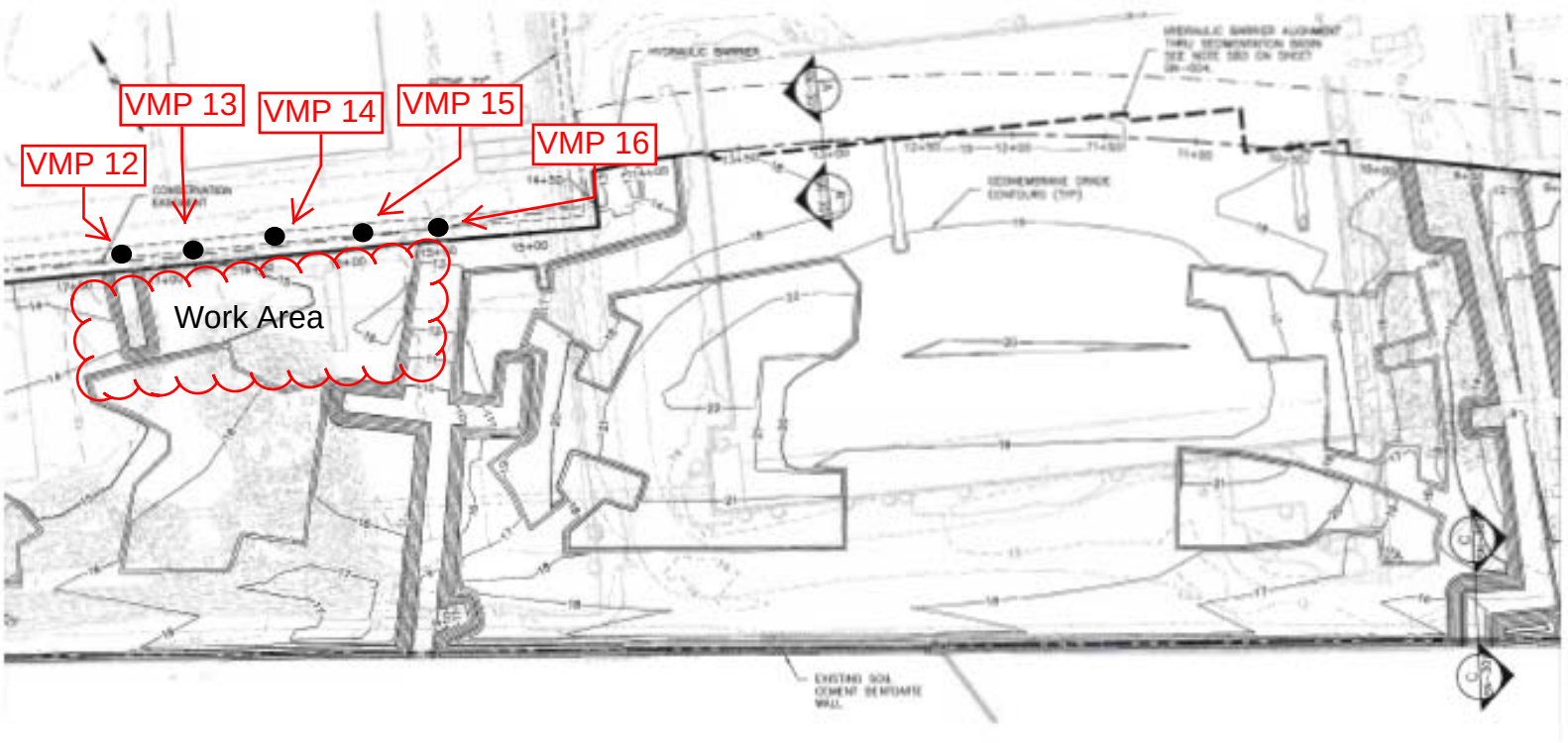
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 8:10 AM and ended at 6:40 PM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

44 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


VMP 12
VMP 13
VMP 14
VMP 15
VMP 16
Work Area

Event Report

Histogram Start Time 08:07:50 March 11, 2014
Histogram Finish Time 09:59:23 March 11, 2014
Number of Intervals 1338.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

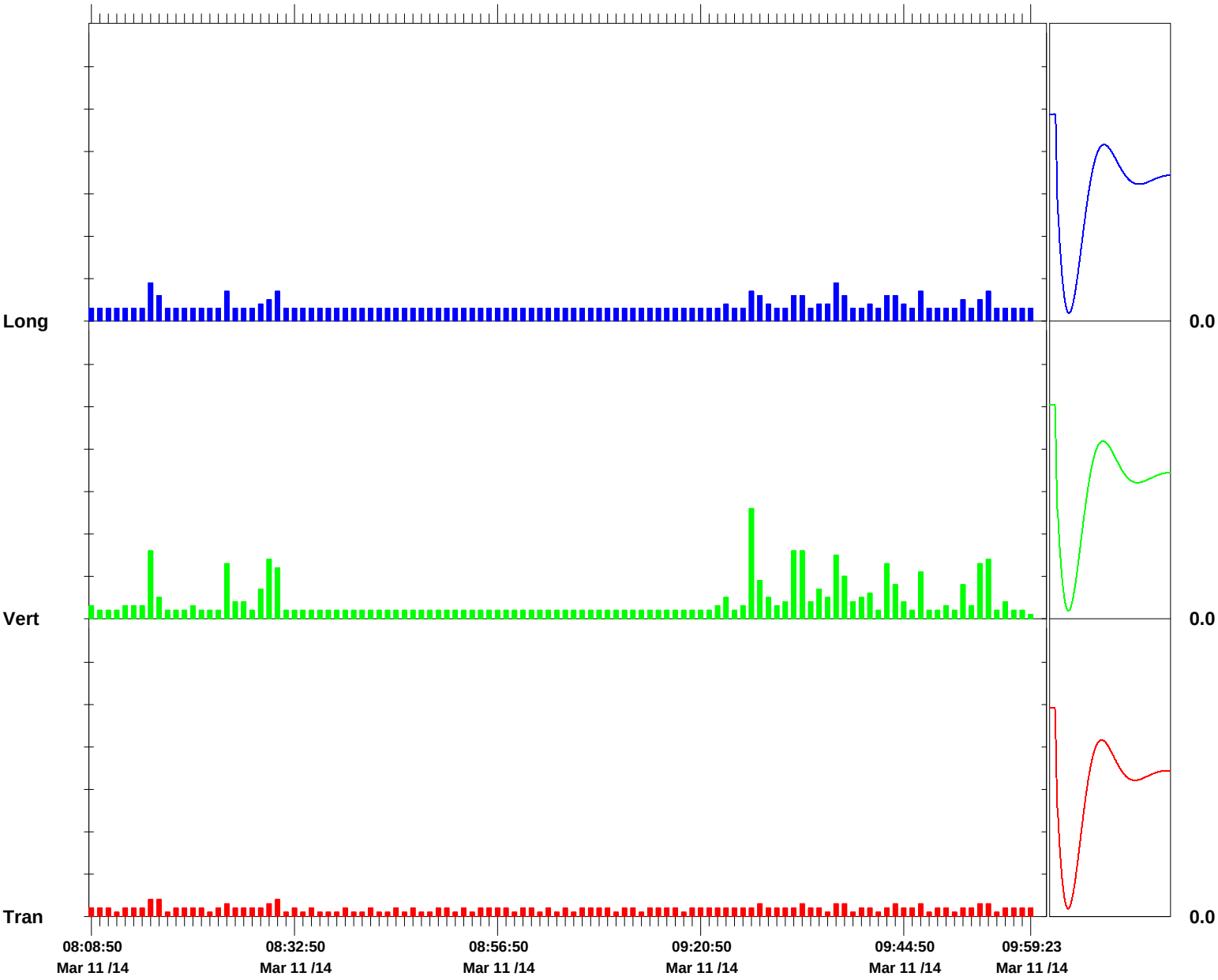
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.9 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8F7.X20

Post Event Notes
VMP 12

Extended Notes

	Tran	Vert	Long	
PPV	0.0200	0.130	0.0450	in/s
ZC Freq	43	15	17	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	08:15:45	09:26:45	08:15:00	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.2	Hz
Overswing Ratio	4.2	4.1	4.2	

Peak Vector Sum 0.132 in/s on March 11, 2014 at 09:26:45



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	10:01:54 March 11, 2014
Histogram Finish Time	13:41:17 March 11, 2014
Number of Intervals	2632.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

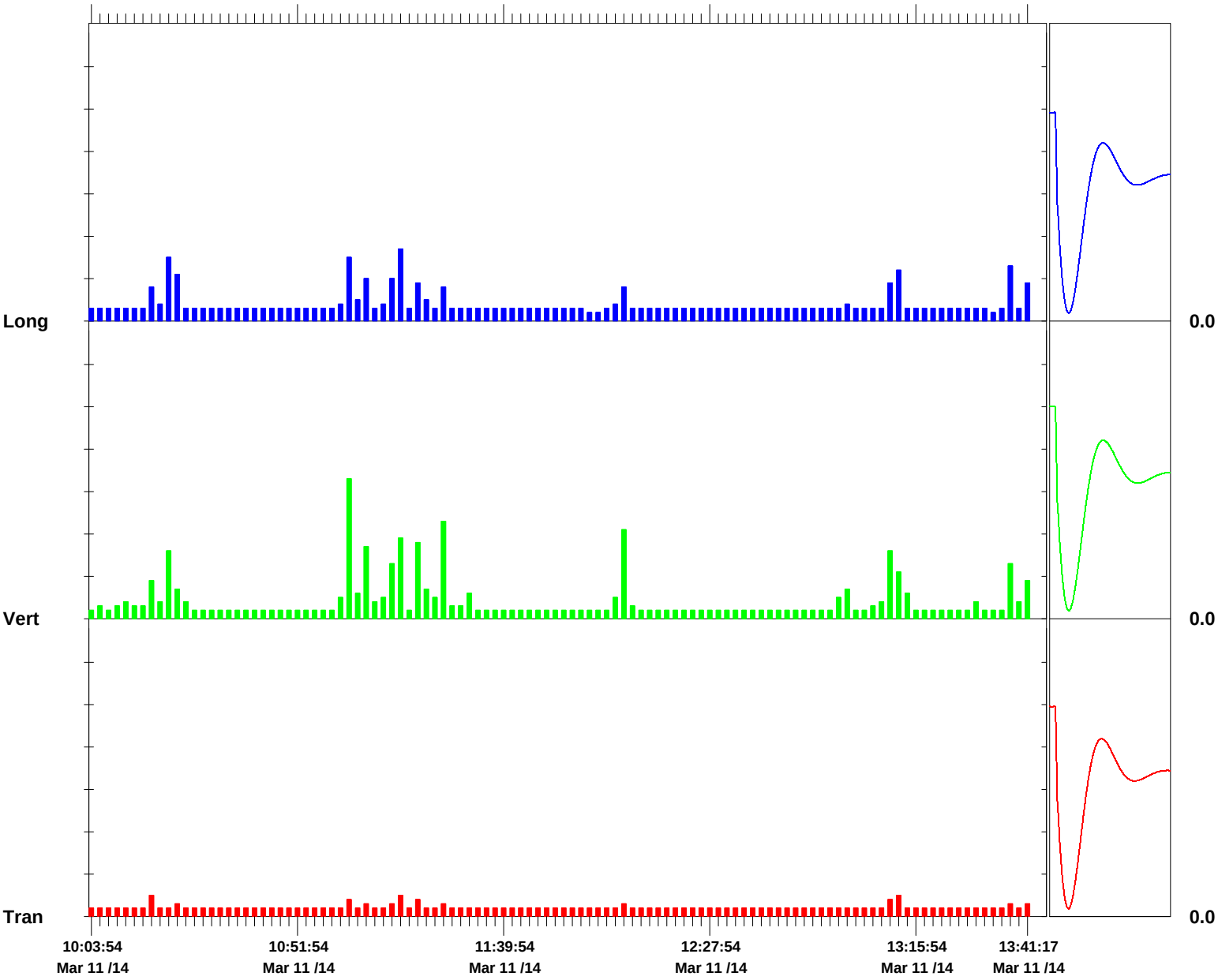
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8FD.760

Post Event Notes
VMP 13

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.165	0.0850	in/s
ZC Freq	39	17	32	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	10:16:54	11:02:59	11:14:44	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.3	Hz
Overswing Ratio	4.1	4.0	4.0	

Peak Vector Sum 0.169 in/s on March 11, 2014 at 11:02:59



Time Scale: 2 minutes /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 13:43:06 March 11, 2014
Histogram Finish Time 15:14:40 March 11, 2014
Number of Intervals 1098.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

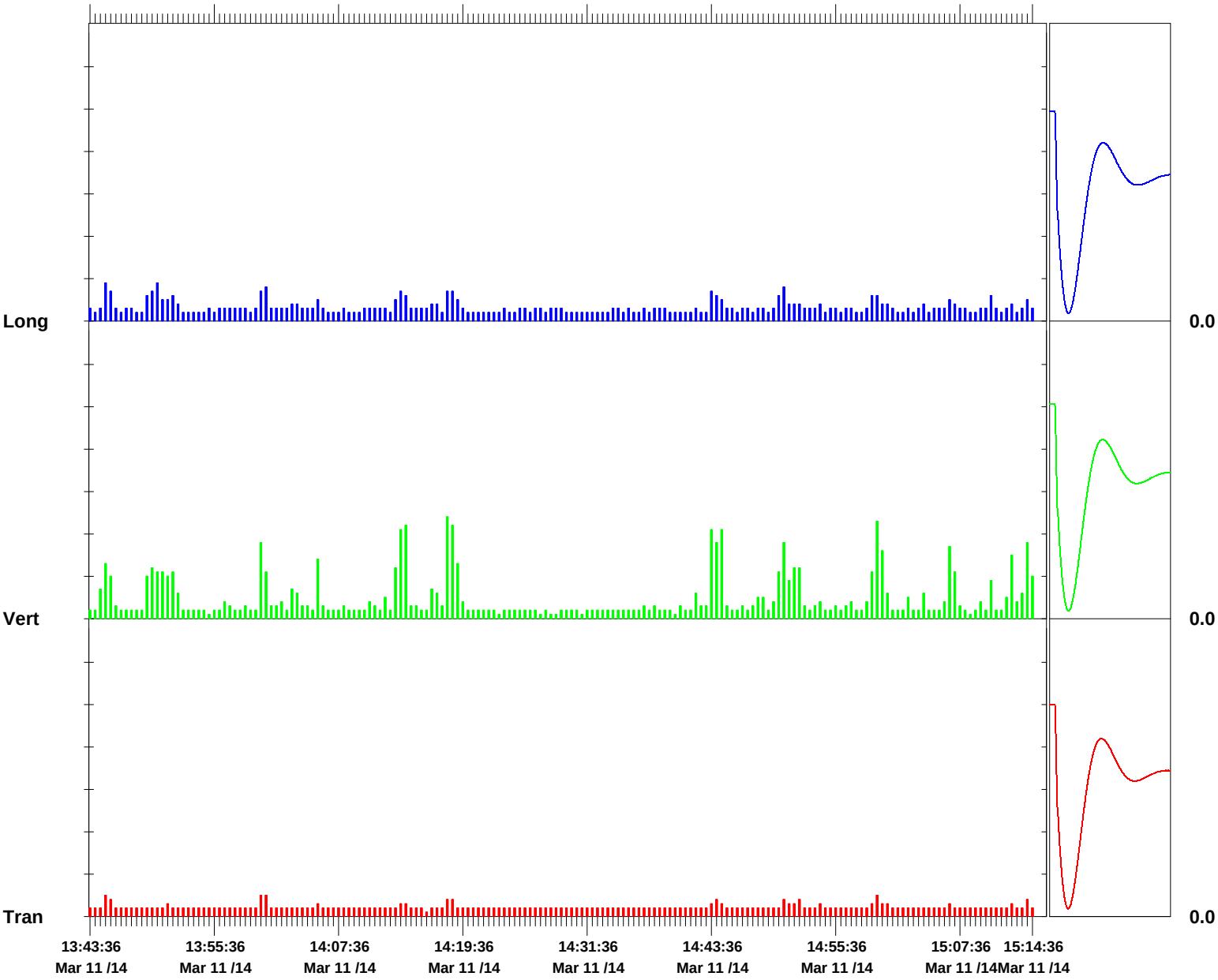
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8FN.FU0

Post Event Notes
VMP 14

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.120	0.0450	in/s
ZC Freq	39	30	30	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	13:45:06	14:18:06	13:45:06	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.0	3.9	4.0	

Peak Vector Sum 0.122 in/s on March 11, 2014 at 14:18:06



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	15:17:04 March 11, 2014
Histogram Finish Time	15:55:36 March 11, 2014
Number of Intervals	462.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1

Notes

Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8FR.SG0

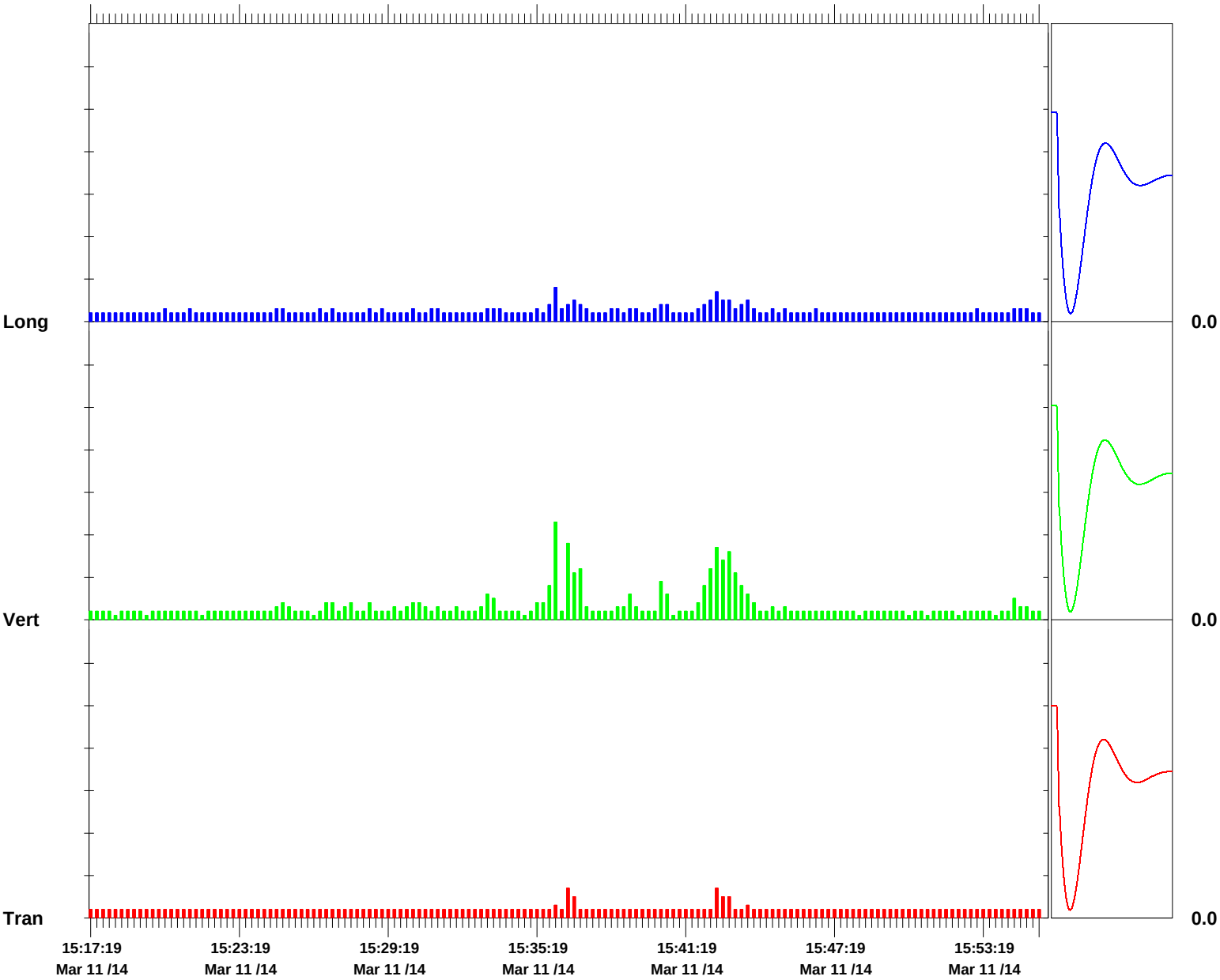
Post Event Notes

VMP 15

Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.115	0.0400	in/s
ZC Freq	34	30	34	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	15:36:34	15:35:54	15:35:54	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.3	7.2	Hz
Overswing Ratio	4.0	3.9	4.0	

Peak Vector Sum 0.119 in/s on March 11, 2014 at 15:35:54



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	15:57:20 March 11, 2014
Histogram Finish Time	16:30:19 March 11, 2014
Number of Intervals	395.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

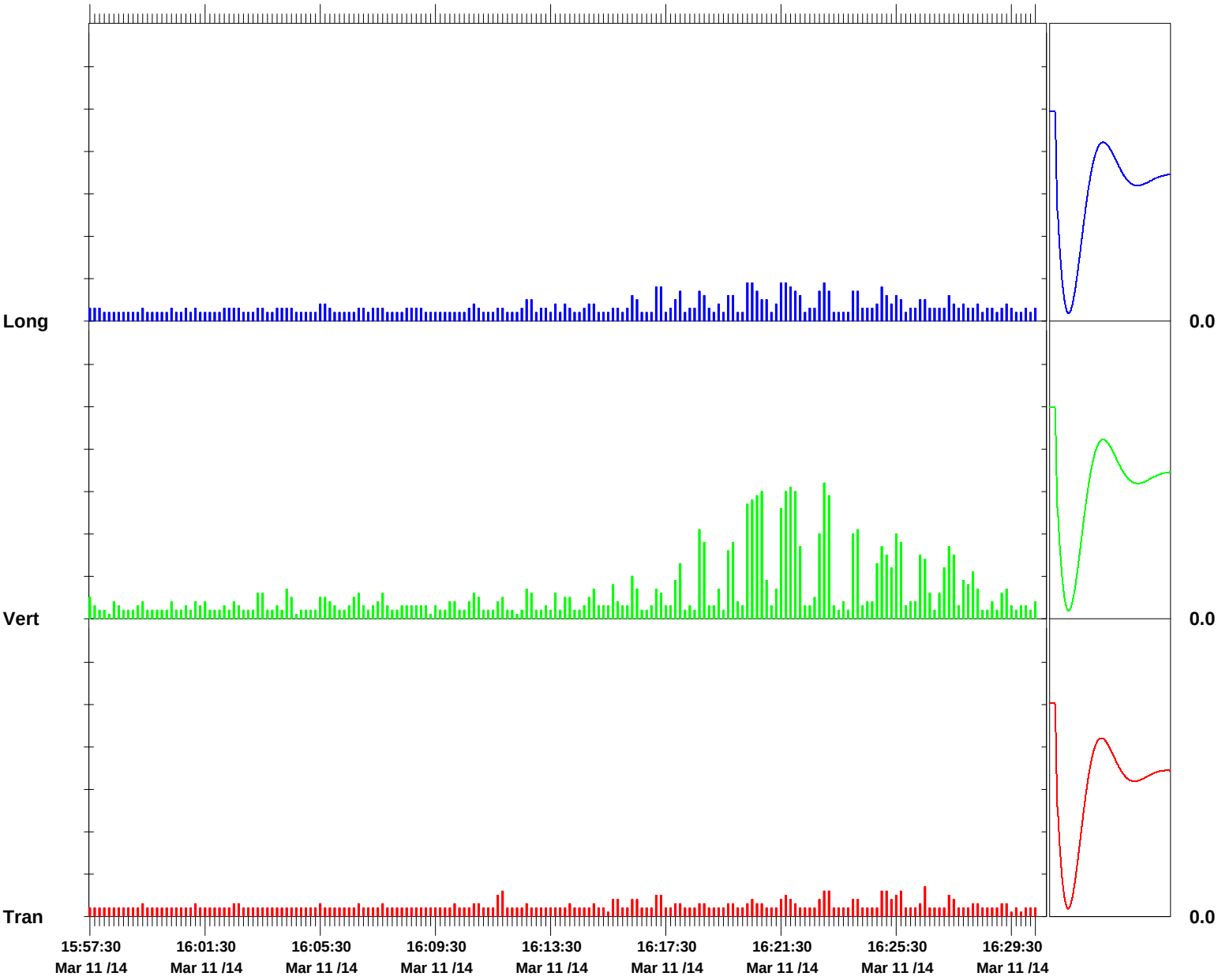
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8FT.NK0

Post Event Notes
VMP 14

Extended Notes

	Tran	Vert	Long	
PPV	0.0350	0.160	0.0450	in/s
ZC Freq	39	30	30	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	16:26:30	16:23:00	16:20:20	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.0	3.9	3.9	

Peak Vector Sum 0.164 in/s on March 11, 2014 at 16:23:00



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 16:32:48 March 11, 2014
Histogram Finish Time 17:59:40 March 11, 2014
Number of Intervals 1042.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

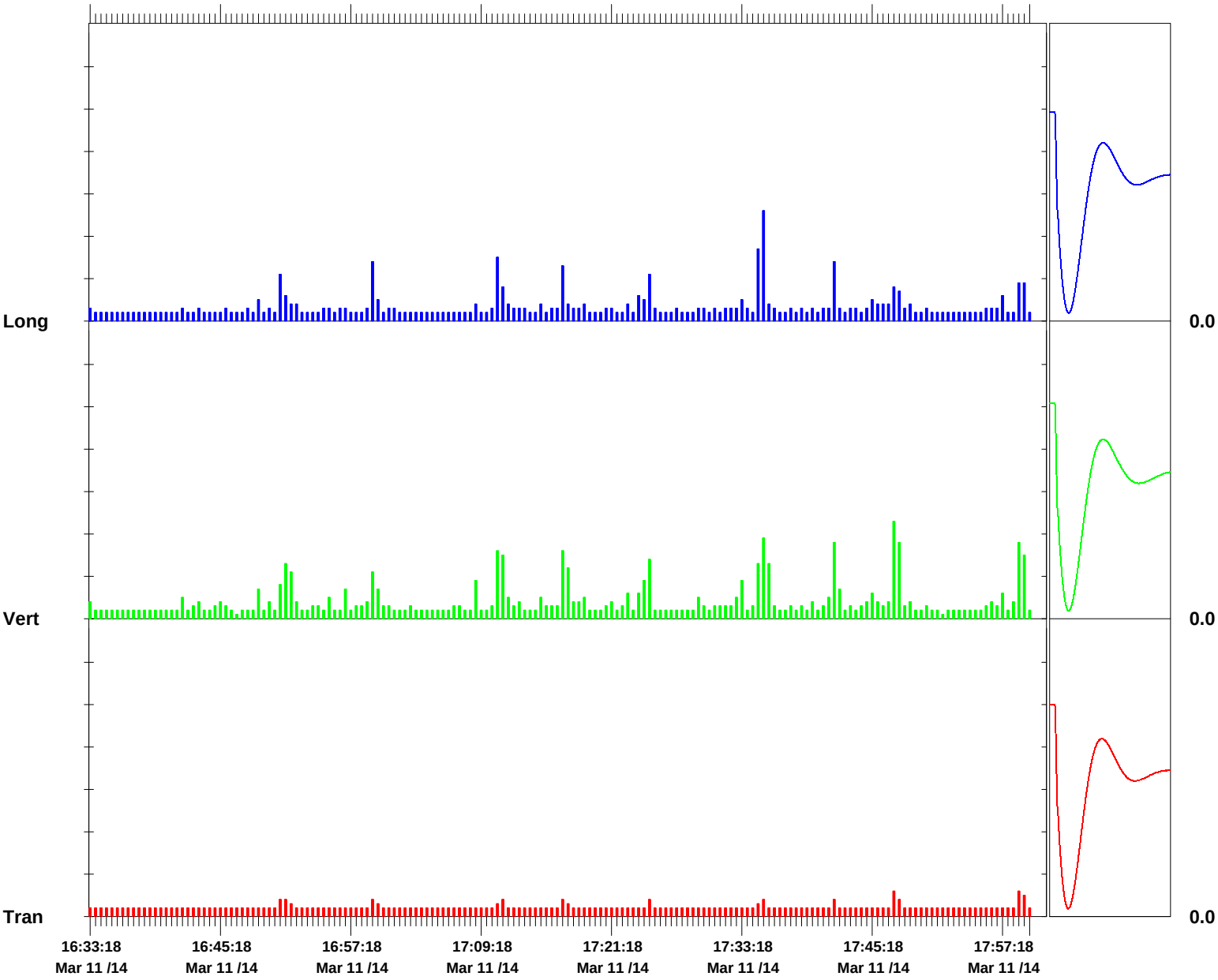
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8FV.AO0

Post Event Notes
VMP 15

Extended Notes

	Tran	Vert	Long	
PPV	0.0300	0.115	0.130	in/s
ZC Freq	37	30	30	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	17:47:13	17:47:13	17:34:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.3	7.2	Hz
Overswing Ratio	4.1	3.9	4.0	

Peak Vector Sum 0.161 in/s on March 11, 2014 at 17:34:53



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	18:01:28 March 11, 2014
Histogram Finish Time	18:40:22 March 11, 2014
Number of Intervals	466.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

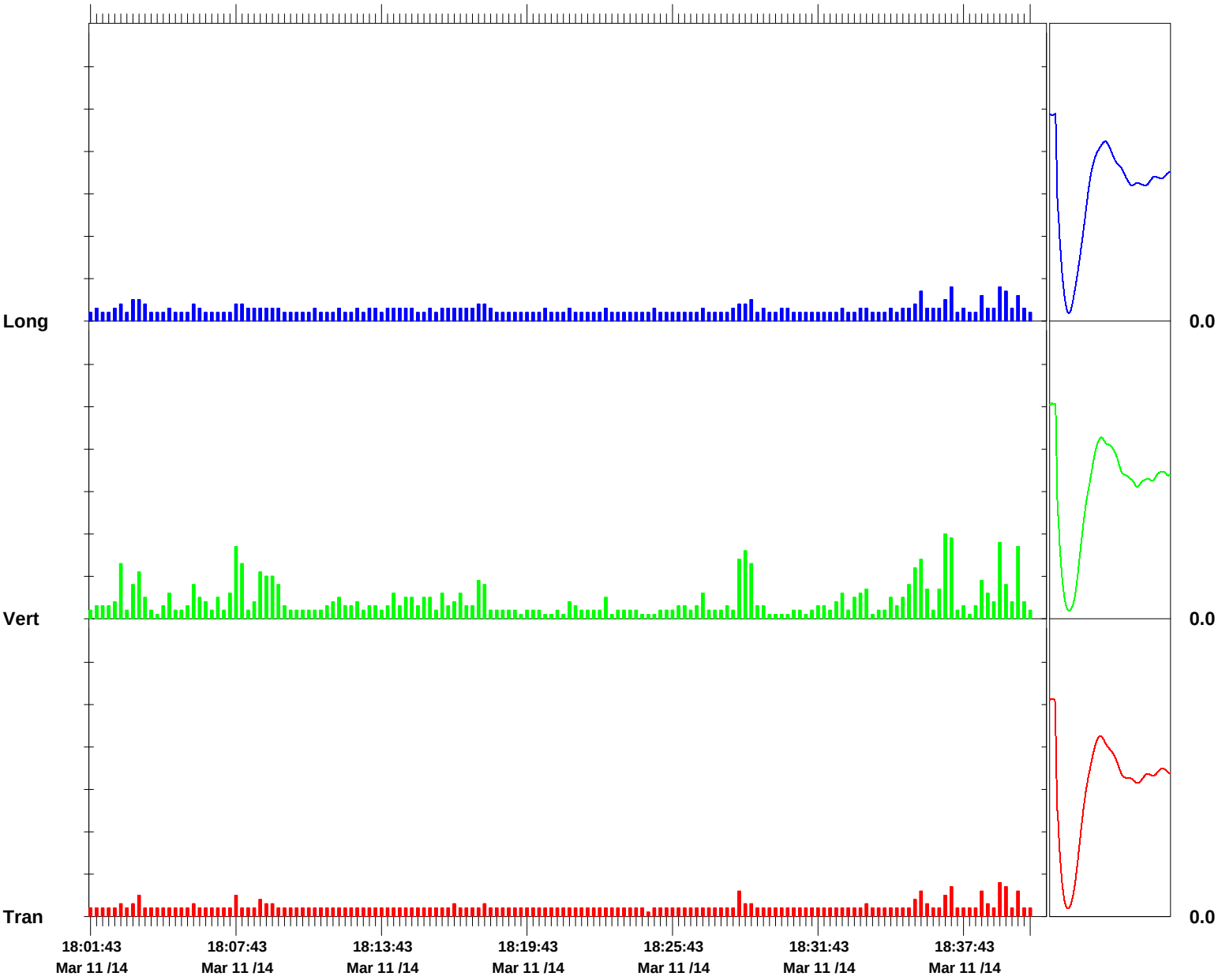
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.8 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8FZ.EG0

Post Event Notes
VMP 16

Extended Notes

	Tran	Vert	Long	
PPV	0.0400	0.1000	0.0400	in/s
ZC Freq	34	30	32	Hz
Date	Mar 11 /14	Mar 11 /14	Mar 11 /14	
Time	18:39:03	18:36:58	18:37:08	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.4	Hz
Overswing Ratio	3.8	3.7	3.9	

Peak Vector Sum 0.100 in/s on March 11, 2014 at 18:36:58



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 12th, 2014
For ENTACT, LLC

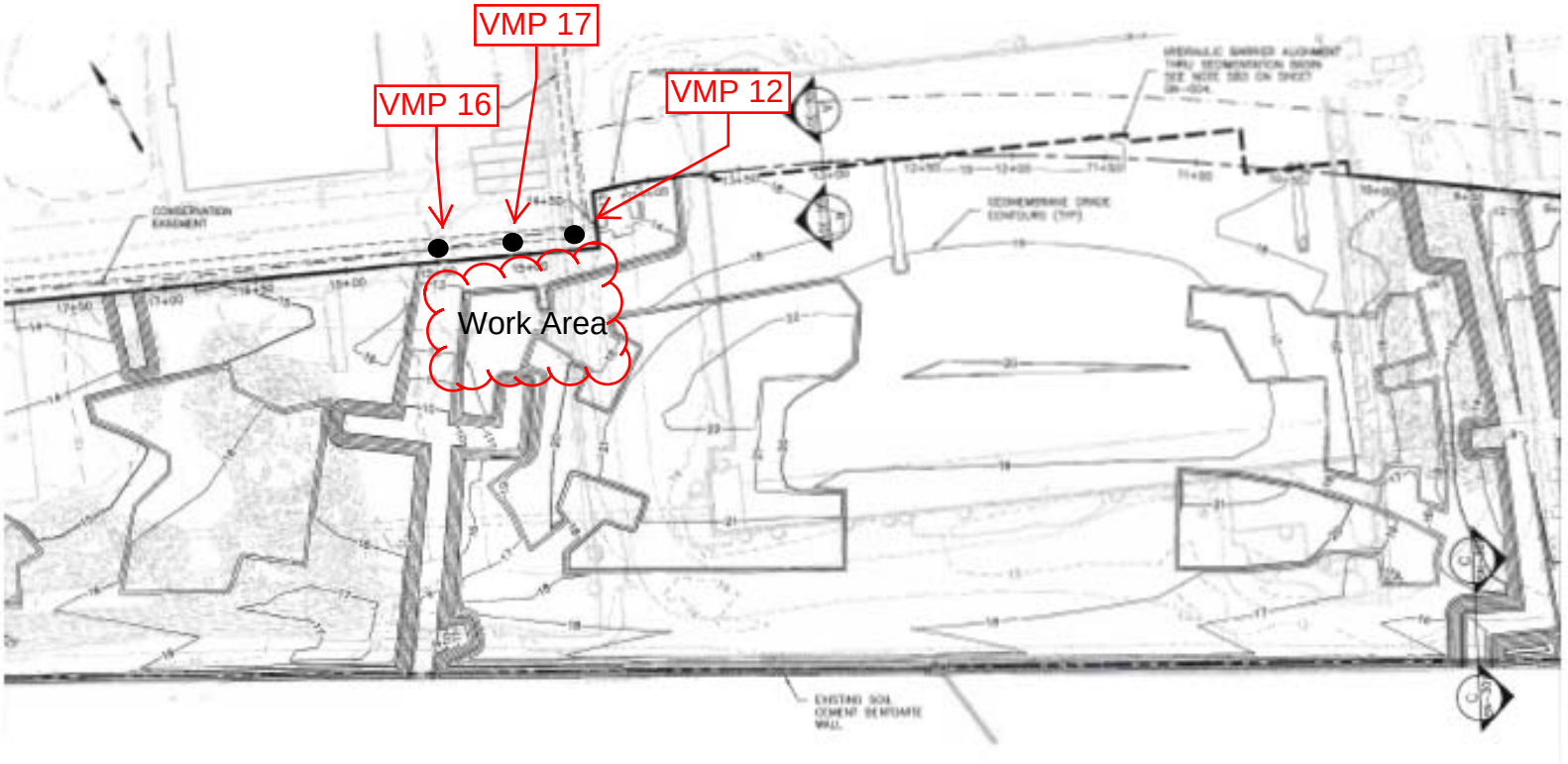
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 8:00 AM and ended at 10:40 AM. An Instantel Blastmate III was used to record vibrations via a geophone placed on the ground over the 72 inch force main.

16 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at this location.

Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


VMP 17
VMP 16
VMP 12
Work Area

Event Report

Histogram Start Time 07:50:17 March 12, 2014
Histogram Finish Time 08:43:20 March 12, 2014
Number of Intervals 636.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

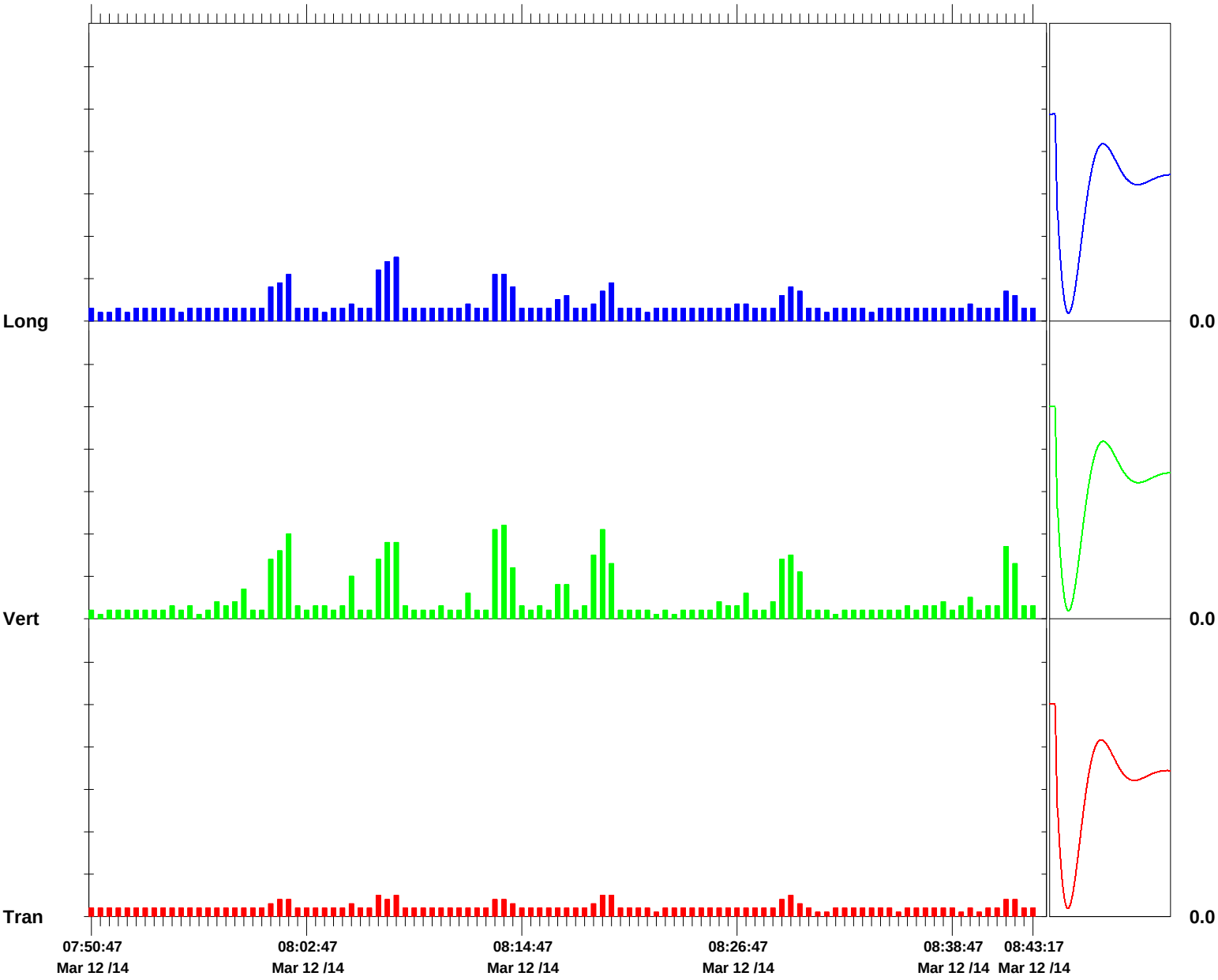
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8H1.RT0

Post Event Notes
VMP 16

Extended Notes

	Tran	Vert	Long	
PPV	0.0250	0.110	0.0750	in/s
ZC Freq	51	32	30	Hz
Date	Mar 12 /14	Mar 12 /14	Mar 12 /14	
Time	08:06:47	08:13:22	08:07:22	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.2	7.3	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.119 in/s on March 12, 2014 at 08:13:12



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	08:45:37 March 12, 2014
Histogram Finish Time	09:50:52 March 12, 2014
Number of Intervals	783.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

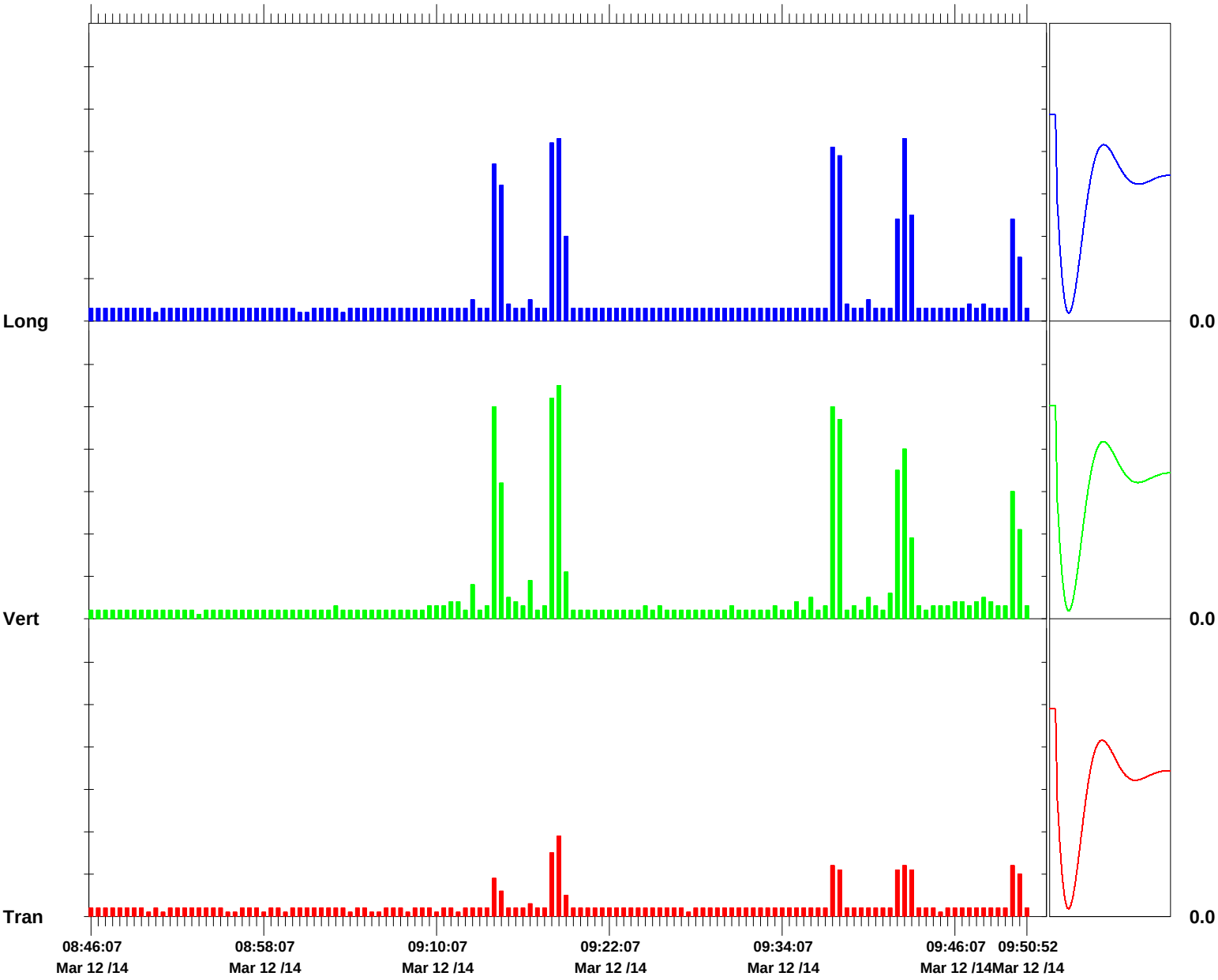
Serial Number	BA15371 V 10.60-8.17 BlastMate III/8
Battery Level	6.9 Volts
Unit Calibration	January 29, 2014 by Instantel
File Name	Q371F8H4.C10

Post Event Notes
VMP 17

Extended Notes

	Tran	Vert	Long	
PPV	0.0950	0.275	0.215	in/s
ZC Freq	34	30	34	Hz
Date	Mar 12 /14	Mar 12 /14	Mar 12 /14	
Time	09:18:12	09:18:12	09:18:12	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.2	7.1	Hz
Overswing Ratio	4.3	4.1	4.2	

Peak Vector Sum 0.320 in/s on March 12, 2014 at 09:18:12



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time 09:54:53 March 12, 2014
Histogram Finish Time 10:40:53 March 12, 2014
Number of Intervals 552.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

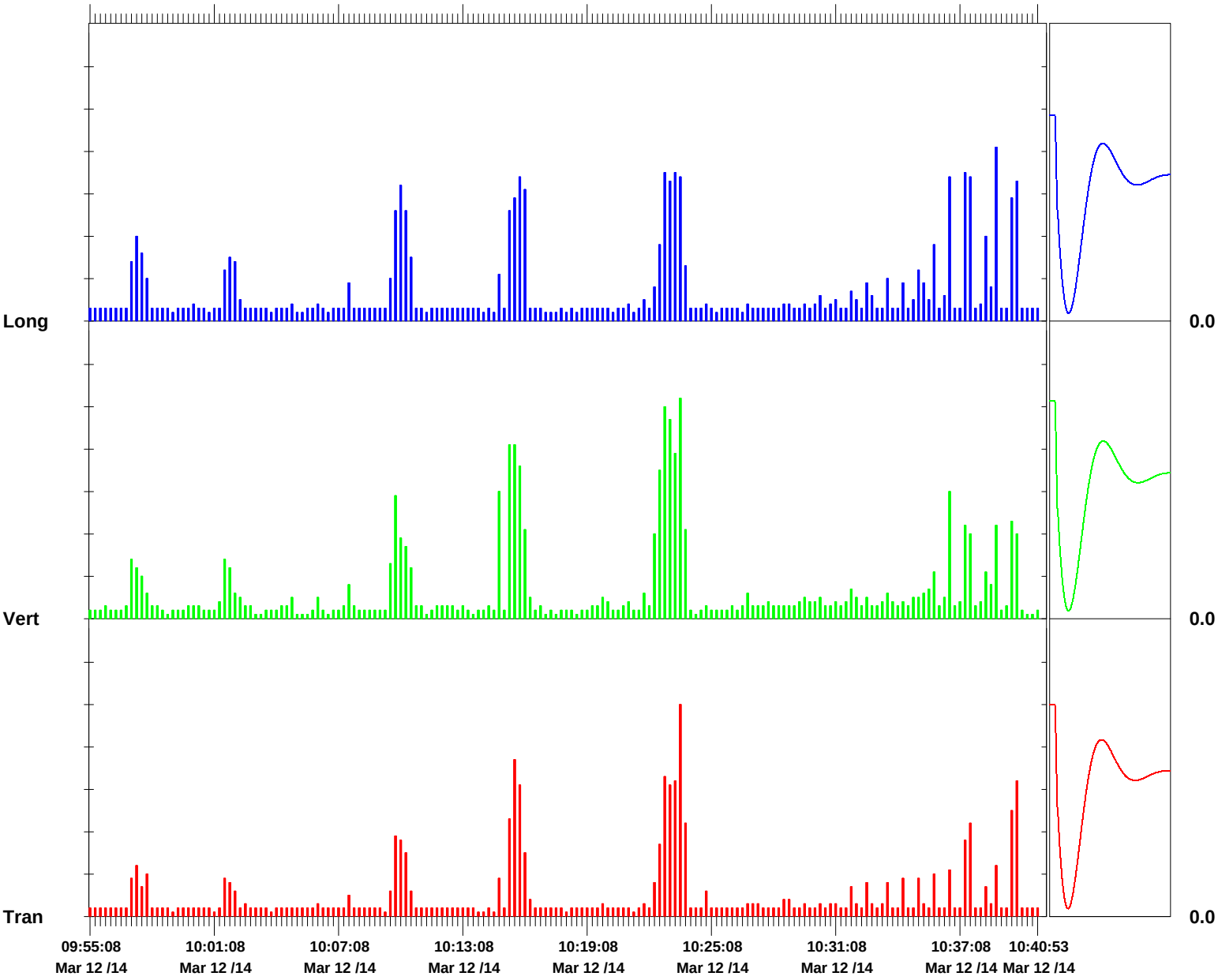
Serial Number BA15371 V 10.60-8.17 BlastMate III/8
Battery Level 6.8 Volts
Unit Calibration January 29, 2014 by Instantel
File Name Q371F8H7.JH0

Post Event Notes
VMP 18

Extended Notes

	Tran	Vert	Long	
PPV	0.250	0.260	0.205	in/s
ZC Freq	32	37	28	Hz
Date	Mar 12 /14	Mar 12 /14	Mar 12 /14	
Time	10:23:33	10:23:33	10:38:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.2	4.1	4.1	

Peak Vector Sum 0.310 in/s on March 12, 2014 at 10:23:33



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

September 23rd, 2014
For ENTACT, LLC

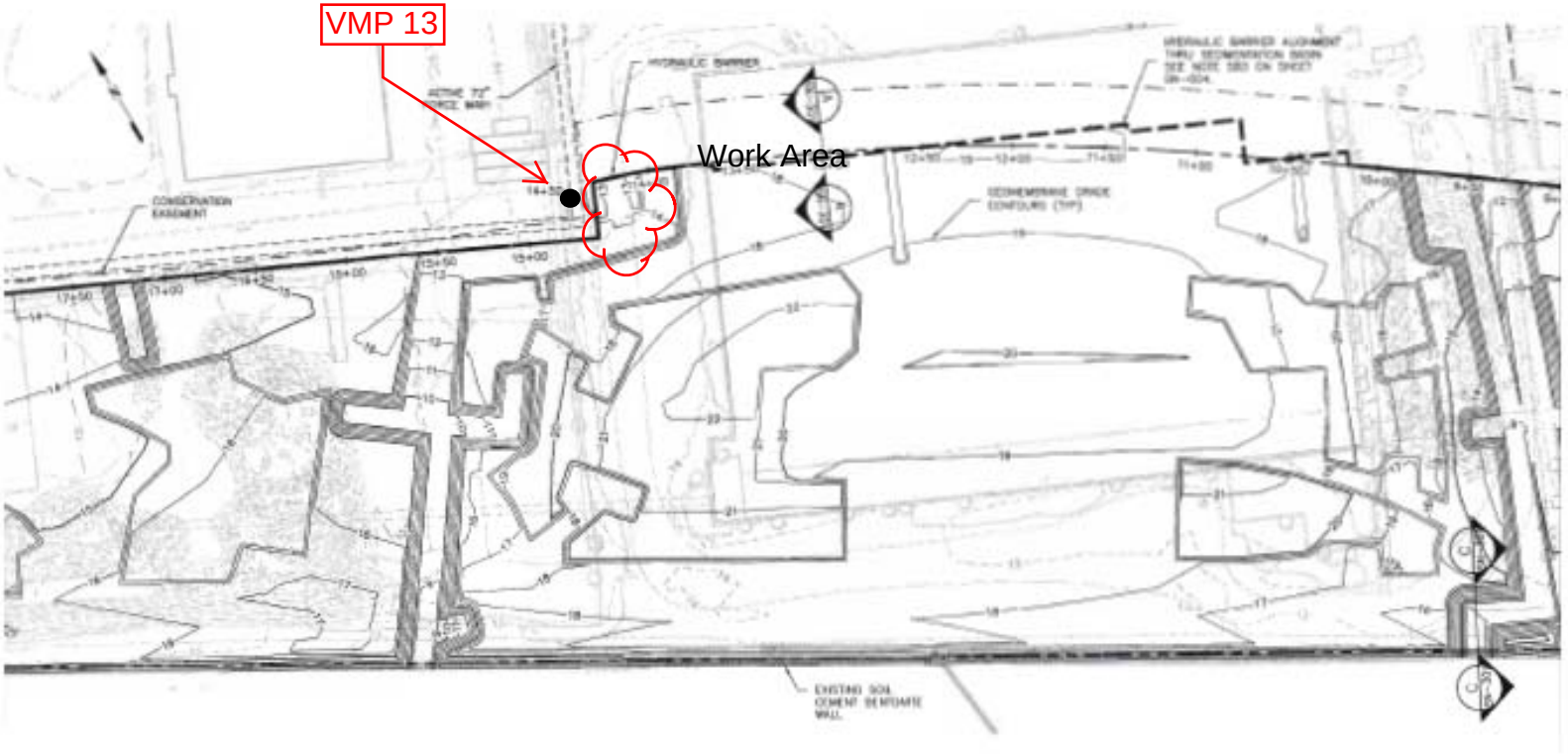
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 9:24 AM and ended at 2:55 PM. An Instantel Minimate was used to record vibrations via a geophone placed on the ground over the 72" inch force main.

15 sheets were driven, then all 15 sheets were brought to grade, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at these locations.

72 Inch Force Main:
Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


VMP 13
Work Area
CONSERVATION EASEMENT
HYDRAULIC BARRIER
SEDIMENTARY DRIVE CONTOURS (TYP)
EXISTING SOIL CEMENT BENTONITE WALL

Event Report

Histogram Start Time	09:24:56 September 23, 2014
Histogram Finish Time	11:54:18 September 23, 2014
Number of Intervals	1792.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	2048sps
Job Number:	13
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

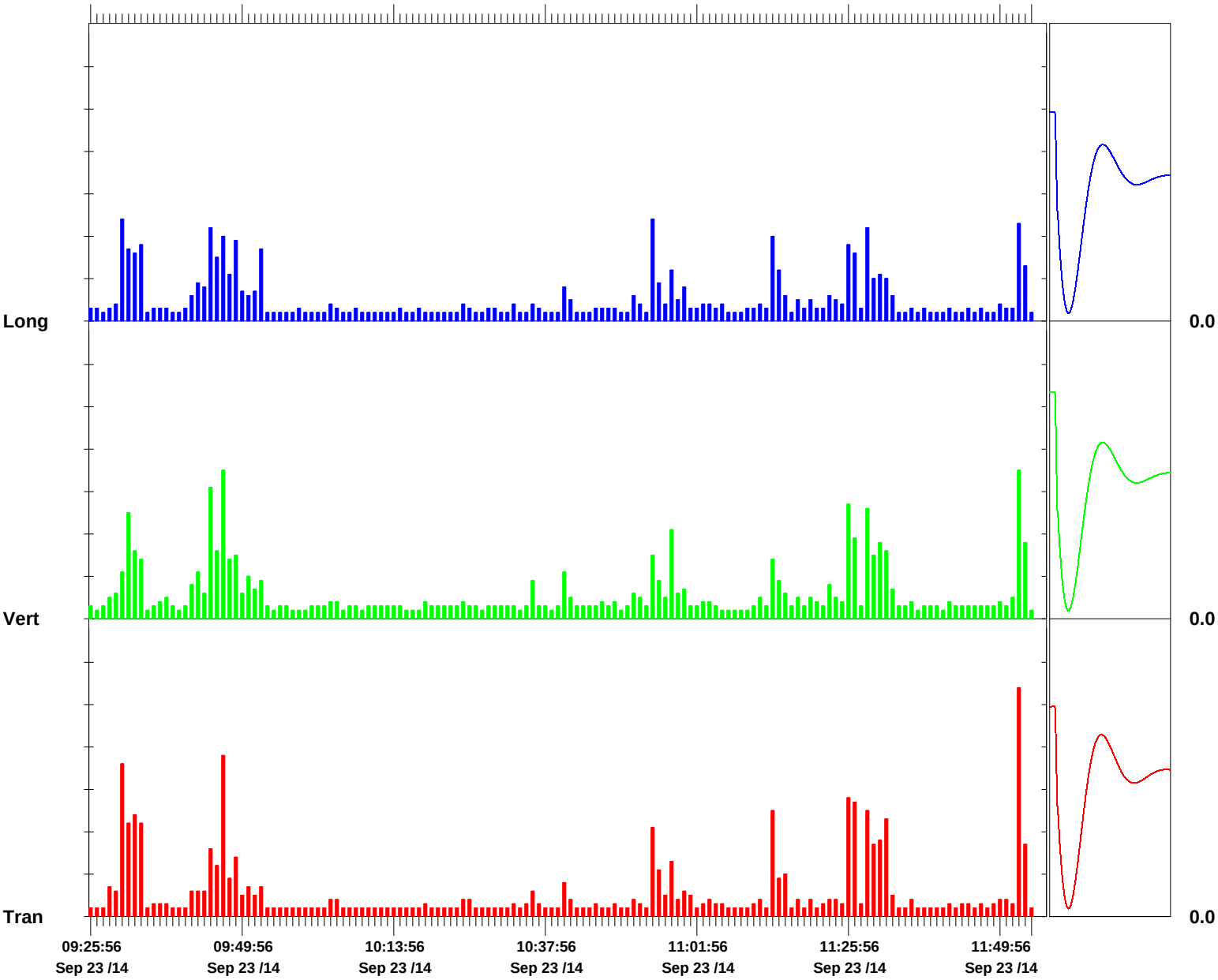
Serial Number	BE17552 V 10.60-8.17 MiniMate Plus
Battery Level	6.1 Volts
Unit Calibration	September 6, 2013 by Instantel
File Name	S552FIIA.5K0

Post Event Notes
VMP 13

Extended Notes

	Tran	Vert	Long	
PPV	0.270	0.175	0.120	in/s
ZC Freq	30	17.7	25	Hz
Date	Sep 23 /14	Sep 23 /14	Sep 23 /14	
Time	11:52:36	09:46:06	09:30:56	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.3	7.2	Hz
Overswing Ratio	3.6	4.2	4.2	

Peak Vector Sum 0.307 in/s on September 23, 2014 at 11:52:36



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

Histogram Start Time	13:01:51 September 23, 2014
Histogram Finish Time	14:58:28 September 23, 2014
Number of Intervals	1399.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	2048sps
Job Number:	13
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

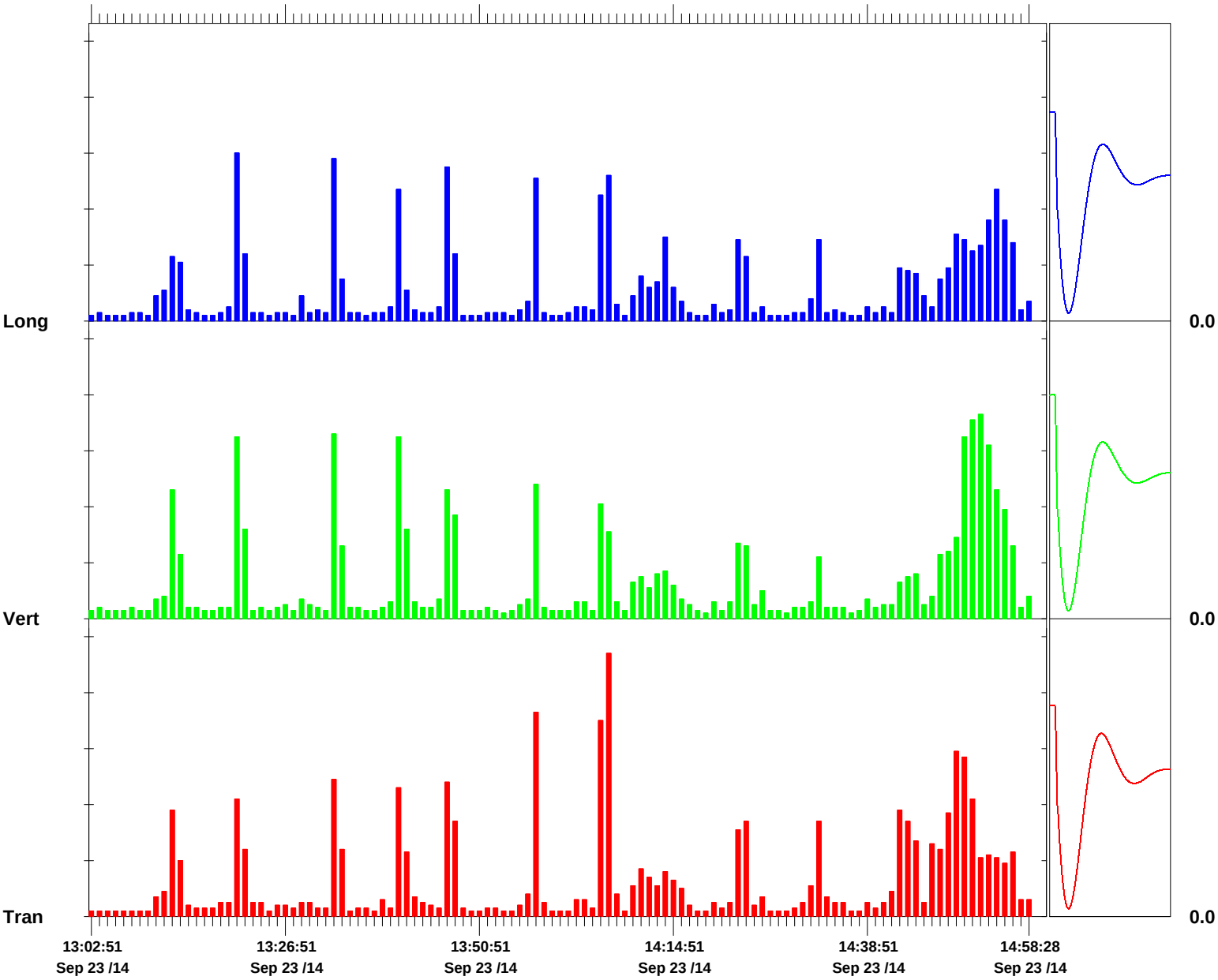
Serial Number	BE17552 V 10.60-8.17 MiniMate Plus
Battery Level	6.1 Volts
Unit Calibration	September 6, 2013 by Instantel
File Name	S552FIIK.730

Post Event Notes
VMP 13

Extended Notes

	Tran	Vert	Long	
PPV	0.470	0.365	0.300	in/s
ZC Freq	29	28	35	Hz
Date	Sep 23 /14	Sep 23 /14	Sep 23 /14	
Time	14:05:56	14:52:21	13:20:36	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.3	7.2	Hz
Overswing Ratio	3.5	4.2	4.2	

Peak Vector Sum 0.485 in/s on September 23, 2014 at 14:05:56



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

March 10th, 2015
For ENTACT, LLC

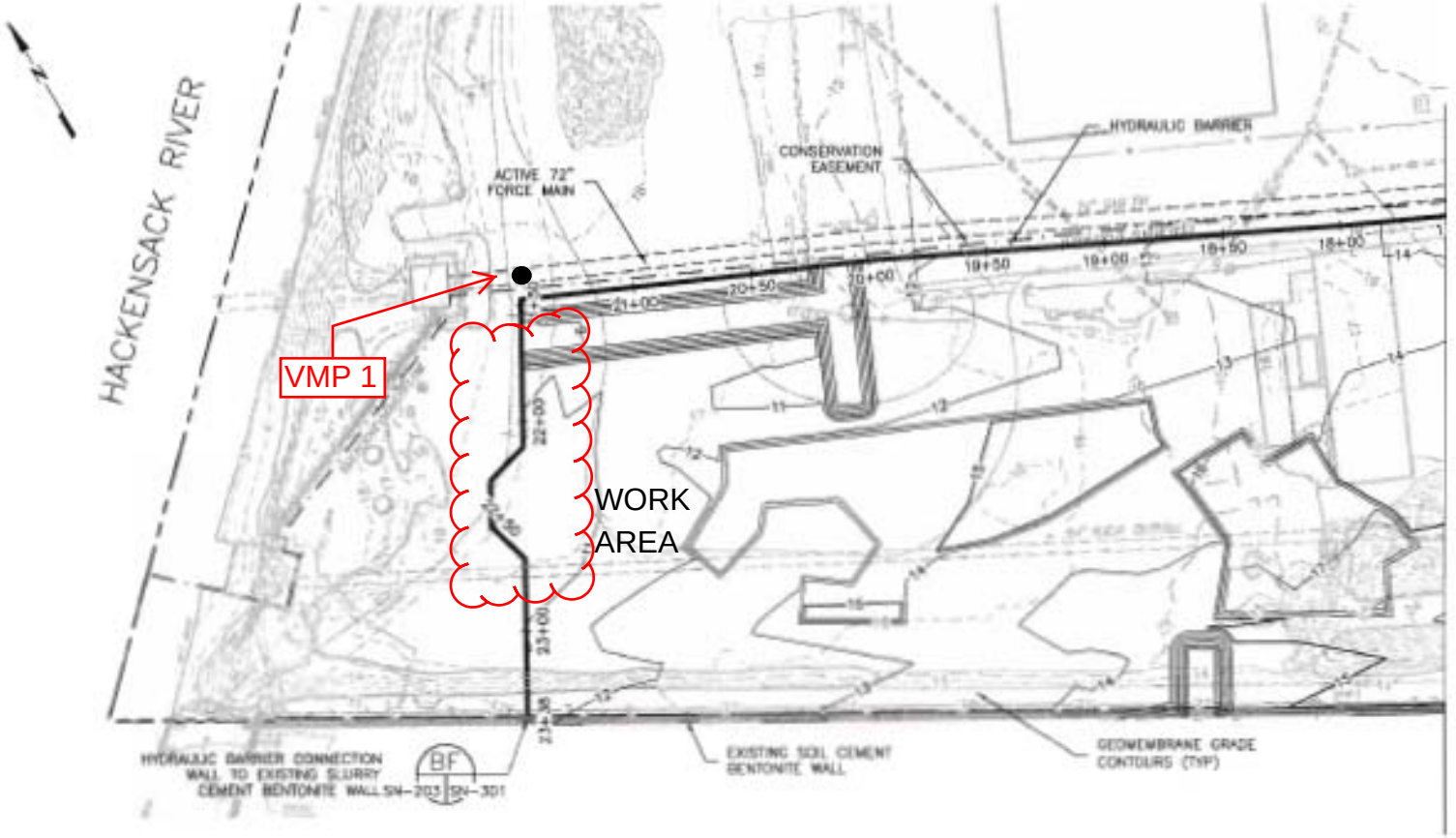
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 10:29 AM and ended at 3:29 PM. An Instantel Minimate was used to record vibrations via a geophone placed on the ground over the 72" inch force main.

16 sheets were driven, then all 16 sheets were brought to grade, and no exceedances were recorded. See attached plan for area of work and location of the seismograph. See attached Blastware reports for PPV at these locations.

72 Inch Force Main:
Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec


HACKENSACK RIVER
ACTIVE 72" FORCE MAIN
CONSERVATION EASEMENT
HYDRAULIC BARRIER
VMP 1
WORK AREA
HYDRAULIC BARRIER CONNECTION WALL TO EXISTING SLURRY CEMENT BENTONITE WALL SN-203 SN-301
BF
EXISTING SOIL CEMENT BENTONITE WALL
GEOMEMBRANE GRADE CONTOURS (TYP)

Event Report

Histogram Start Time 10:29:16 March 10, 2015
Histogram Finish Time 11:50:49 March 10, 2015
Number of Intervals 978.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Job Number: 1
Notes
Location: SA 6 North 72" Forcemain
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

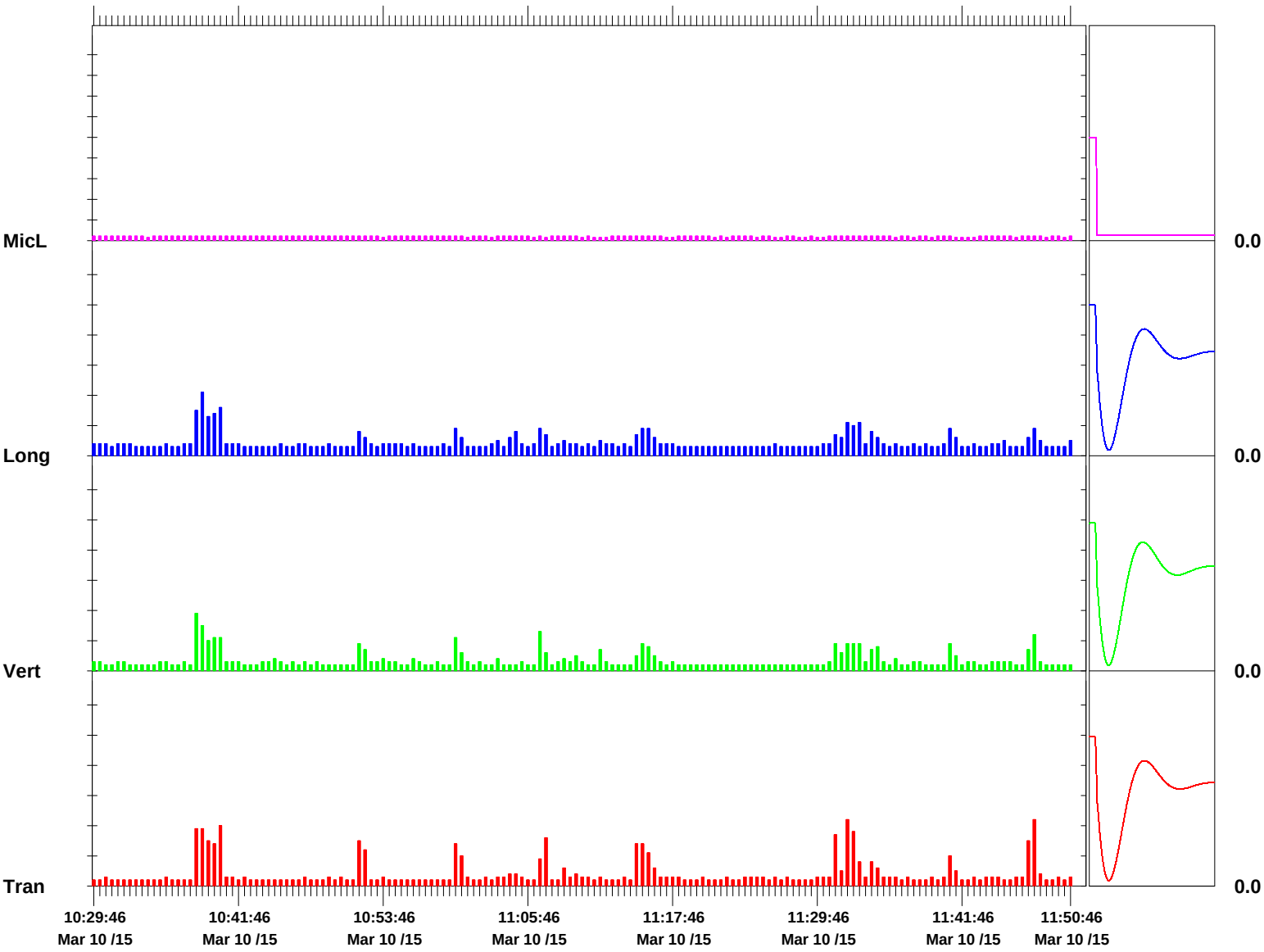
Serial Number BE16068 V 10.72-8.17 MiniMate Plus/8
Battery Level 6.3 Volts
Unit Calibration February 5, 2015 by Instantel
File Name R068FR5H.4S0

Post Event Notes
VMP 1

Microphone Linear Weighting
PSPL 0.00011 psi(L) on March 10, 2015 at 10:29:26
ZC Freq >100 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.110	0.0950	0.105	in/s
ZC Freq	28	43	37	Hz
Date	Mar 10 /15	Mar 10 /15	Mar 10 /15	
Time	11:32:01	10:38:06	10:38:21	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.3	Hz
Overswing Ratio	4.3	3.7	4.0	

Peak Vector Sum 0.135 in/s on March 10, 2015 at 10:38:11



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Mic: 0.00050 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	13:04:15 March 10, 2015
Histogram Finish Time	15:28:54 March 10, 2015
Number of Intervals	1735.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Job Number:	1
Notes	
Location:	SA 6 North 72" Forcemain
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

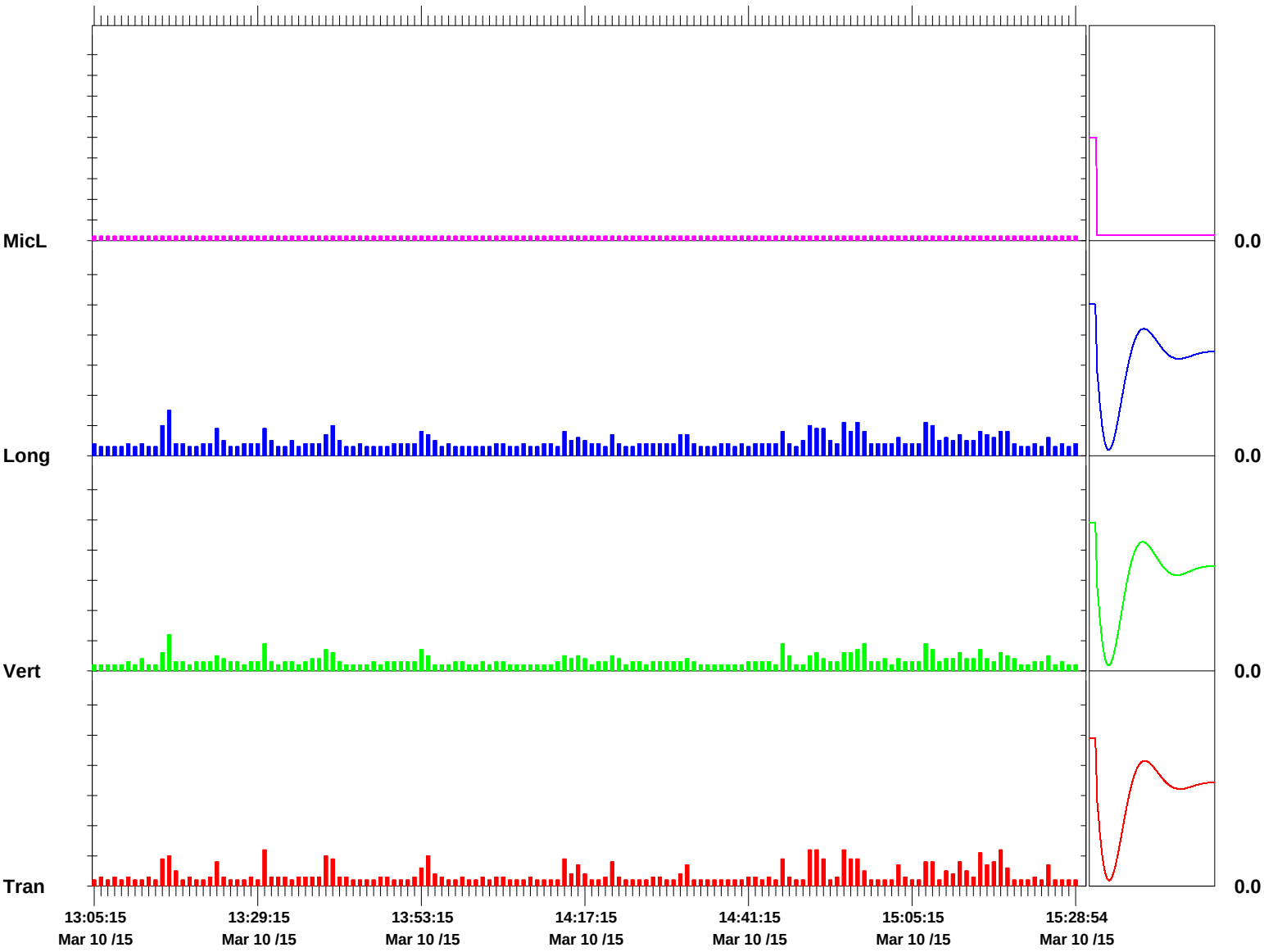
Serial Number	BE16068 V 10.72-8.17 MiniMate Plus/8
Battery Level	6.3 Volts
Unit Calibration	February 5, 2015 by Instantel
File Name	R068FR5O.B30

Post Event Notes
VMP 1

Microphone	Linear Weighting
PSPL	0.00011 psi(L) on March 10, 2015 at 13:04:20
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.0600	0.0600	0.0750	in/s
ZC Freq	30	39	30	Hz
Date	Mar 10 /15	Mar 10 /15	Mar 10 /15	
Time	13:29:30	13:15:45	13:15:45	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.4	Hz
Overswing Ratio	4.3	3.7	4.0	

Peak Vector Sum 0.0841 in/s on March 10, 2015 at 13:15:45



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.0500 in/s/div Mic: 0.00050 psi(L)/div Sensor Check

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Vibration Monitoring Report

Study Area 6 ~~South~~ North

Prepared by
Geocomp Engineering

July 20th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
I-beam pile driving commenced at 11:10 AM and ended at 11:32 AM. Two Instantel Micromate were used to record vibrations via a geophone placed on the ground over the 36" inch force main and the gas line.

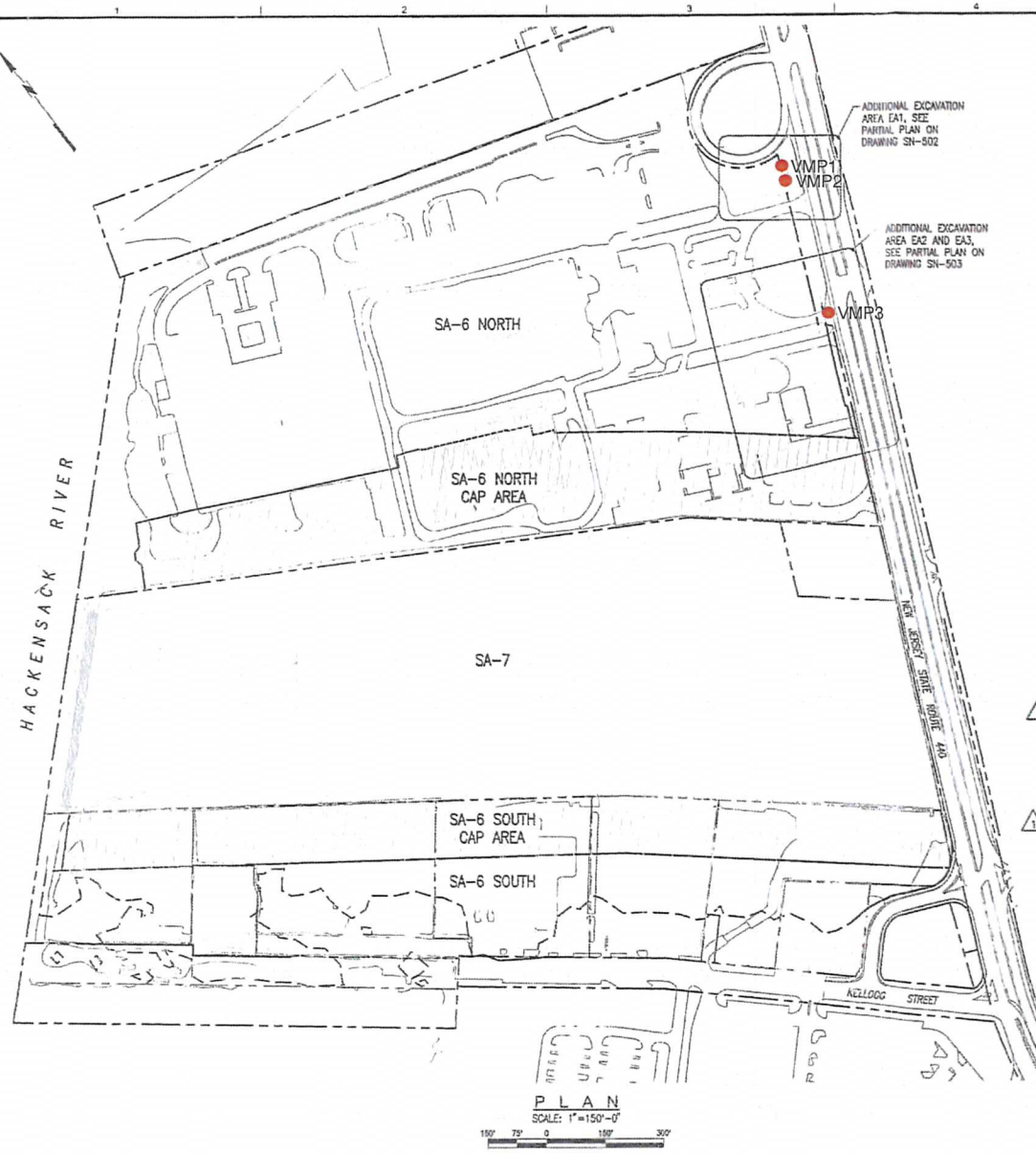
Sheet pile driving commenced at 4:28 and ended at 4:33. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas line.

2 I-beams were driven with no recorded exceedances and 1 sheet was driven with no recorded exceedances. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

32 Inch Force Main:
Trigger Level: 0.5 in/sec
Alert Level: 1.0 in/sec

Gas Line:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec

Event Reports:
The force main report has an incorrect date and time attached to it because of a unit issue, but the recorded values are correct. The unit has been readjusted to the correct date and time for future work.



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E7010), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, GNP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey data, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 WEST 34TH STREET, NEW YORK, NY 10122
P.E. NUMBER 11173

NO.	DATE	REVISION	CHK	APVD
DSGN	DR			
1	10/31/14	ISSUED FOR NJDOT REVIEW	GP	GP
0	09/17/13	ISSUED FOR CONSTRUCTION	FWD	APVD

PETER W. DEMING — NJ PROFESSIONAL ENGINEER LICENSE NUMBER GE 48512 — P.W.D.

Honeywell
101 CRYSTAL BLVD. P.O. BOX 1178, KEARNY, NJ 07032

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL

TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

amec
Environment & Infrastructure, PC
200 Metroplex Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 895-3329
NJ Certificate of Authorization Number 24GA28018900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 62 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND IS CONSIDERED CONFIDENTIAL INFORMATION FOR USE ONLY ON THE GIVEN PROJECT. ANY OTHER USE, REPRODUCTION, OR DISCLOSURE OF THIS DRAWING, IN WHOLE OR IN PART, FOR USE ON OTHER PROJECTS OR BY OTHERS WITHOUT THE EXPRESS WRITTEN PERMISSION OF AMEC IS PROHIBITED.

FILE NAME: G:\DWGS\11\11173\SN\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Instantel

Event Report

Histogram Start Time	09:37:48 September 4, 1995
Histogram Finish Time	10:09:54 September 4, 1995
Number of Intervals	385.00 at 5 seconds
Range	Geo:254 mm/s
Sample Rate	1024sps

Notes

Location: SA 6 ~~South Force Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440

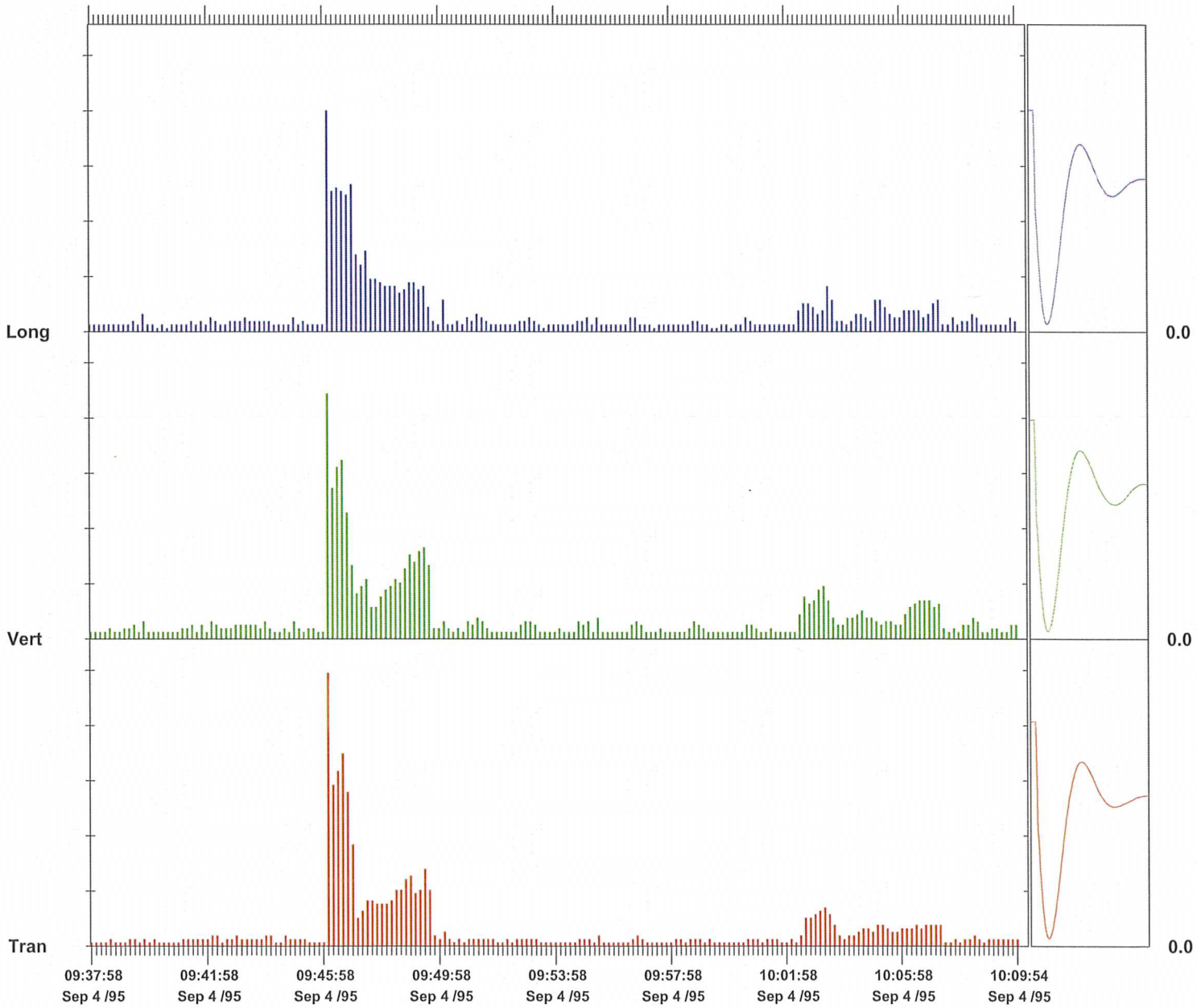
6/29/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S7415KJ9.F00

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	9.91	8.89	8.00	mm/s
ZC Freq	28	14	18	Hz
Date	Sep 4 /95	Sep 4 /95	Sep 4 /95	
Time	09:46:08	09:46:08	09:46:08	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.3	Hz
Overswing Ratio	3.9	3.5	3.6	

Peak Vector Sum 11.2 mm/s on September 4, 1995 at 09:46:08



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 2.00 mm/s/div Sensor Check

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Instantel

Event Report

Histogram Start Time 11:02:31 July 20, 2015
Histogram Finish Time 11:34:09 July 20, 2015
Number of Intervals 379.00 at 5 seconds
Range Geo:254 mm/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

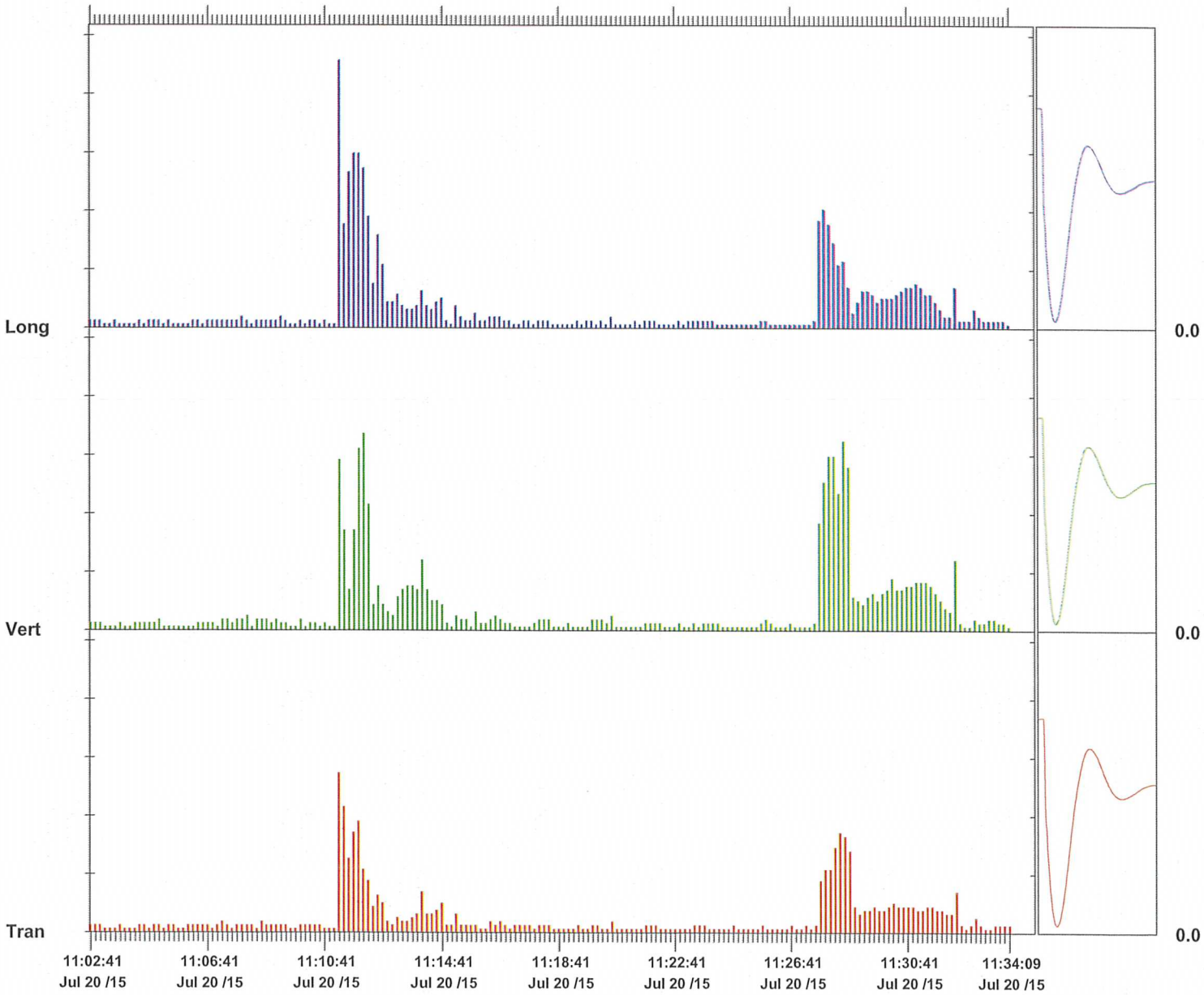
Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.4 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXXY.O70

Post Event Notes

Extended Notes

	Tran	Vert	Long	
PPV	5.46	6.73	9.14	mm/s
ZC Freq	34	30	20	Hz
Date	Jul 20 /15	Jul 20 /15	Jul 20 /15	
Time	11:11:11	11:11:56	11:11:11	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.5	3.6	3.7	

Peak Vector Sum 9.53 mm/s on July 20, 2015 at 11:11:11



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 2.00 mm/s/div

Sensor Check

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Instantel

Event Report

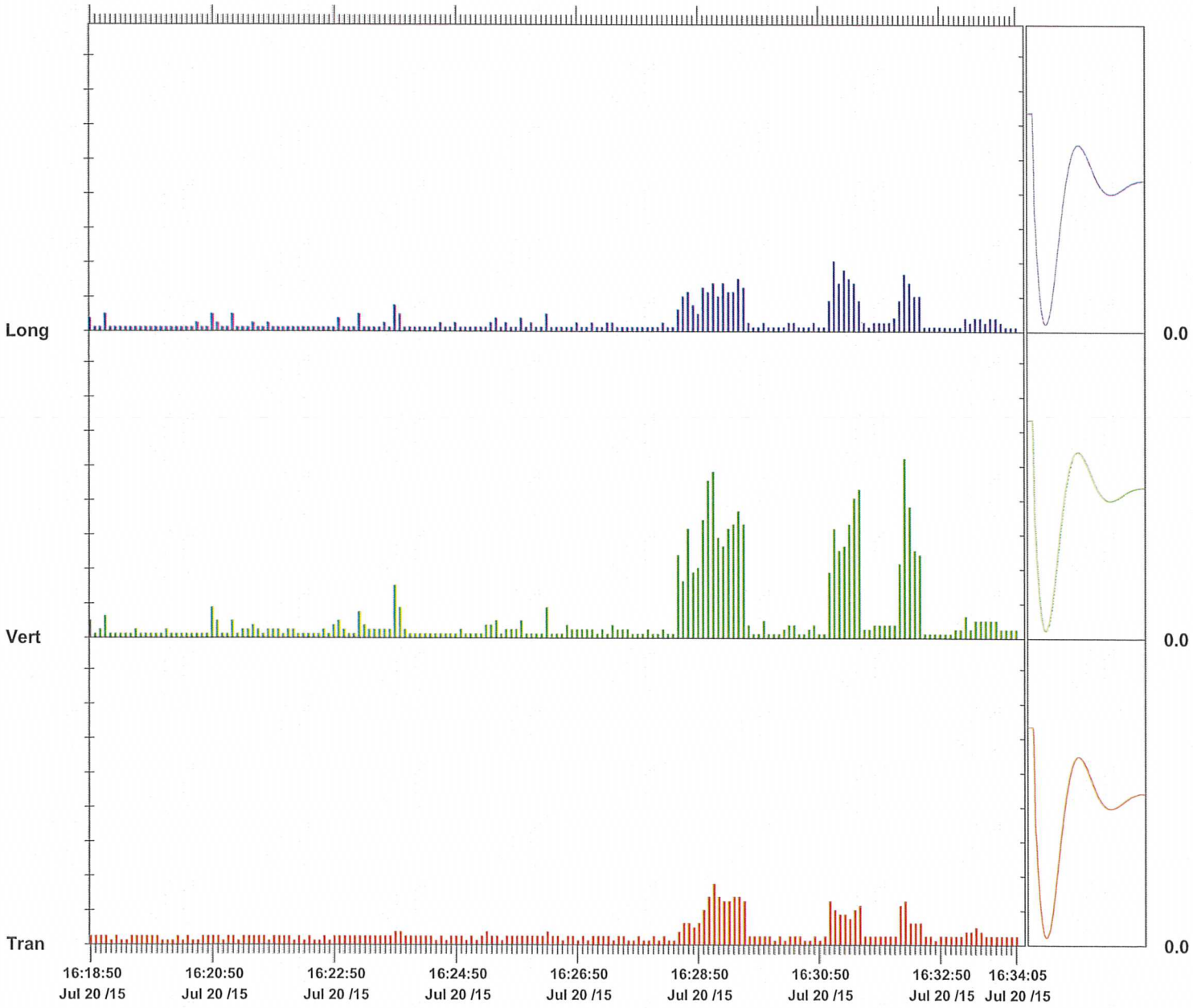
Histogram Start Time	16:18:45 July 20, 2015
Histogram Finish Time	16:34:06 July 20, 2015
Number of Intervals	184.00 at 5 seconds
Range	Geo:254 mm/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FXYD.B90

Post Event Notes
VMP3

	Tran	Vert	Long	
PPV	1.78	5.21	2.03	mm/s
ZC Freq	34	39	30	Hz
Date	Jul 20 /15	Jul 20 /15	Jul 20 /15	
Time	16:29:05	16:32:15	16:31:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.5	3.7	3.7	

Peak Vector Sum 5.31 mm/s on July 20, 2015 at 16:32:15



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 1.000 mm/s/div

Sensor Check

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Vibration Monitoring Report

Study Area 6 ~~South~~ North 1/27/17

Prepared by
Geocomp Engineering

July 29th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

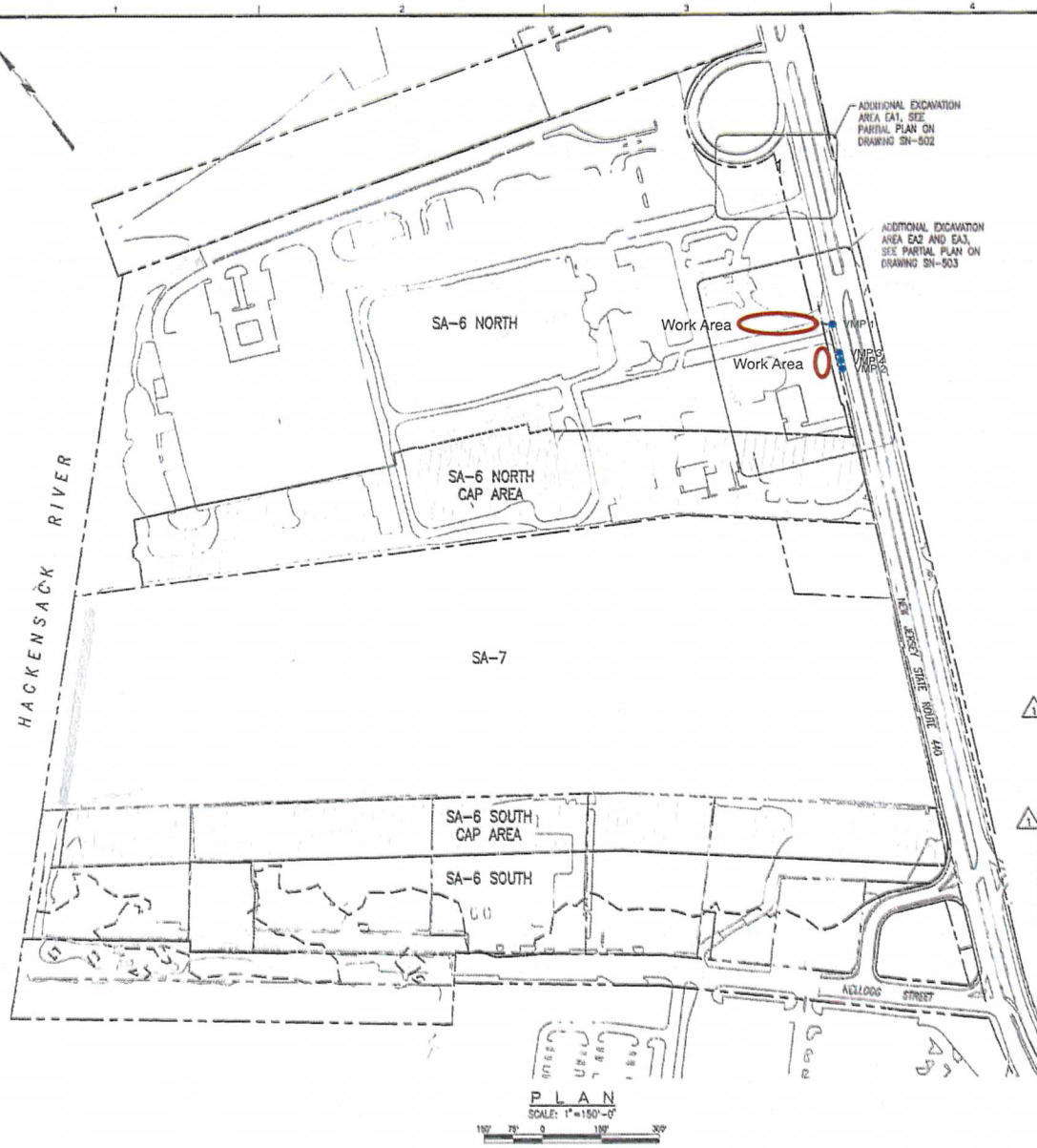
NOTES:

Summary of Work:
Sheet pile driving commenced at 9:30 AM and ended at 2:00 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the water main.

5 sheets were driven and 9 were brought to grade with 6 recorded exceedances, i.e., the 0.5 limit was exceeded at 12:48 PM, 12:57 PM, 1:20 PM, 1:22 PM, 1:25 PM and 1:44 PM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water Main:
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec

Errors:
The top of each report states all data was collected for the force main but should read water main. All future water main data will have the correct label.



PLAN
SCALE: 1" = 150'-0"

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and stop sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from rocking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E7010), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point, (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main - 2.0 in/sec
    Sewer & F.M. - 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

PETER W. HEARING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-49512

NO.	DATE	DR	CHK	APVD
DSGN	G.S.	B.B.	G.P.	P.W.H.
1	10/31/14	GP	PWH	PWH
0	09/17/13	ISSUED FOR NJDOT REVIEW		
		ISSUED FOR CONSTRUCTION		
		REVISION		

Honeywell
101 COLUMBIA RD., P.O. BOX 1057, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL

TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 WEST 34th STREET, NEW YORK, NY 10122
FILE NUMBER 11173

amec
Environment & Infrastructure, Inc.
285 Millcarton Road, Suite 110
Clifton Park, NY 12065
(518) 688 - 3600
NJ Certificate of Authorization #24GA27980000

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 52 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL COPYRIGHT AND OTHER PROPRIETARY RIGHTS. IT IS NOT TO BE USED, REPRODUCED OR COPIED IN ANY MANNER WHATSOEVER, NOR ARE ANY IDEAS CONTAINED HEREIN TO BE DISCLOSED TO ANY PERSON FOR ANY PURPOSE WHATSOEVER, WITHOUT THE PRIOR WRITTEN PERMISSION OF AMEC. THE USE OF THIS DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY AUTHORIZED BY AMEC IS PROHIBITED. AMEC DISCLAIMS ANY LIABILITY ARISING FROM ANY UNAUTHORIZED USE OF THIS DRAWING. IN THE EVENT OF UNAUTHORIZED REUSE OF THIS DRAWING, IN WHOLE OR IN PART, FOR THE MATERIAL DESCRIBED THEREIN, FOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY AUTHORIZED BY AMEC, AMEC SHALL BE ENTITLED TO REASONABLE COMPENSATION AND/OR DAMAGES.

FILE NAME: C:\DWGS\11173\SN501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Instantel

Event Report

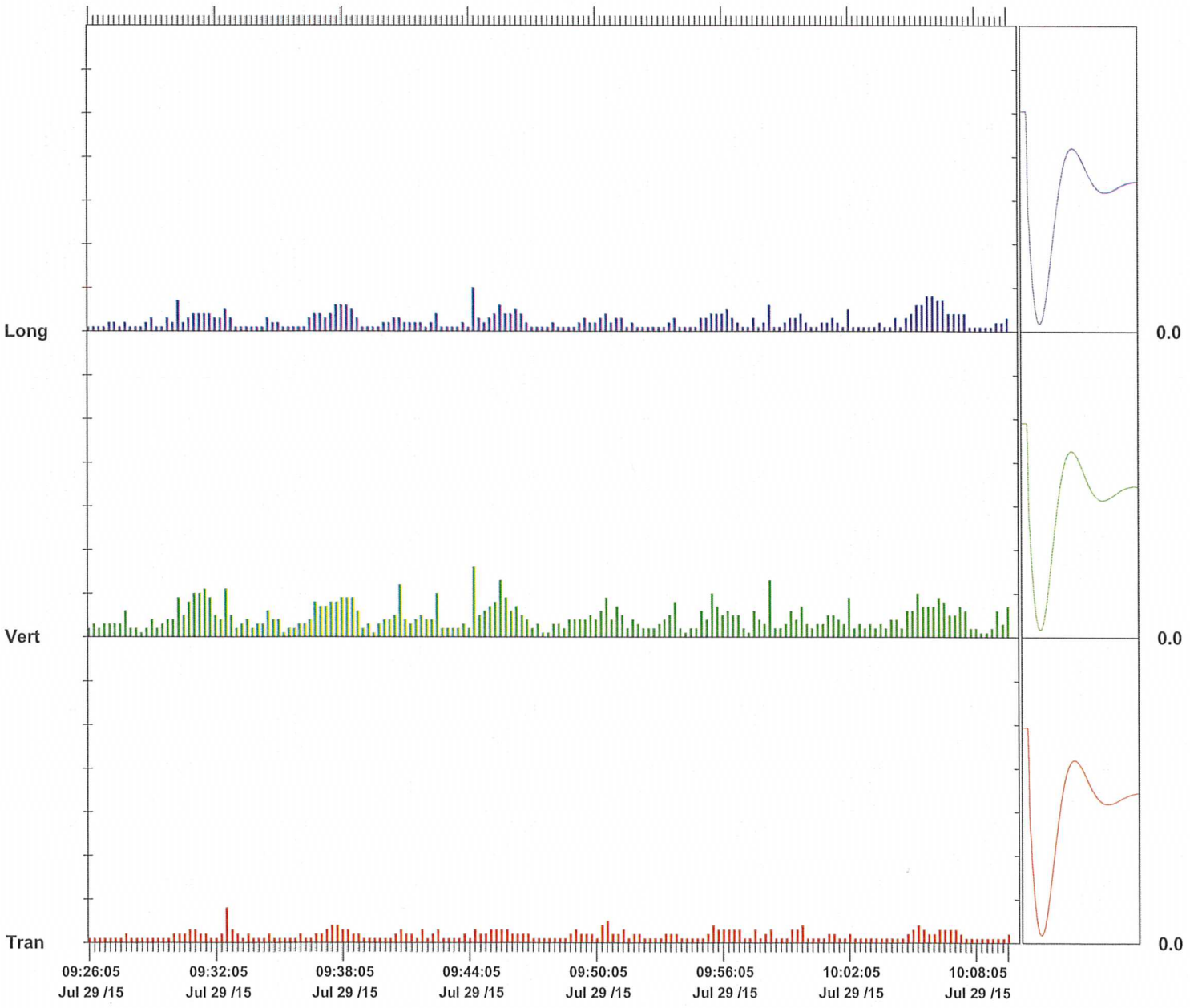
Histogram Start Time 09:25:50 July 29, 2015
Histogram Finish Time 10:09:35 July 29, 2015
Number of Intervals 525.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Force Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYEI.720

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0400	0.0800	0.0500	in/s
ZC Freq	8.4	15	15	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	09:32:25	09:44:10	09:44:10	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.0955 in/s on July 29, 2015 at 09:44:10



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

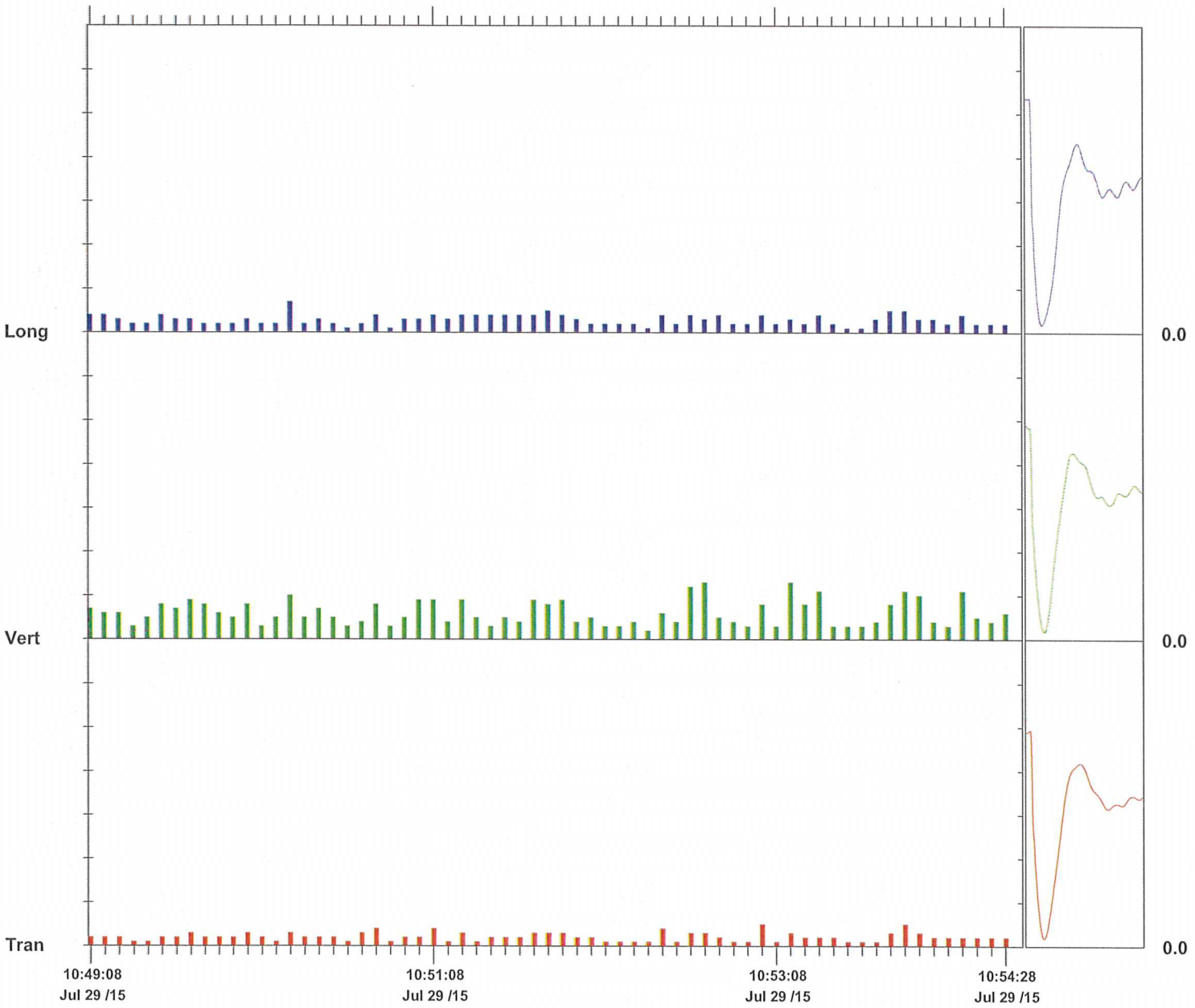
Histogram Start Time 10:49:03 July 29, 2015
Histogram Finish Time 10:54:30 July 29, 2015
Number of Intervals 65.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South~~ Force Main North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/22/17

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYEM.1R0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0250	0.0650	0.0350	in/s
ZC Freq	6.5	9.0	23	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	10:53:03	10:52:43	10:50:18	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.5	Hz
Overswing Ratio	4.1	3.7	3.4	

Peak Vector Sum 0.0669 in/s on July 29, 2015 at 10:52:43



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Instantel

Event Report

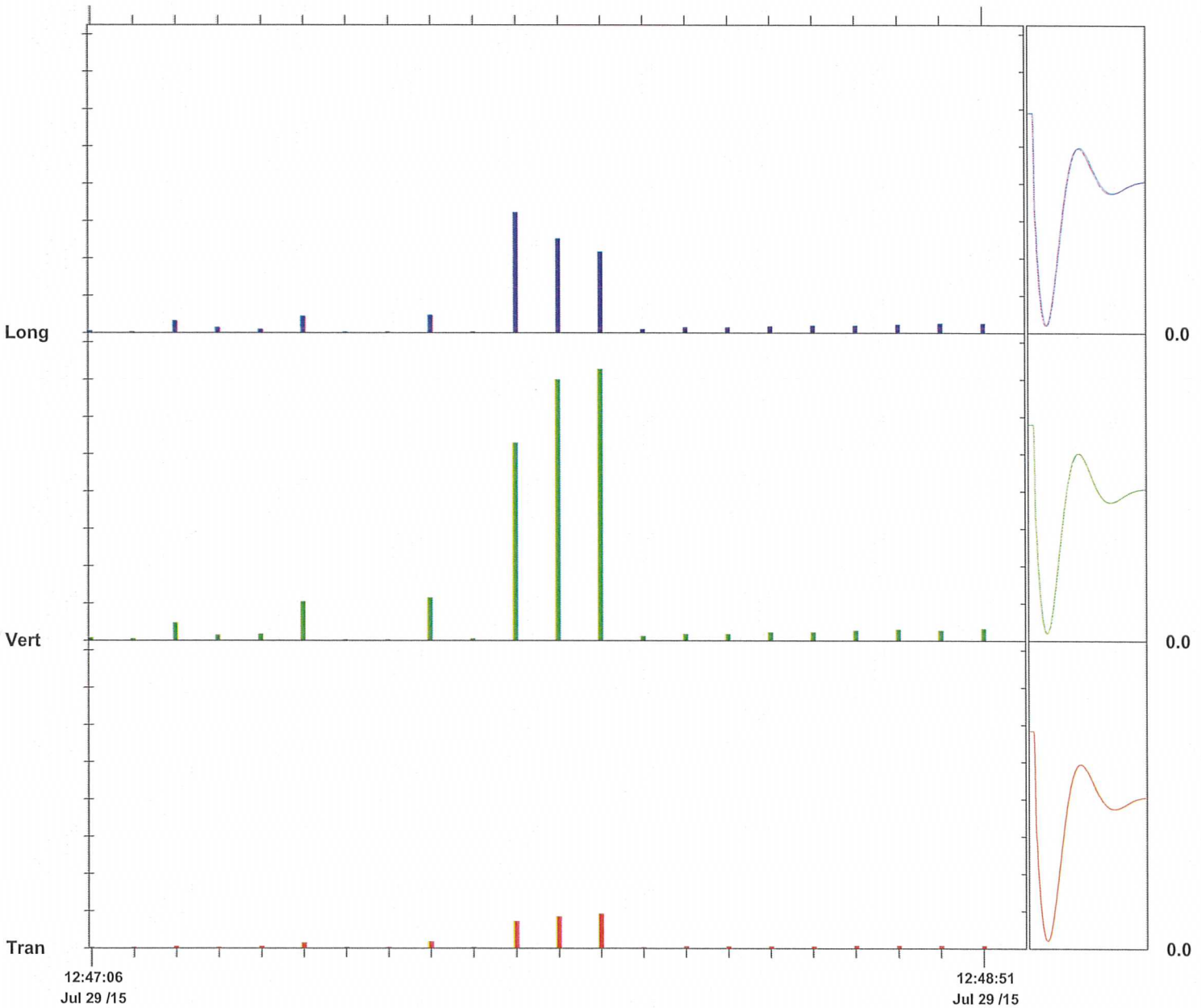
Histogram Start Time	12:47:01 July 29, 2015
Histogram Finish Time	12:48:52 July 29, 2015
Number of Intervals	22.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Force Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYER.ID0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.185	1.45	0.645	in/s
ZC Freq	43	39	28	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	12:48:06	12:48:06	12:47:56	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	3.9	

Peak Vector Sum 1.49 in/s on July 29, 2015 at 12:48:06



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Instantel

Event Report

Histogram Start Time	12:49:28 July 29, 2015
Histogram Finish Time	12:57:30 July 29, 2015
Number of Intervals	96.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

Notes

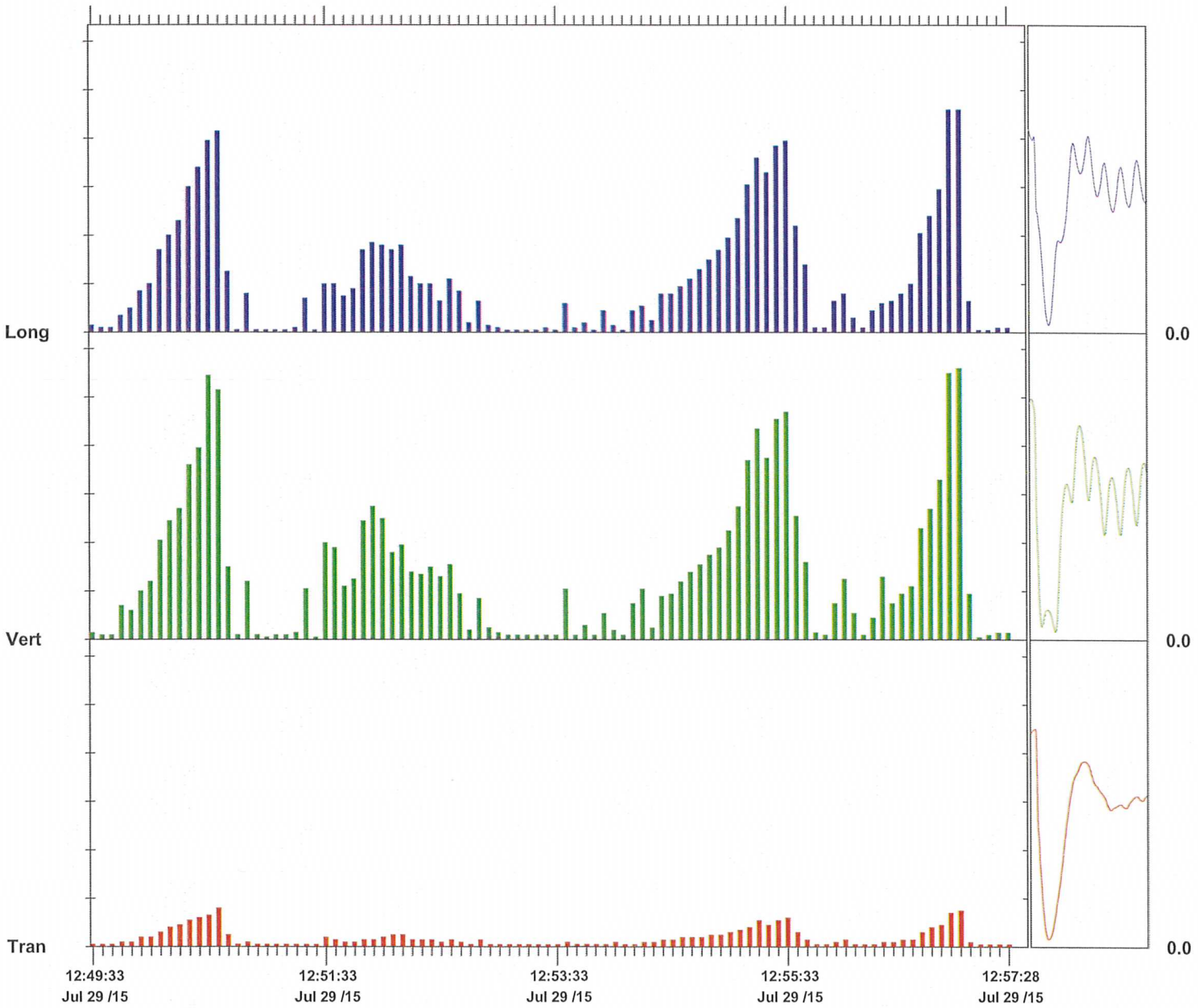
Location: SA 6 ~~South Force Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYER.MG0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0800	0.560	0.460	in/s
ZC Freq	37	30	32	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	12:50:38	12:57:03	12:56:58	
Sensor Check	Passed	Check	Passed	
Frequency	7.3	8.3	7.2	Hz
Overswing Ratio	3.8	19.1	2.9	

Peak Vector Sum 0.707 in/s on July 29, 2015 at 12:56:58



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

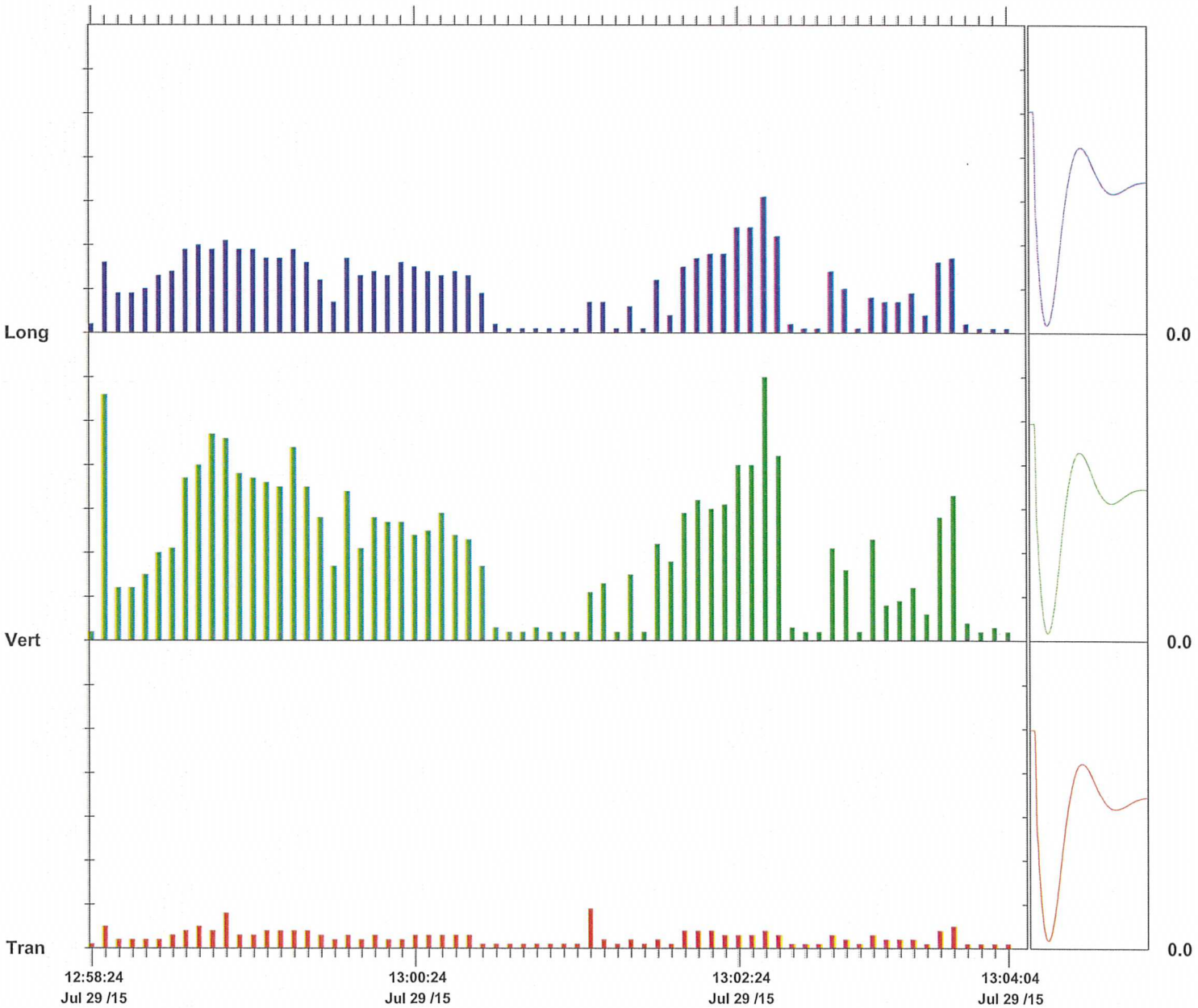
Histogram Start Time 12:58:19 July 29, 2015
Histogram Finish Time 13:04:07 July 29, 2015
Number of Intervals 69.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Force Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYES.170

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0450	0.300	0.155	in/s
ZC Freq	34	32	34	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:01:29	13:02:34	13:02:34	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.338 in/s on July 29, 2015 at 13:02:34



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Event Report

Histogram Start Time	13:05:02 July 29, 2015
Histogram Finish Time	13:19:43 July 29, 2015
Number of Intervals	176.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Force Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

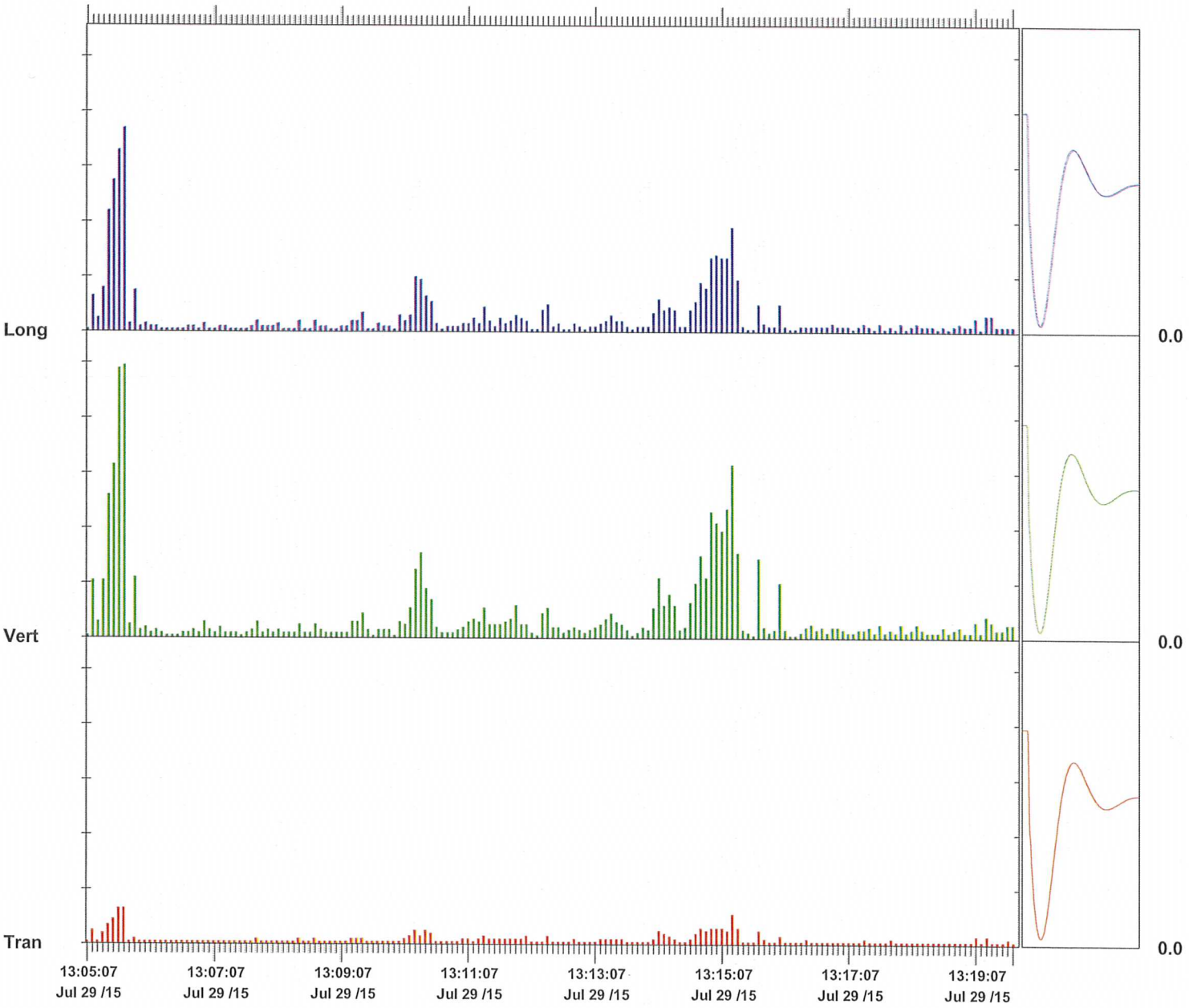
1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYES.CE0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0650	0.495	0.370	in/s
ZC Freq	37	32	32	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:05:37	13:05:42	13:05:42	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.8	3.6	3.9	

Peak Vector Sum 0.581 in/s on July 29, 2015 at 13:05:42



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

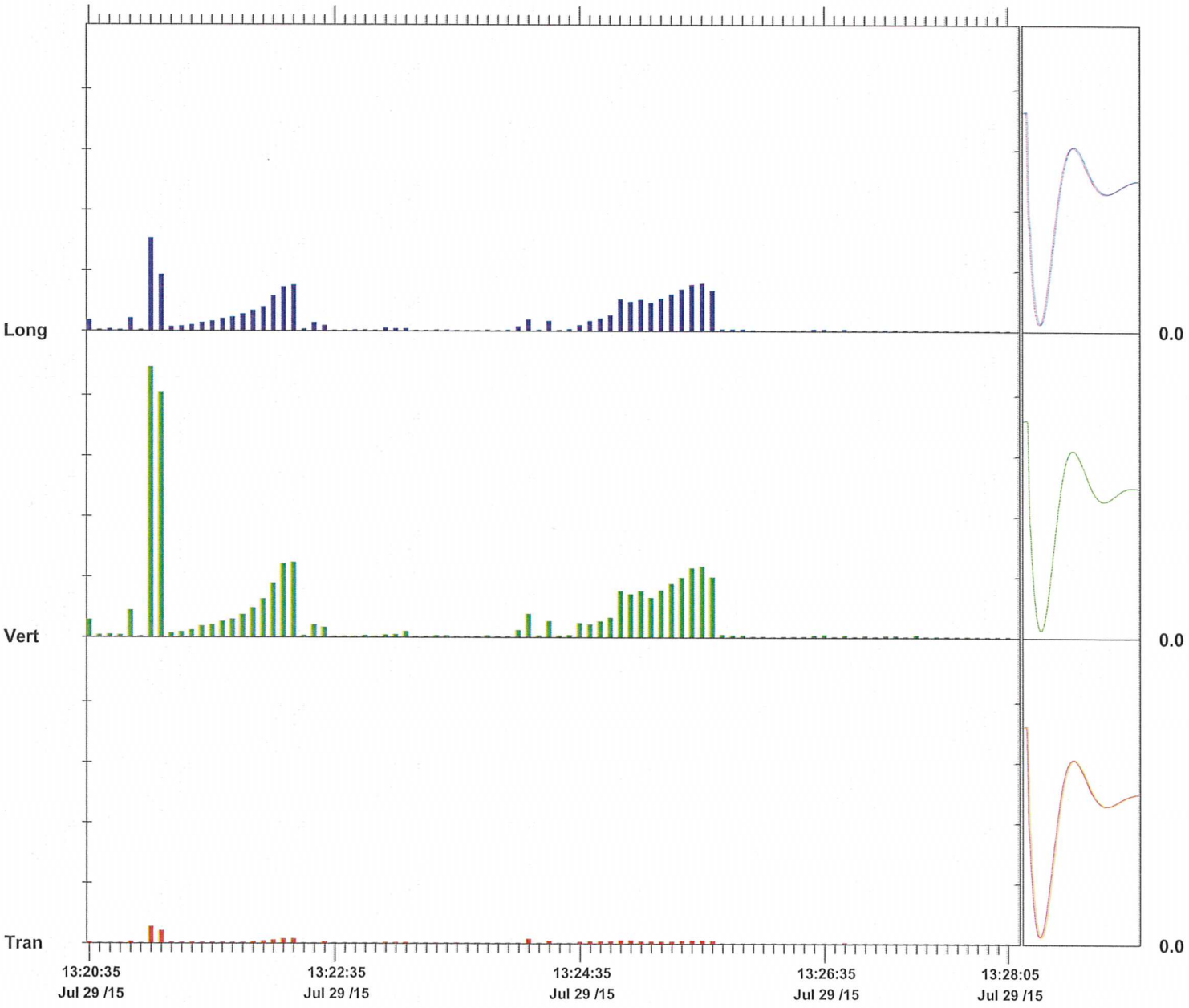
Histogram Start Time	13:20:30 July 29, 2015
Histogram Finish Time	13:28:05 July 29, 2015
Number of Intervals	91.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Force Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/29/15

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYET.260

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.140	2.23	0.770	in/s
ZC Freq	47	37	28	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:21:05	13:21:05	13:21:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.8	3.6	3.9	

Peak Vector Sum 2.24 in/s on July 29, 2015 at 13:21:05



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

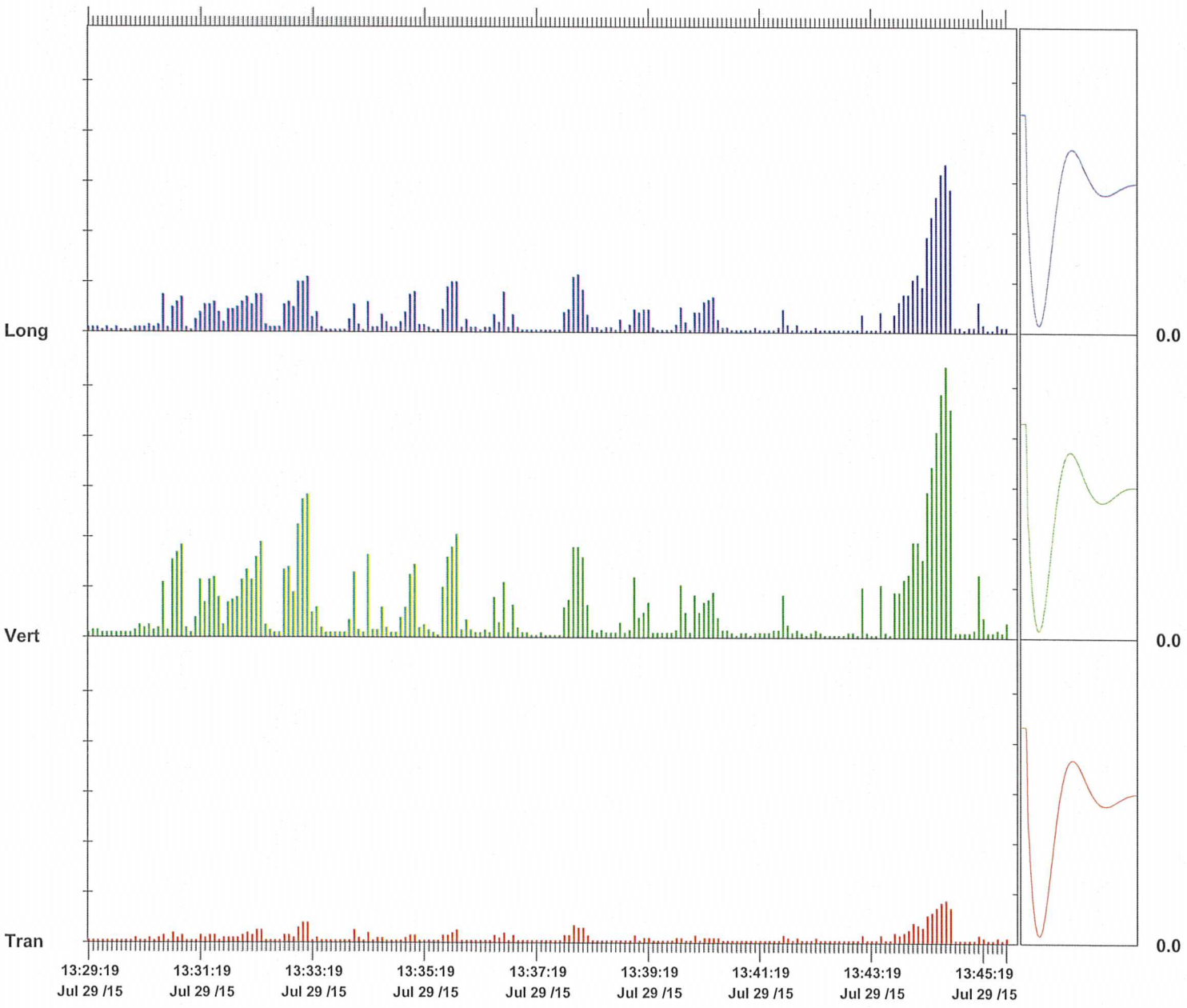
Histogram Start Time	13:29:14 July 29, 2015
Histogram Finish Time	13:45:45 July 29, 2015
Number of Intervals	198.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Force Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/29/15

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYET.GQ0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0850	0.540	0.335	in/s
ZC Freq	32	32	34	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:44:39	13:44:39	13:44:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.629 in/s on July 29, 2015 at 13:44:39



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geocomp.com

Vibration Monitoring Report

Study Area 6 ~~South~~ North 1/27/17

Prepared by
Geocomp Engineering

July 21th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

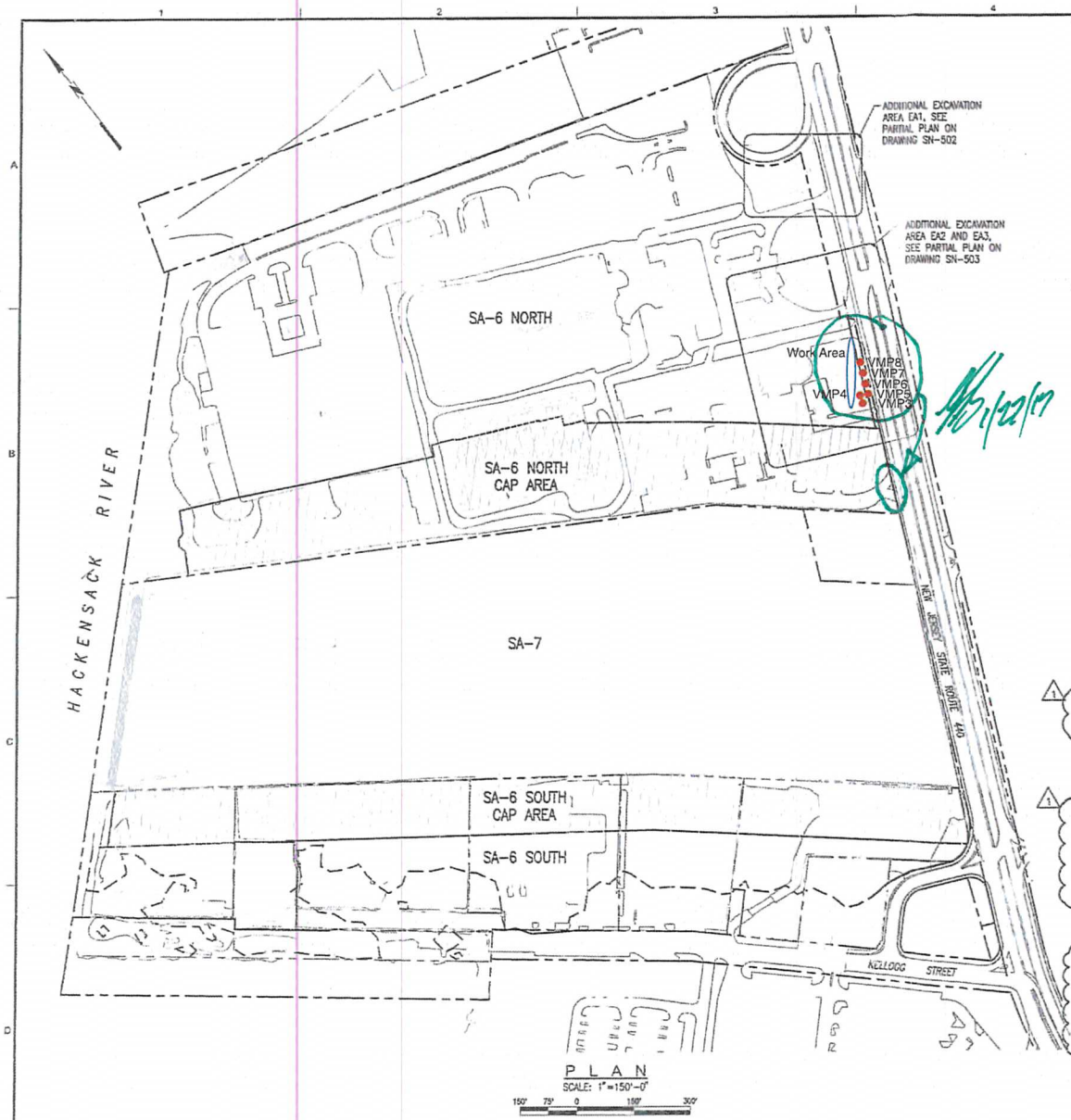
NOTES:

Summary of Work:
Sheet pile driving commenced at 8:05 AM and ended at 2:30 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas line.

12 sheets were driven and 11 were brought to grade with 5 recorded exceedances, i.e., the 2.0 limit was exceeded at 10:28 AM, 11:27 AM, 1:45 PM, 2:10 PM, and 2:22 PM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Line:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec

Errors:
The 3rd recording was taken too close to the work due to traffic concerns, granting higher readings than it should have recorded and was knocked at the recording's end, creating a 10:28 AM exceedance unrelated to sheet driving. The sheet driving was paused to allow movement of the sensor onto a street location closer to the gas pipe.



Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE 46602

NO.	DATE	DSGN	DR	CHK	APVD
1	10/31/14				
0	05/17/13	G.S.		B.B.	G.P.

ISSUED FOR NJDOT REVIEW
ISSUED FOR CONSTRUCTION
REVISION

Honeywell
101 ENVIRON. WAY - BLDG. 3105, HOPEWELL, NJ 08525

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
280 American Metro Blvd, Suite 113
Hamilton, NJ 08619
(609) 890-3939
NJ Certificate of Authorization Number 24GA28016500

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 62 OF 70

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FILE NAME: G:\DWG\2011\11173\SN501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Instantel

Event Report

Histogram Start Time	08:01:42 July 21, 2015
Histogram Finish Time	08:12:38 July 21, 2015
Number of Intervals	131.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

Notes

Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440

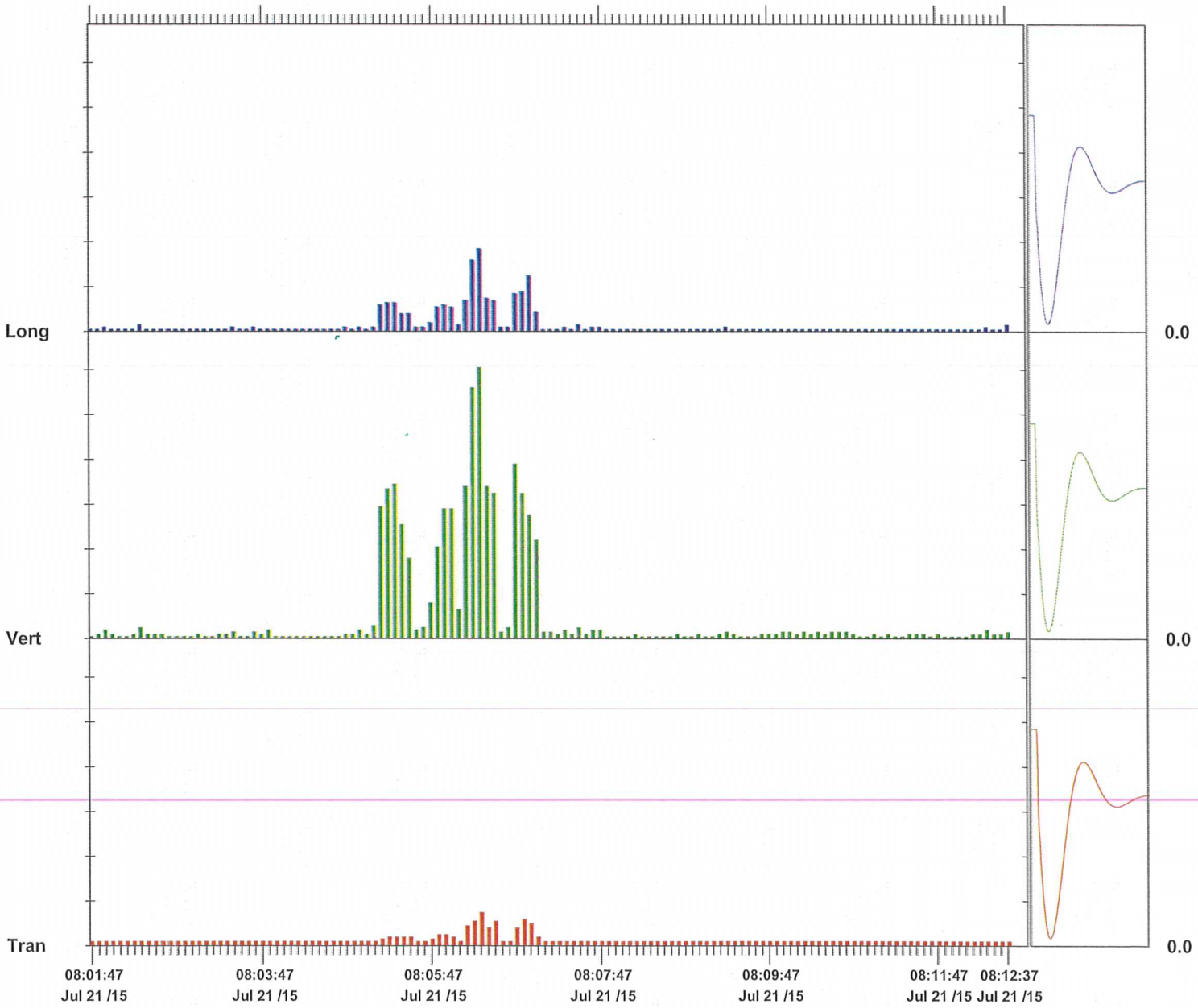
7/22/15

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FXZK.YU0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0750	0.605	0.185	in/s
ZC Freq	39	34	32	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	08:06:22	08:06:22	08:06:22	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 0.627 in/s on July 21, 2015 at 08:06:22



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Instantel

Event Report

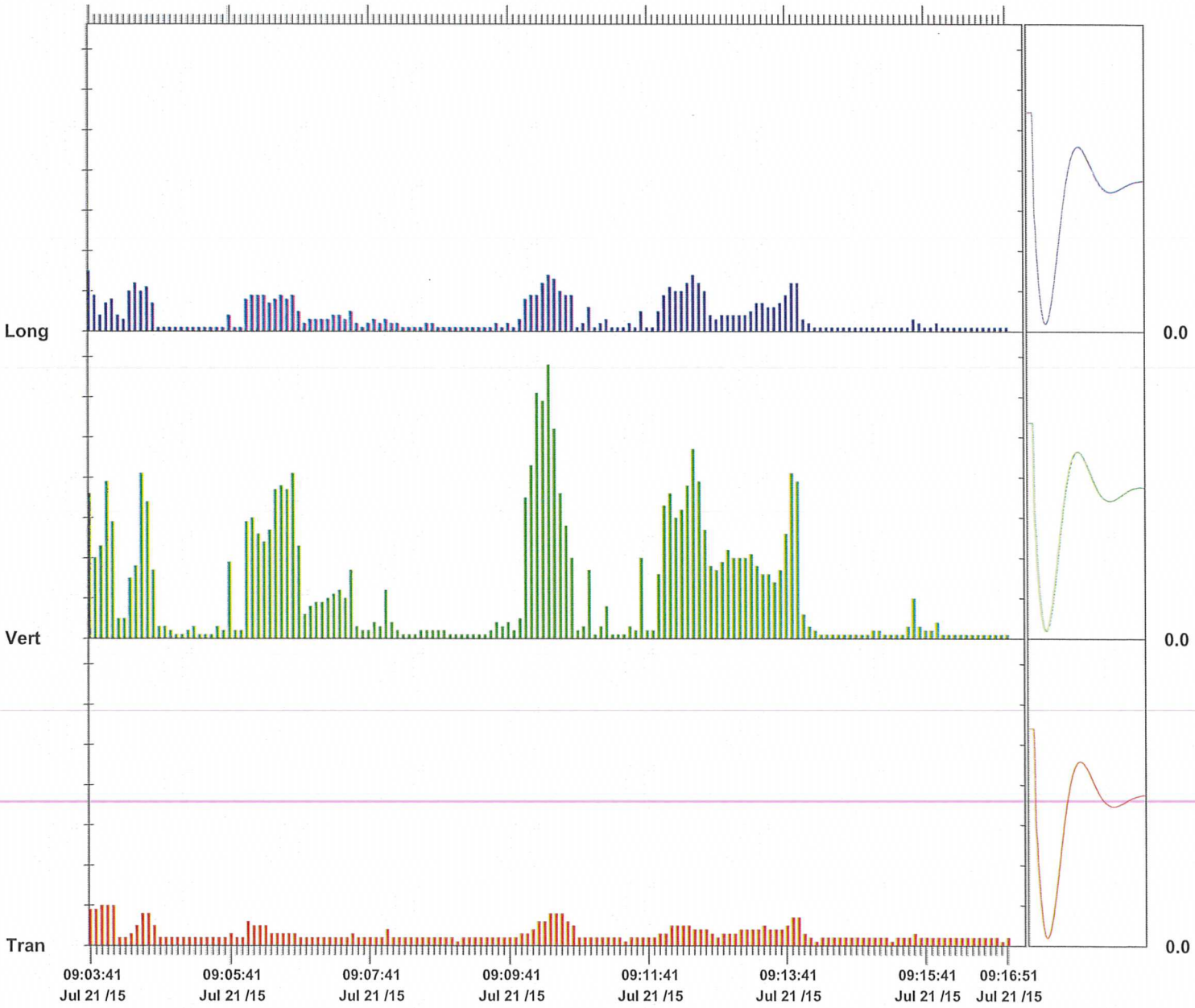
Histogram Start Time 09:03:36 July 21, 2015
Histogram Finish Time 09:16:52 July 21, 2015
Number of Intervals 159.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/16

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXZN.U00

Post Event Notes
VMP3

	Tran	Vert	Long	
PPV	0.0500	0.340	0.0750	in/s
ZC Freq	37	34	34	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	09:03:51	09:10:16	09:03:41	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 0.348 in/s on July 21, 2015 at 09:10:16



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Instantel

Event Report

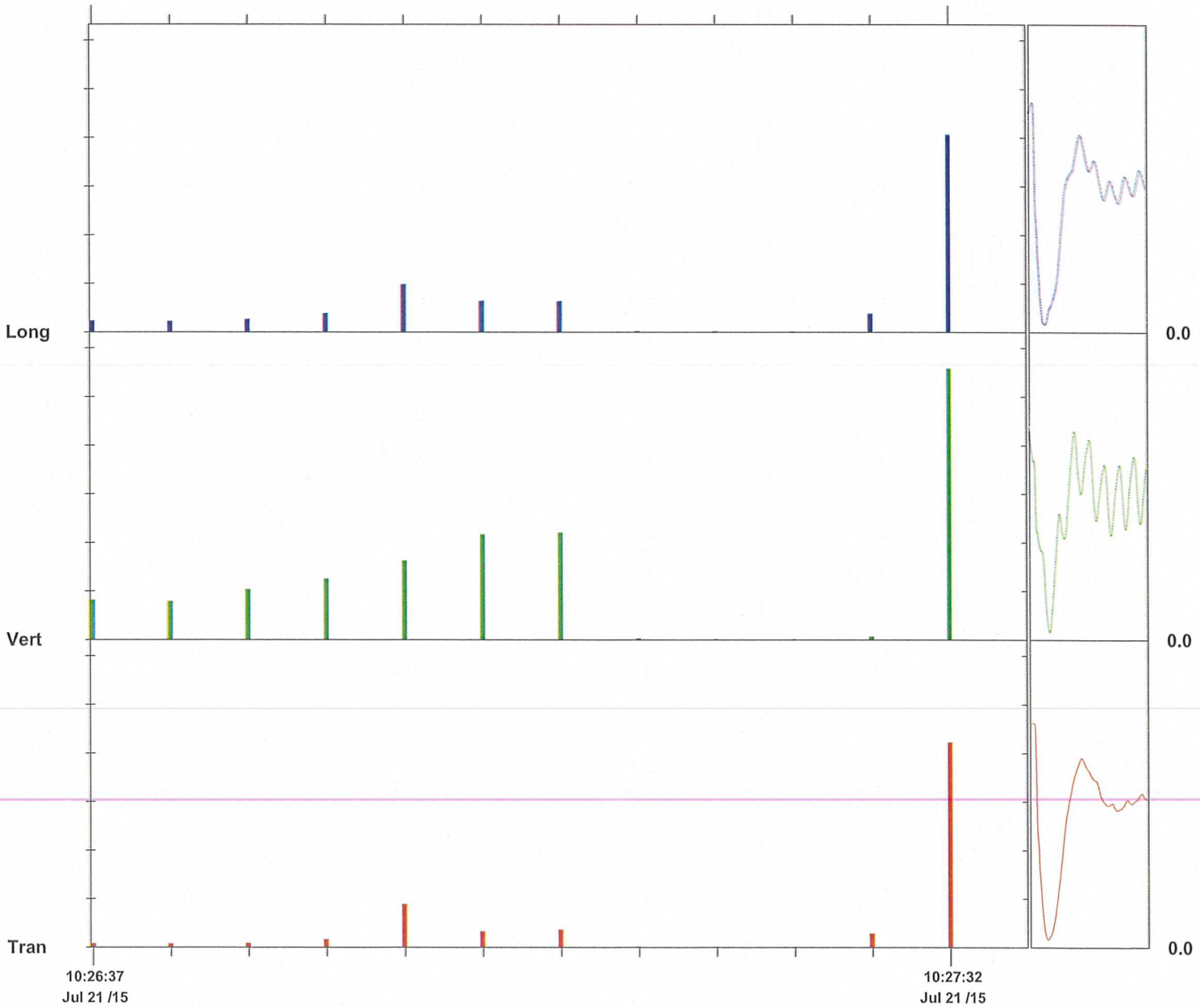
Histogram Start Time 10:26:32 July 21, 2015
Histogram Finish Time 10:27:34 July 21, 2015
Number of Intervals 12.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/15

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXZR.O80

Post Event Notes
VMP4
Too close to site because of traffic safety and knocked at end.

	Tran	Vert	Long	
PPV	4.22	5.58	4.05	in/s
ZC Freq	2.7	1.3	1.4	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	10:27:32	10:27:32	10:27:32	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.2	7.6	Hz
Overswing Ratio	3.5	2.4	2.9	

Peak Vector Sum 6.49 in/s on July 21, 2015 at 10:27:32



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 1.000 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Instantel

Event Report

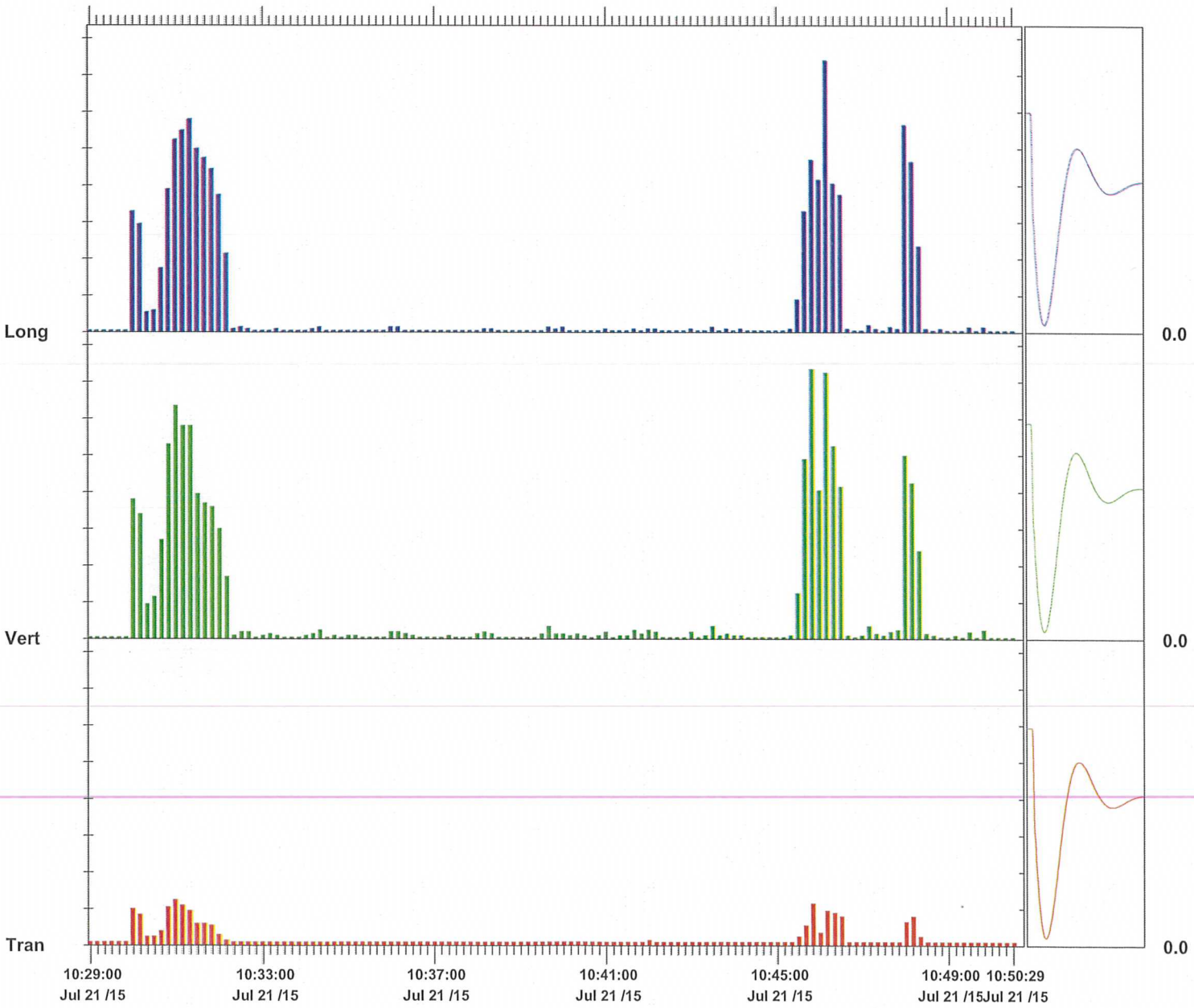
Histogram Start Time 10:28:50 July 21, 2015
Histogram Finish Time 10:50:29 July 21, 2015
Number of Intervals 259.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/22/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXZR.S20

Post Event Notes
VMP5

	Tran	Vert	Long	
PPV	0.125	0.735	0.740	in/s
ZC Freq	43	43	32	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	10:31:00	10:45:50	10:46:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 0.998 in/s on July 21, 2015 at 10:46:05



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

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Instantel

Event Report

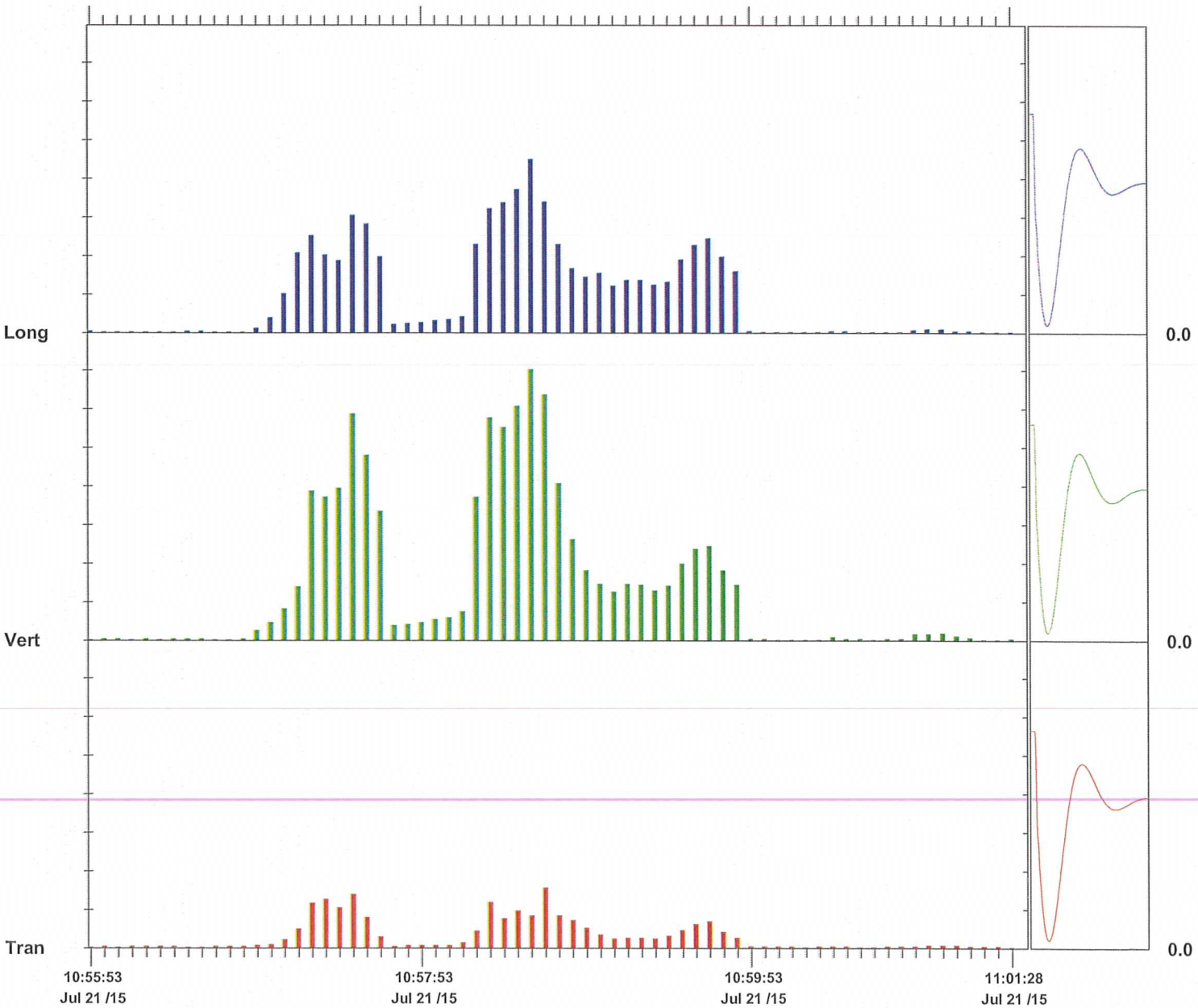
Histogram Start Time 10:55:48 July 21, 2015
Histogram Finish Time 11:01:32 July 21, 2015
Number of Intervals 68.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXZT.100

Post Event Notes
VMP6

	Tran	Vert	Long	
PPV	0.315	1.40	0.900	in/s
ZC Freq	34	43	32	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	10:58:38	10:58:33	10:58:33	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 1.65 in/s on July 21, 2015 at 10:58:33



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div Sensor Check

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Instantel

Event Report

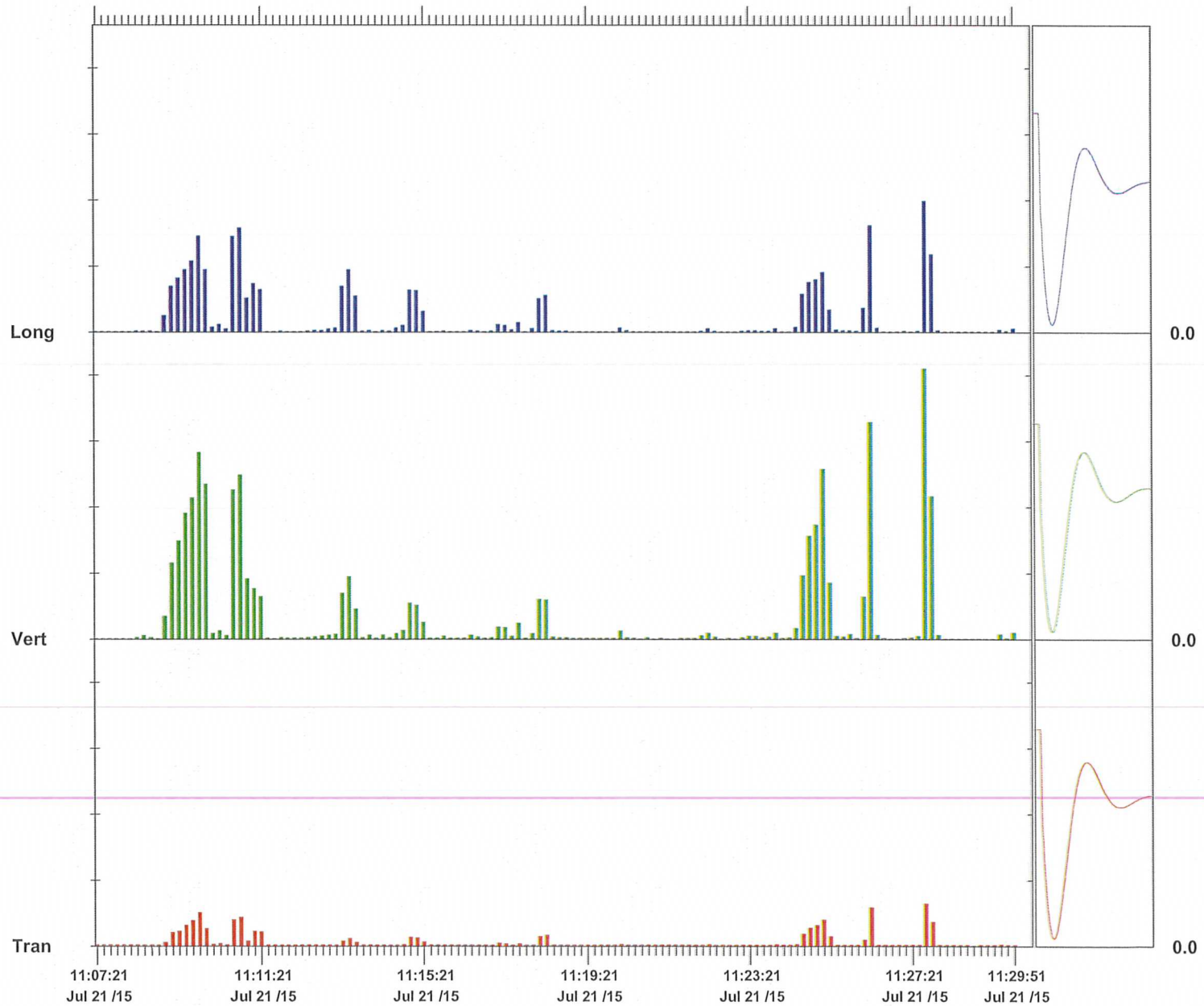
Histogram Start Time 11:07:11 July 21, 2015
Histogram Finish Time 11:29:52 July 21, 2015
Number of Intervals 272.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FXZT.JZ0

Post Event Notes
VMP6

	Tran	Vert	Long	
PPV	0.325	2.05	0.995	in/s
ZC Freq	43	43	32	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	11:27:36	11:27:36	11:27:41	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.2	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 2.21 in/s on July 21, 2015 at 11:27:36



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div Sensor Check

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Event Report

Histogram Start Time	12:39:38 July 21, 2015
Histogram Finish Time	13:08:14 July 21, 2015
Number of Intervals	343.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and Route~~ 440

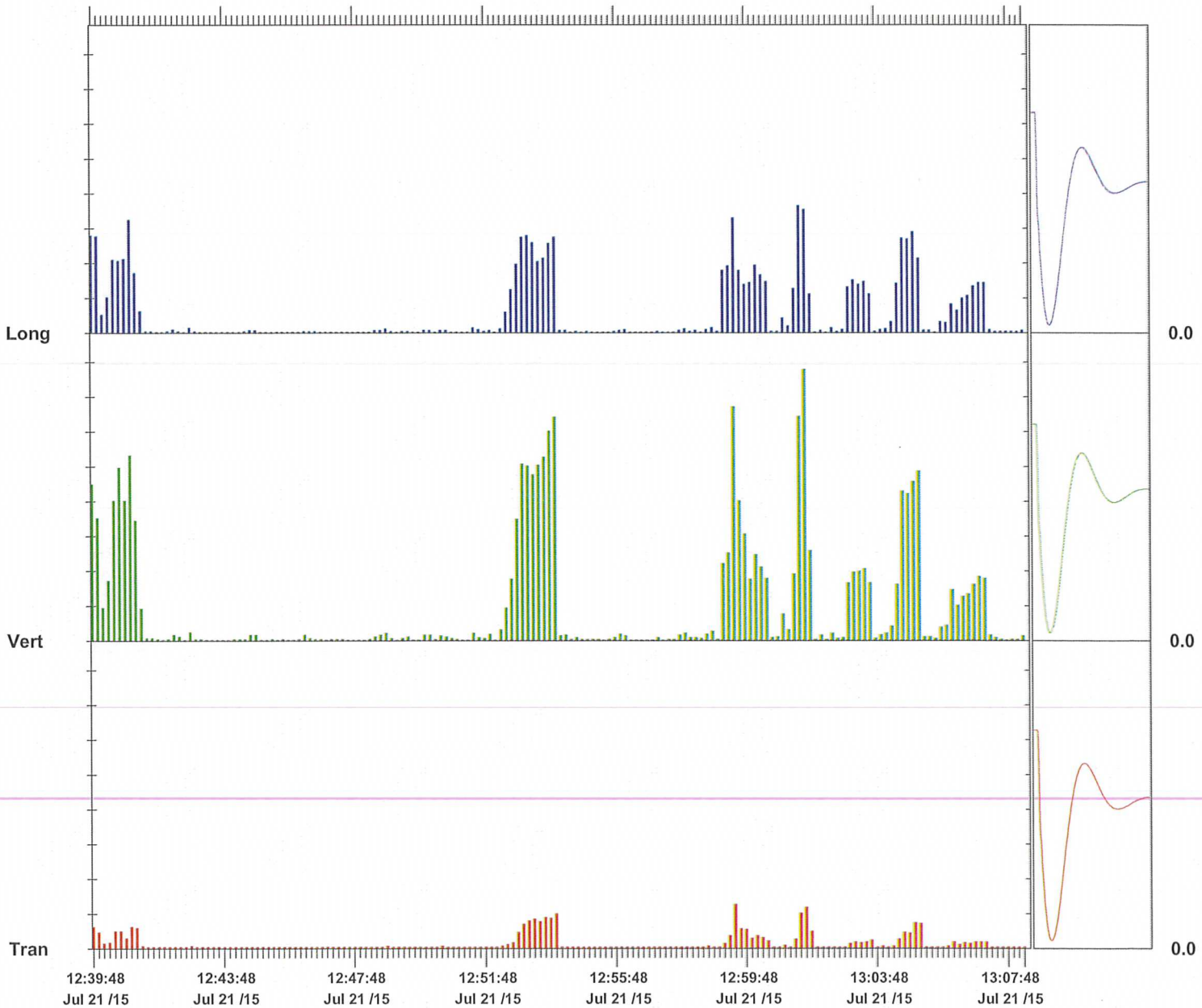
1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FXZX.U20

Post Event Notes
VMP6

	Tran	Vert	Long	
PPV	0.255	1.56	0.730	in/s
ZC Freq	39	39	28	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	12:59:28	13:01:33	13:01:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.2	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 1.71 in/s on July 21, 2015 at 13:01:33



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div Sensor Check

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Instantel

Event Report

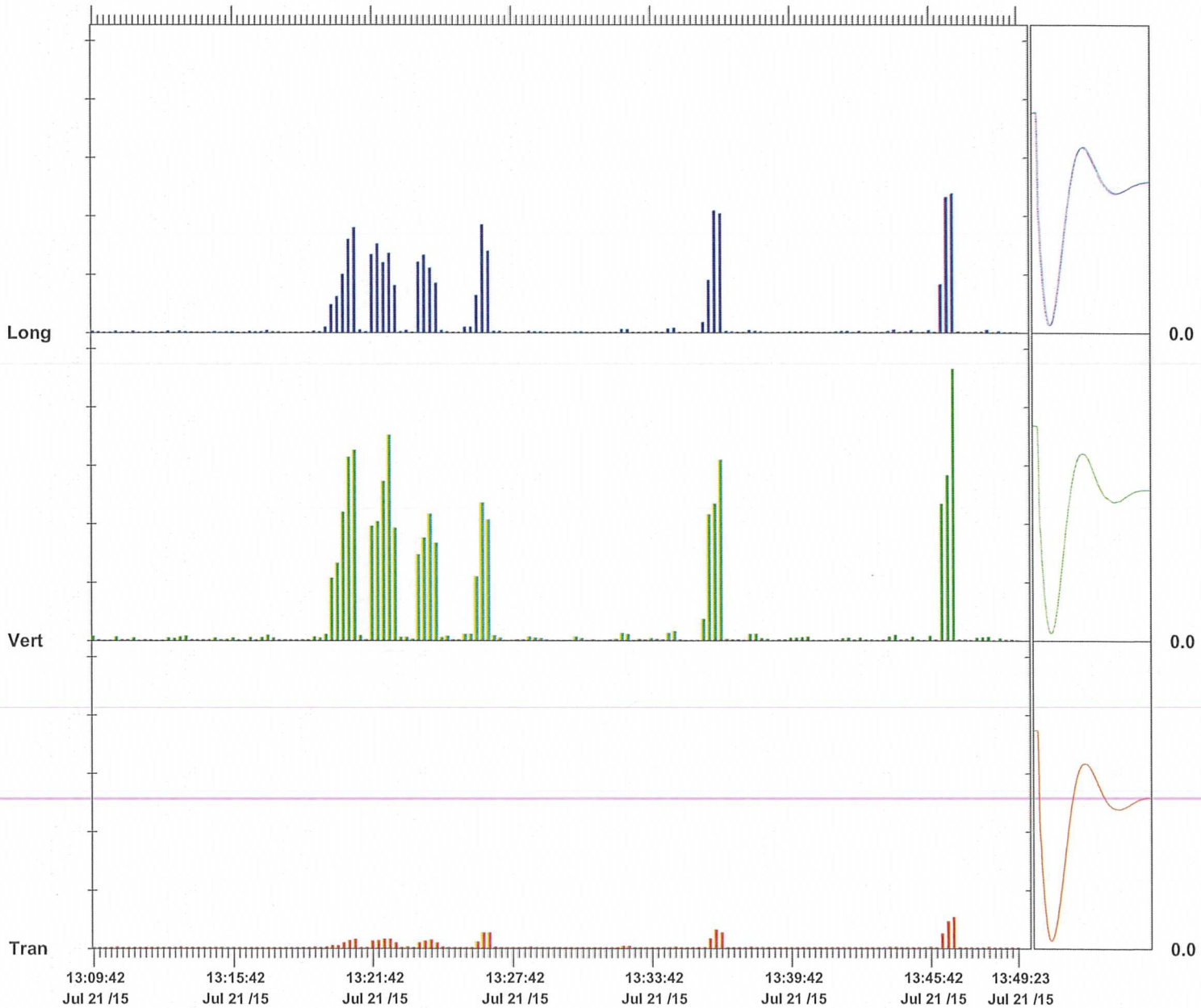
Histogram Start Time	13:09:27 July 21, 2015
Histogram Finish Time	13:49:23 July 21, 2015
Number of Intervals	479.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FXZZ.7R0

Post Event Notes
VMP7

	Tran	Vert	Long	
PPV	0.270	2.32	1.19	in/s
ZC Freq	27	39	30	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	13:46:37	13:46:37	13:46:37	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.7	3.9	

Peak Vector Sum 2.47 in/s on July 21, 2015 at 13:46:37



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div Sensor Check

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Event Report

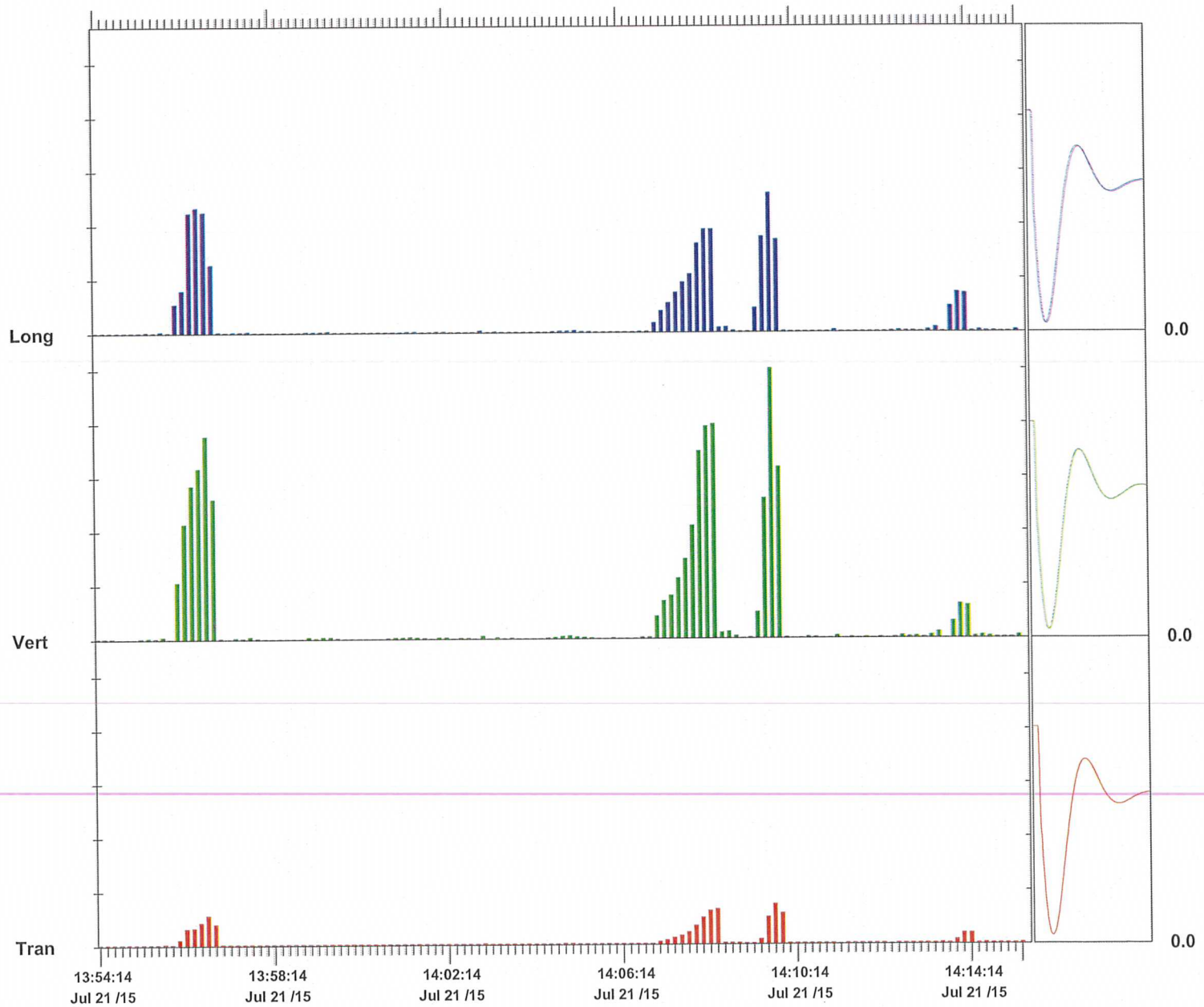
Histogram Start Time 13:54:04 July 21, 2015
Histogram Finish Time 14:15:25 July 21, 2015
Number of Intervals 256.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FY01.A40

Post Event Notes
VMP8

	Tran	Vert	Long	
PPV	0.375	2.50	1.29	in/s
ZC Freq	51	34	39	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	14:09:39	14:09:39	14:09:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 2.76 in/s on July 21, 2015 at 14:09:39



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div

Sensor Check

Printed: July 21, 2015 (V 10.60 - 10.60)

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Instantel

Event Report

Histogram Start Time 14:16:07 July 21, 2015
Histogram Finish Time 14:22:50 July 21, 2015
Number of Intervals 80.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440

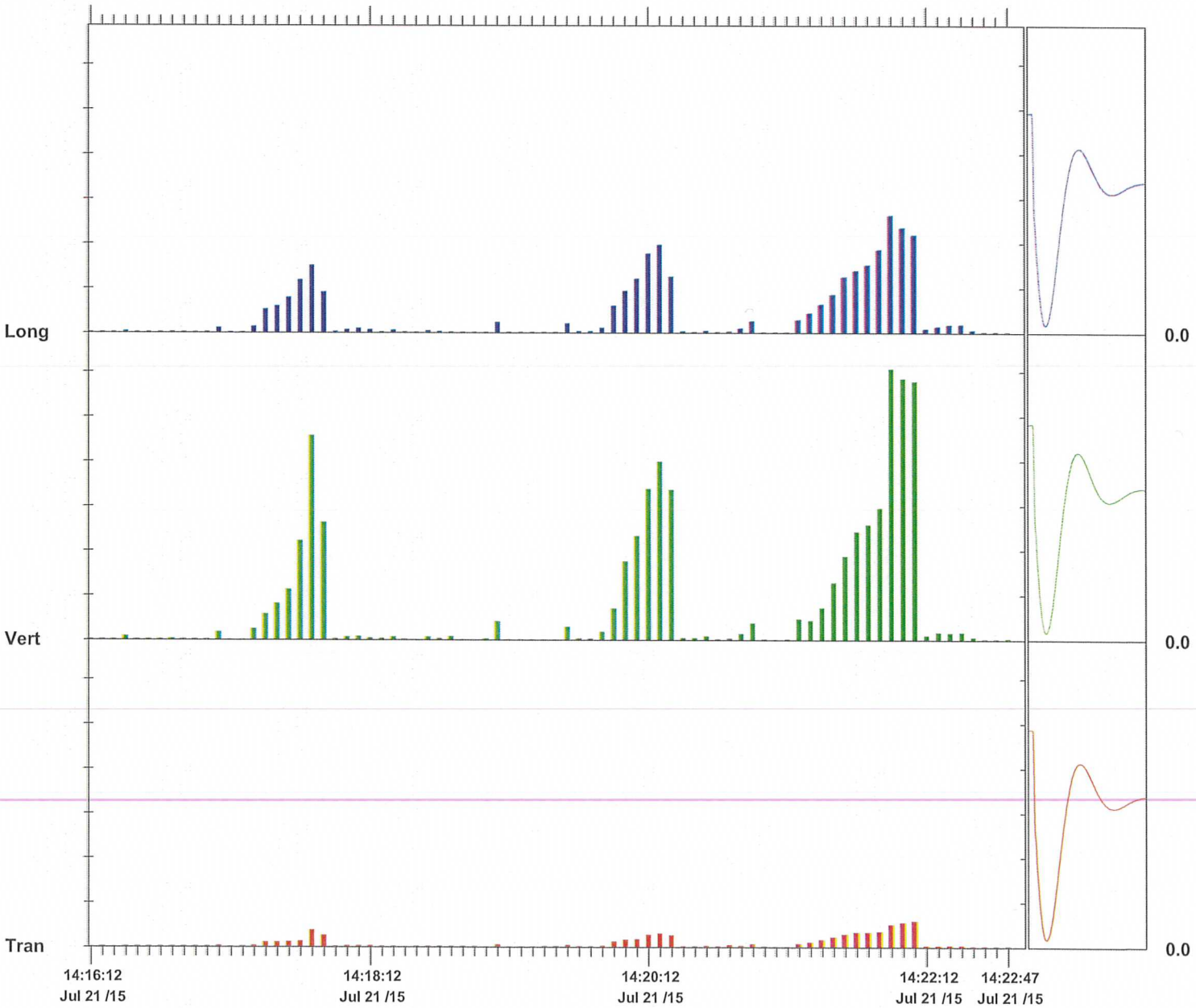
1/27/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FY02.AV0

Post Event Notes
VMP6

	Tran	Vert	Long	
PPV	0.295	3.03	1.31	in/s
ZC Freq	43	34	28	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	14:22:07	14:21:57	14:21:57	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 3.16 in/s on July 21, 2015 at 14:21:57



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div

Sensor Check

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Event Report

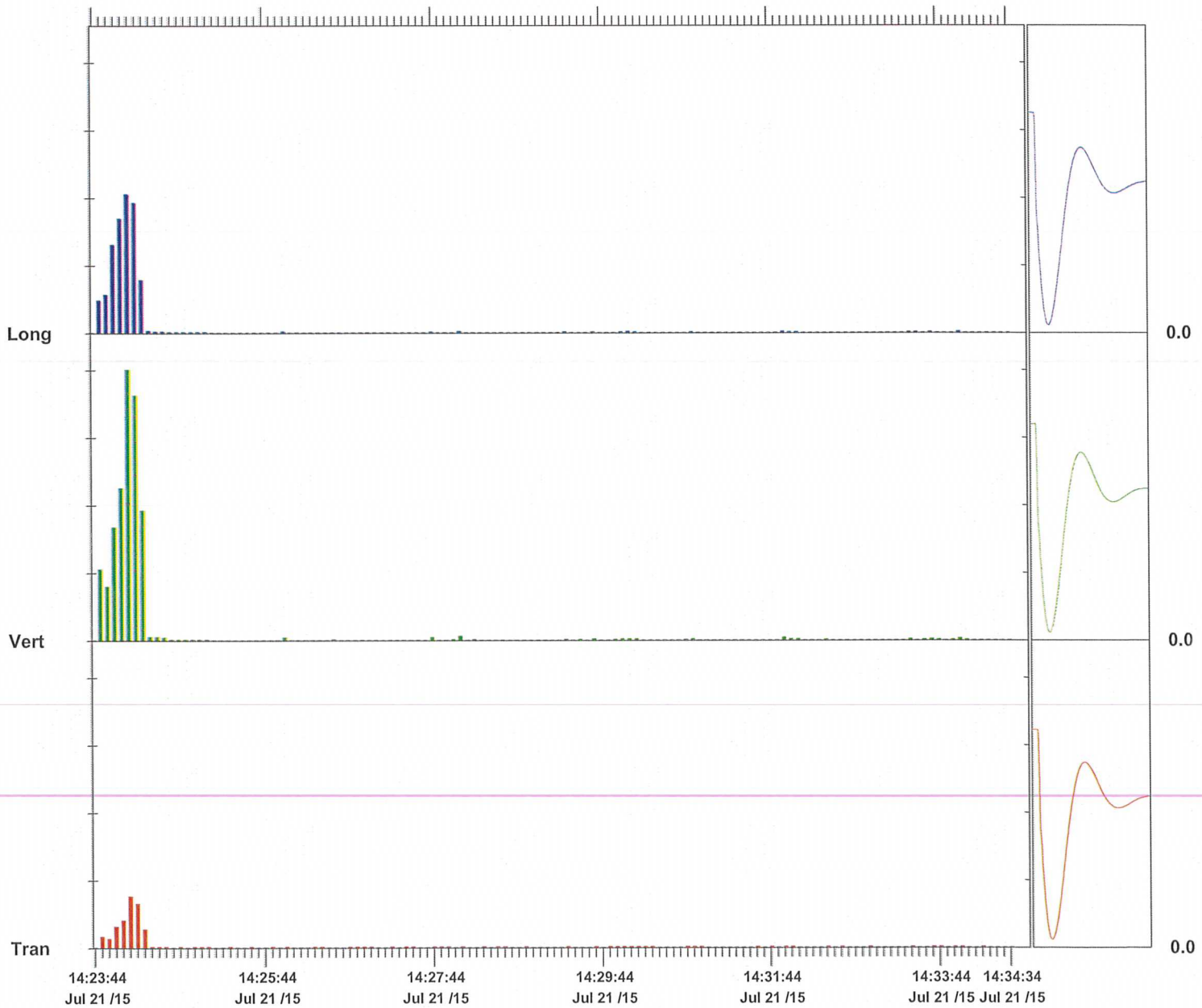
Histogram Start Time	14:23:39 July 21, 2015
Histogram Finish Time	14:34:37 July 21, 2015
Number of Intervals	131.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street~~ and Route 440 1/22/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FY02.NF0

Post Event Notes
VMP7

	Tran	Vert	Long	
PPV	0.385	2.00	1.03	in/s
ZC Freq	32	37	30	Hz
Date	Jul 21 /15	Jul 21 /15	Jul 21 /15	
Time	14:24:09	14:24:09	14:24:09	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 2.21 in/s on July 21, 2015 at 14:24:09



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div Sensor Check

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Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 South

Prepared by
Geocomp Engineering

July 28th, 2015
For ENTACT, LLC

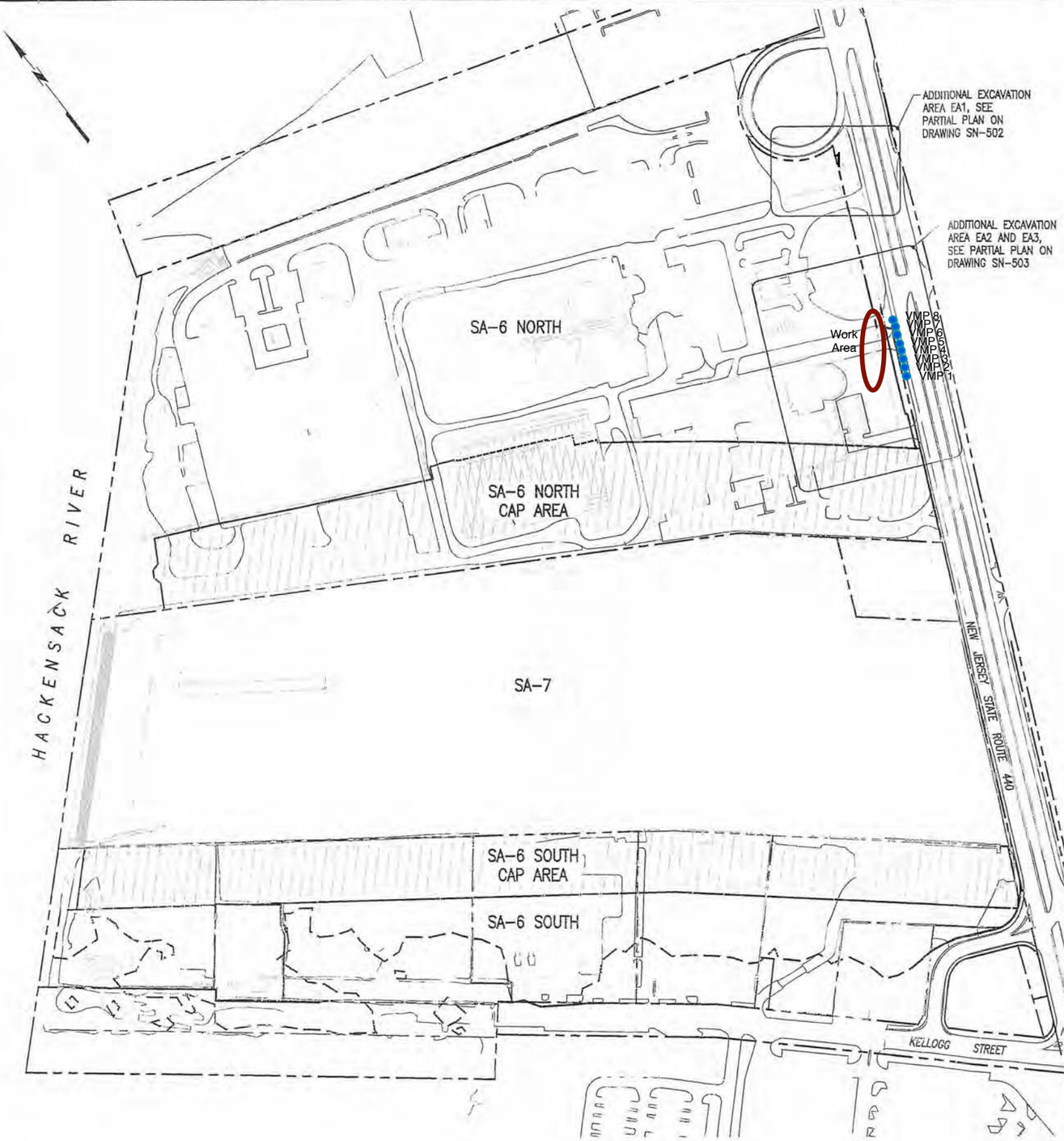
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Hammering commenced at 8 AM and ended at 8:30 AM. Sheet pile driving commenced at 9:35 AM and ended at 2:30 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas line.

19 sheets were driven and 18 were brought to grade with 5 recorded exceedances, i.e., the 0.5 limit was exceeded at 9:35 AM, 1:12 PM, 1:18 PM, 1:37 PM, and 1:43 PM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Line:
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. (1) Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. (1) Survey location of monitoring point. (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
1	10/31/14	G.S.	B.B.	G.P.	APVD	GP	ISSUED FOR NJDOT REVIEW
0	06/17/13					FWD	ISSUED FOR CONSTRUCTION

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522
P.W.D. LICENSE NUMBER 24GA28010900

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

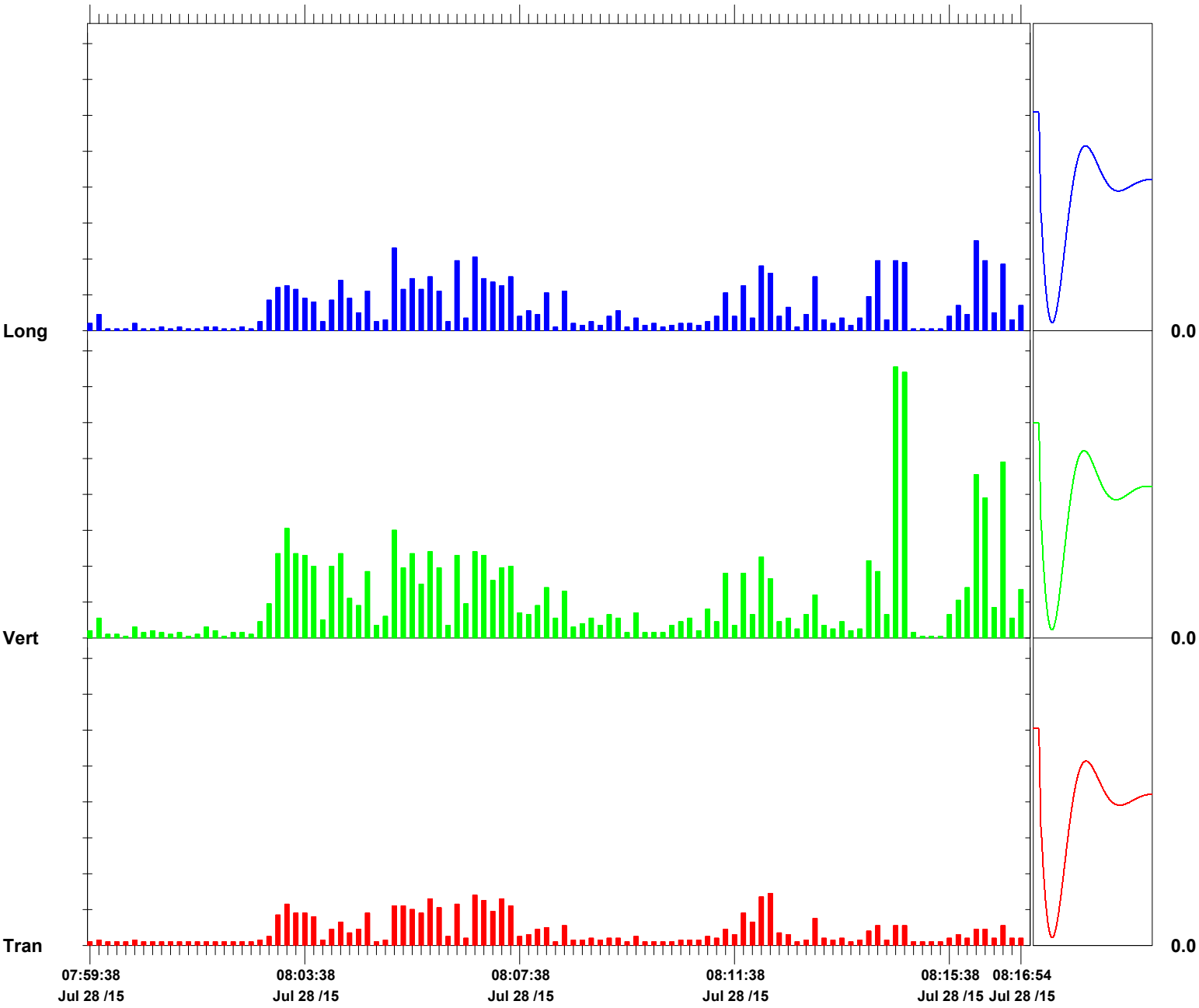
Histogram Start Time	07:59:28 July 28, 2015
Histogram Finish Time	08:16:54 July 28, 2015
Number of Intervals	209.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 South Gas Main
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYCJ.J40

Post Event Notes
VMP 8

	Tran	Vert	Long	
PPV	0.145	0.755	0.250	in/s
ZC Freq	32	26	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	08:12:13	08:14:38	08:16:03	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	4.0	3.7	3.9	

Peak Vector Sum 0.764 in/s on July 28, 2015 at 08:14:38



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

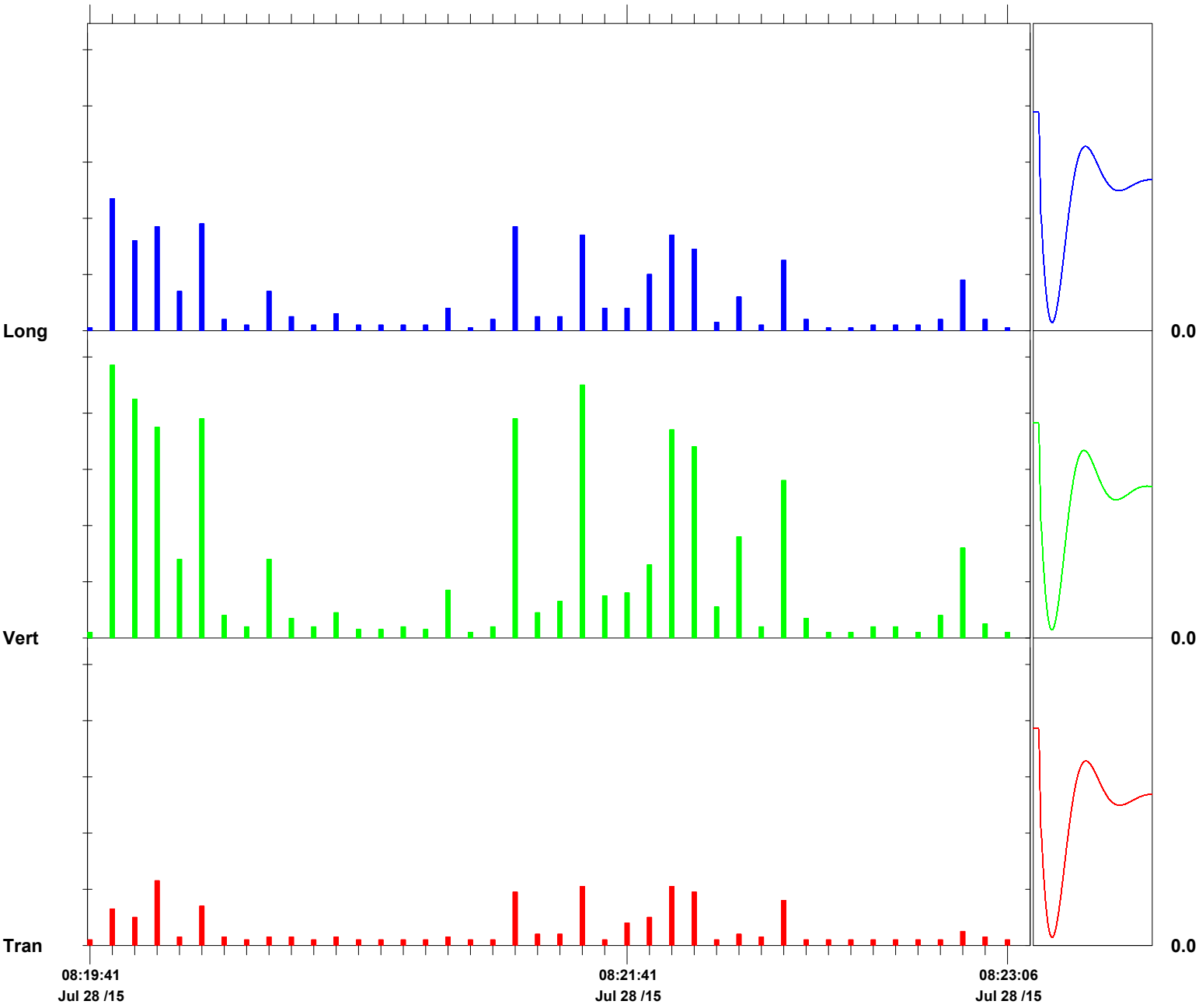
Histogram Start Time 08:19:36 July 28, 2015
Histogram Finish Time 08:23:09 July 28, 2015
Number of Intervals 42.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCK.GO0

Post Event Notes
VMP 8

	Tran	Vert	Long	
PPV	0.115	0.485	0.235	in/s
ZC Freq	17	22	28	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	08:19:56	08:19:46	08:19:46	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.496 in/s on July 28, 2015 at 08:19:46



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

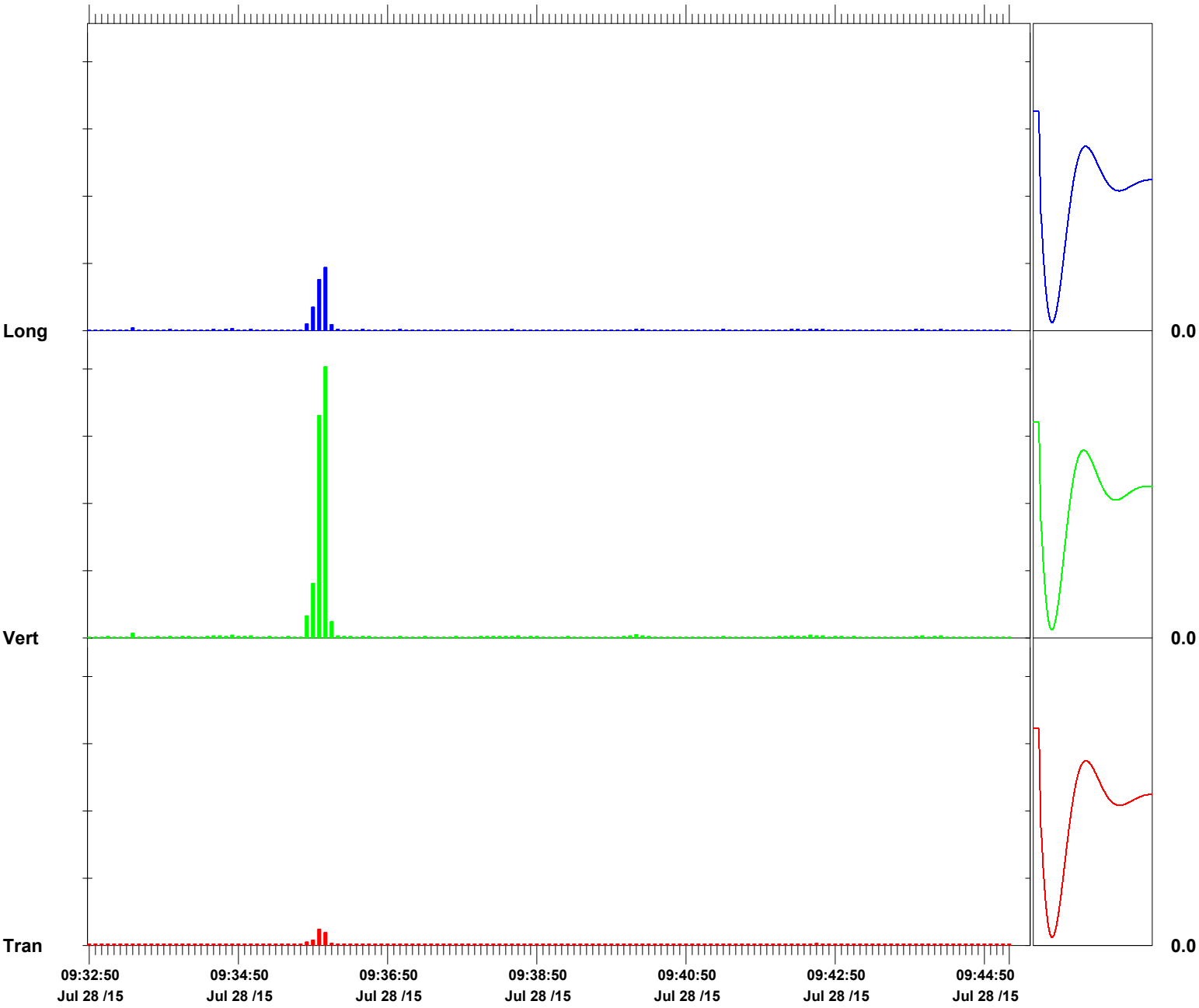
Histogram Start Time 09:32:45 July 28, 2015
Histogram Finish Time 09:45:10 July 28, 2015
Number of Intervals 149.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCN.UL0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.120	2.01	0.470	in/s
ZC Freq	51	37	37	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	09:35:55	09:36:00	09:36:00	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	4.0	

Peak Vector Sum 2.07 in/s on July 28, 2015 at 09:36:00



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

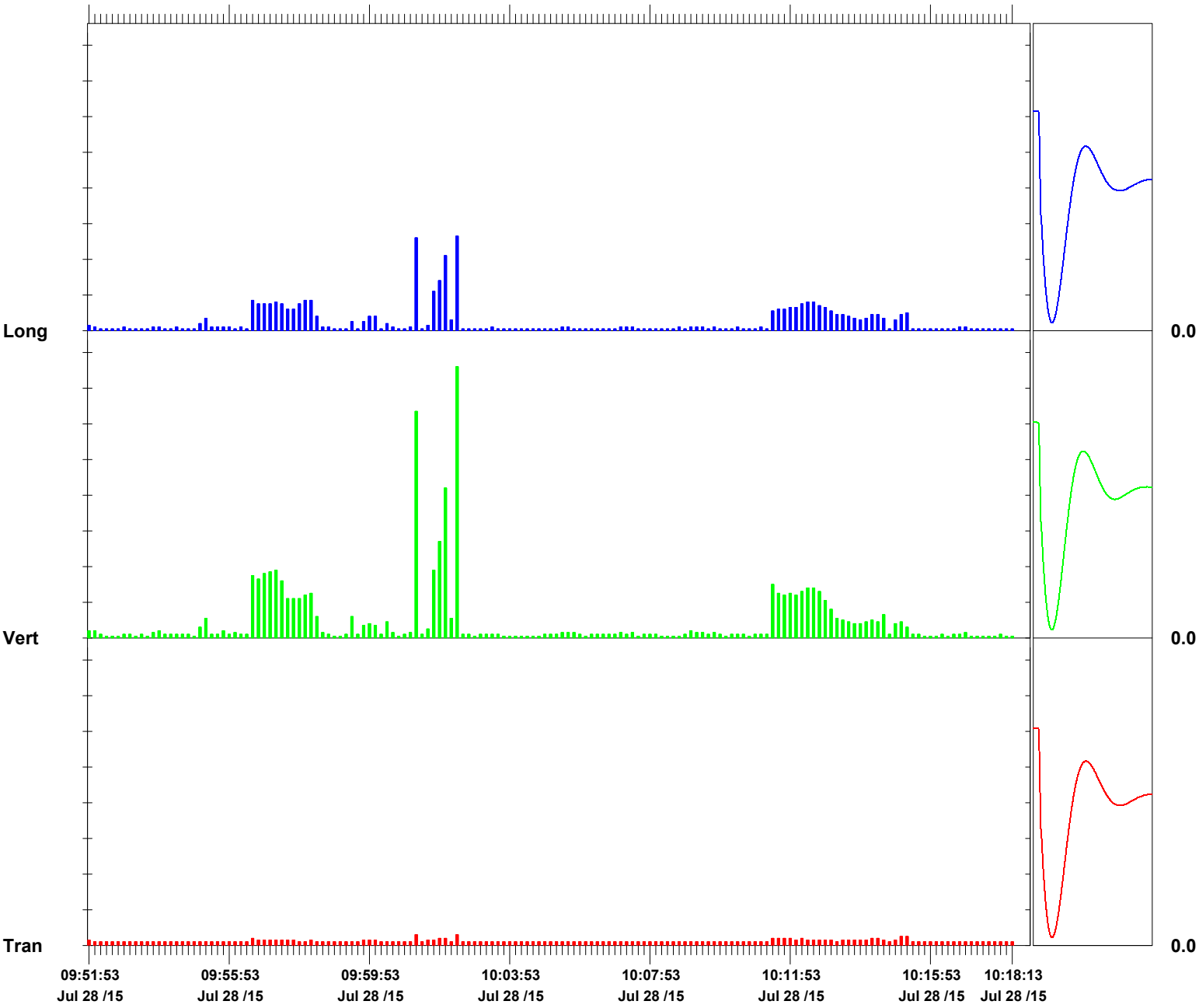
Histogram Start Time 09:51:43 July 28, 2015
Histogram Finish Time 10:18:13 July 28, 2015
Number of Intervals 318.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCO.Q70

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0300	0.760	0.265	in/s
ZC Freq	39	32	28	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	10:01:08	10:02:23	10:02:23	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.802 in/s on July 28, 2015 at 10:02:23



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

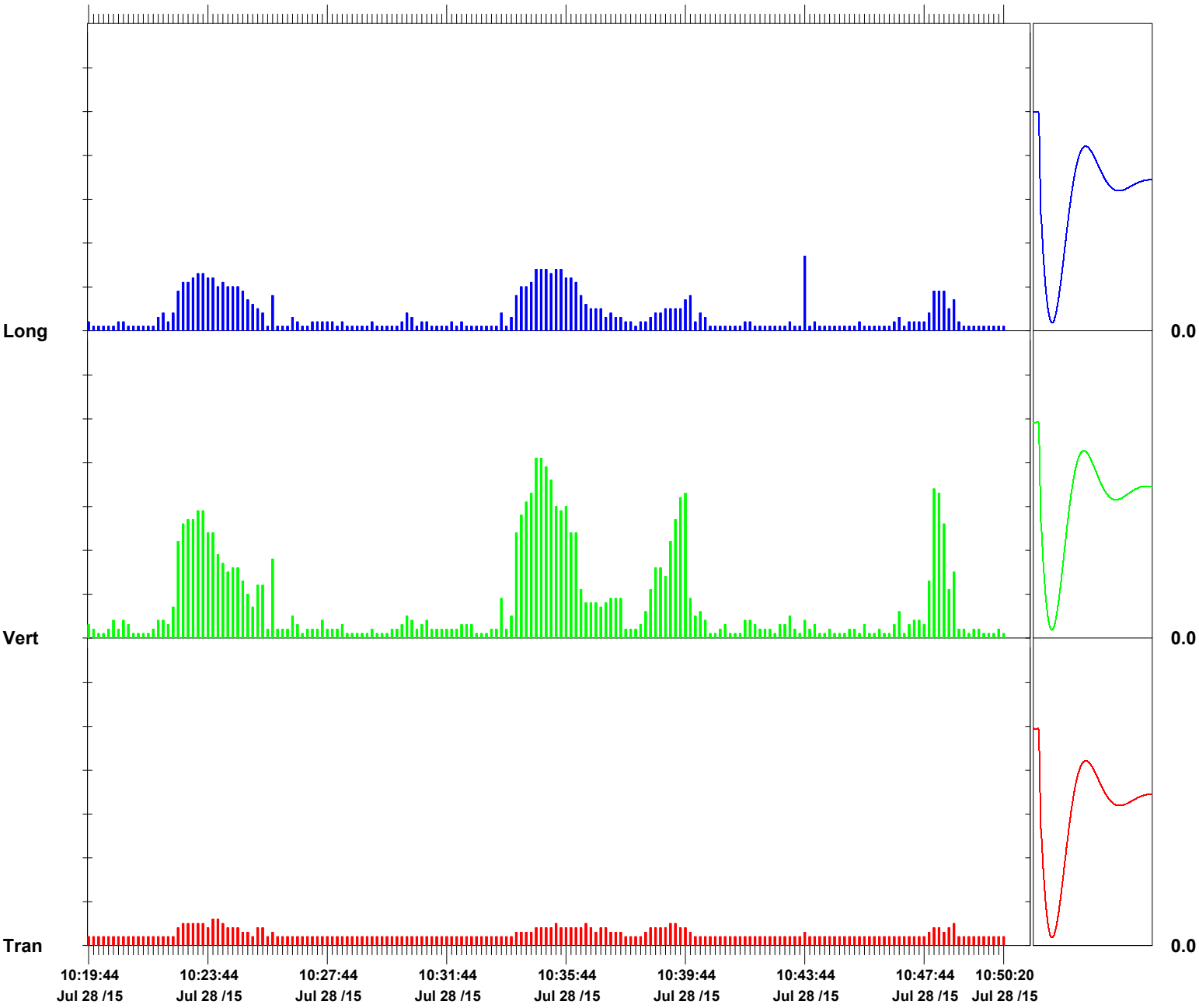
Histogram Start Time 10:19:34 July 28, 2015
Histogram Finish Time 10:50:20 July 28, 2015
Number of Intervals 369.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCQ.0M0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0300	0.205	0.0850	in/s
ZC Freq	43	34	34	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	10:23:54	10:34:44	10:43:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.3	Hz
Overswing Ratio	3.9	3.7	4.0	

Peak Vector Sum 0.216 in/s on July 28, 2015 at 10:34:49



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

Histogram Start Time 10:51:25 July 28, 2015
Histogram Finish Time 11:14:39 July 28, 2015
Number of Intervals 278.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCR.HP0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0650	0.375	0.0900	in/s
ZC Freq	34	34	37	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	11:04:05	11:04:40	11:05:10	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.2	Hz
Overswing Ratio	4.0	3.6	4.0	

Peak Vector Sum 0.379 in/s on July 28, 2015 at 11:04:40

Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

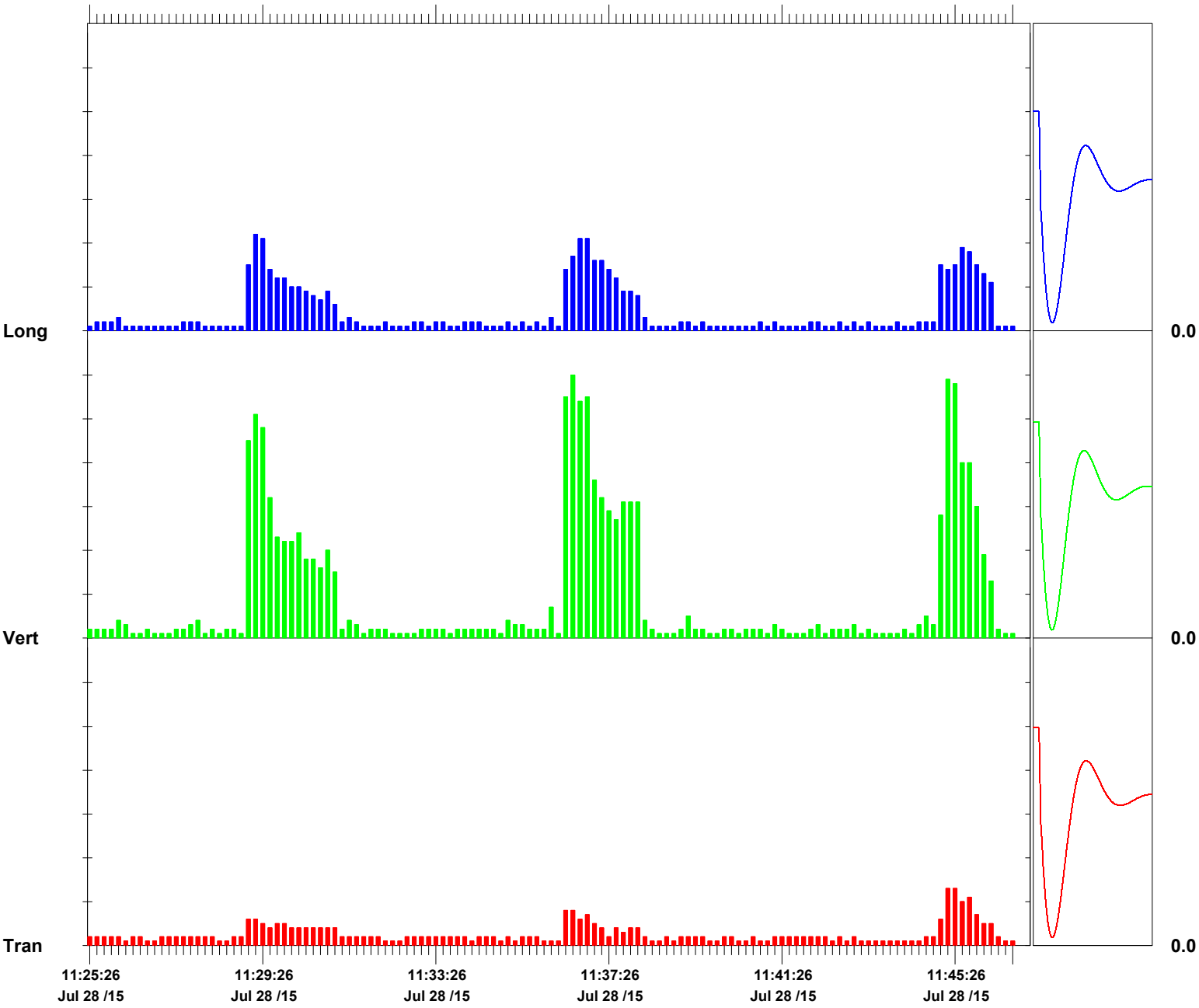
Histogram Start Time 11:25:16 July 28, 2015
Histogram Finish Time 11:46:42 July 28, 2015
Number of Intervals 257.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCT.240

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0650	0.300	0.110	in/s
ZC Freq	30	32	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	11:45:16	11:36:31	11:29:16	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	3.9	

Peak Vector Sum 0.302 in/s on July 28, 2015 at 11:45:16



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

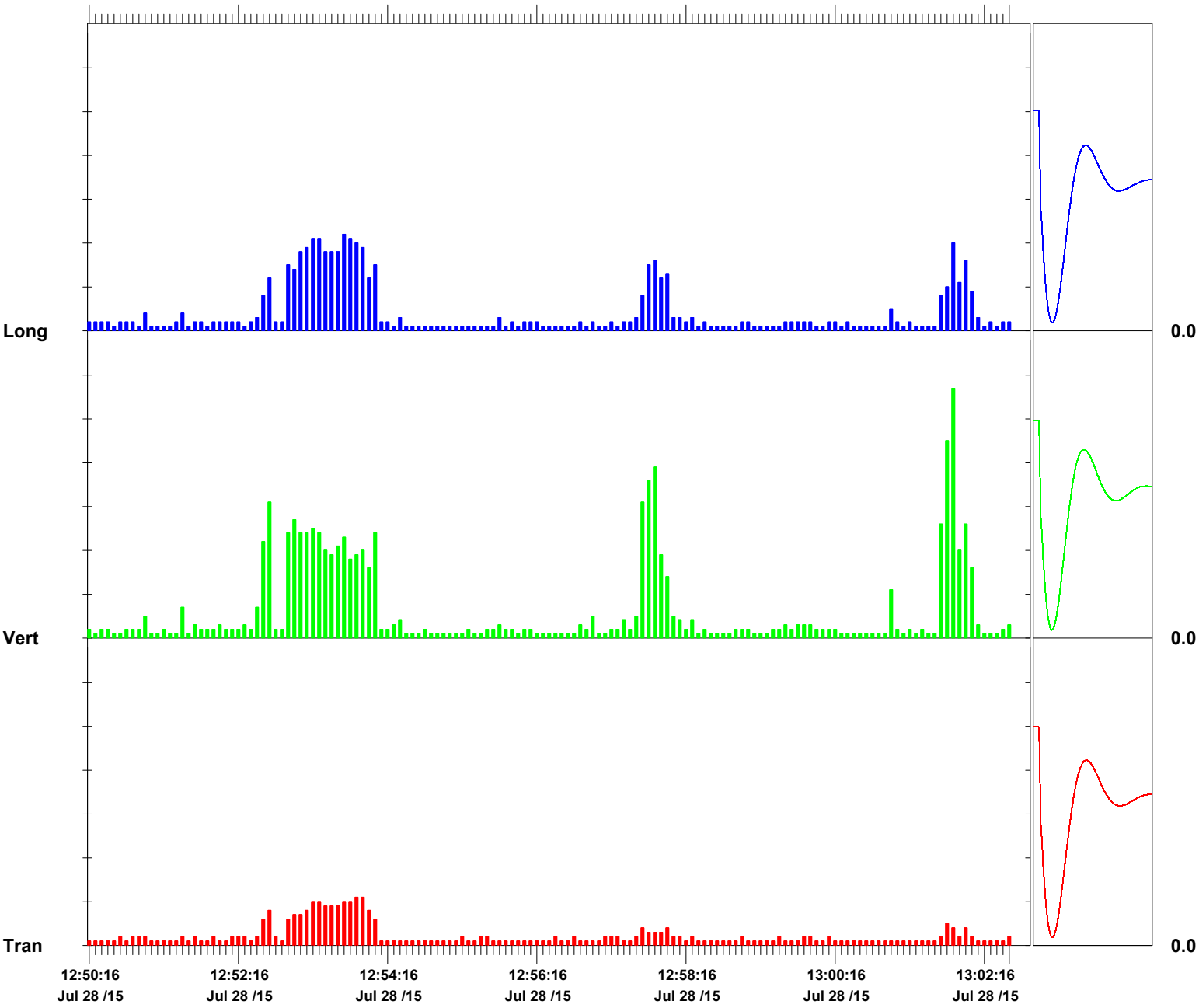
Histogram Start Time 12:50:11 July 28, 2015
Histogram Finish Time 13:02:37 July 28, 2015
Number of Intervals 149.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCW.ZN0

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.0550	0.285	0.110	in/s
ZC Freq	28	30	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	12:53:51	13:01:51	12:53:41	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.2	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.294 in/s on July 28, 2015 at 13:01:51



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

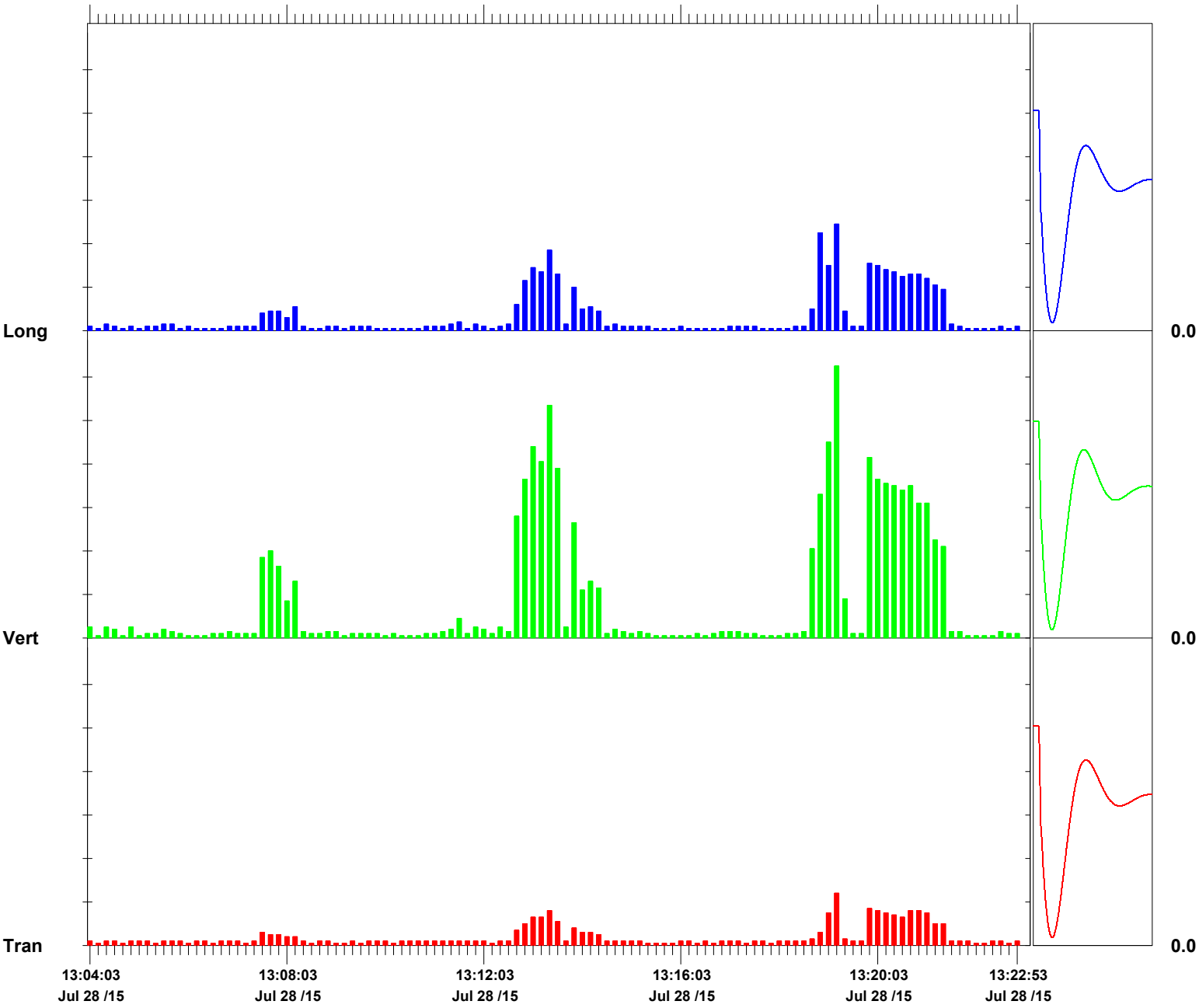
Histogram Start Time 13:03:53 July 28, 2015
Histogram Finish Time 13:22:56 July 28, 2015
Number of Intervals 228.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCX.MH0

Post Event Notes
VMP 6

	Tran	Vert	Long	
PPV	0.120	0.625	0.245	in/s
ZC Freq	30	32	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	13:19:08	13:19:13	13:19:13	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.2	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.677 in/s on July 28, 2015 at 13:19:13



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

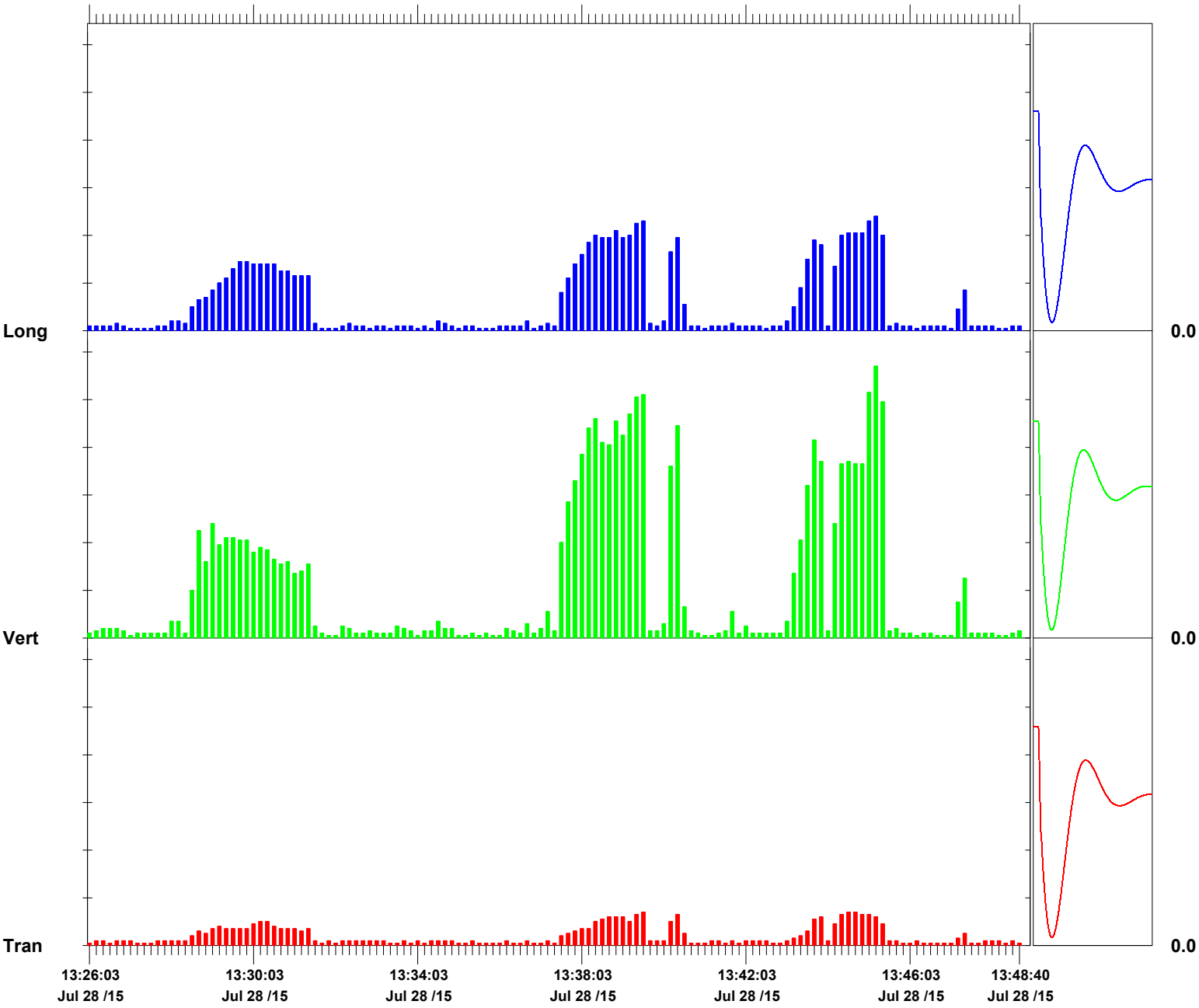
Histogram Start Time 13:25:53 July 28, 2015
Histogram Finish Time 13:48:40 July 28, 2015
Number of Intervals 273.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYCY.N50

Post Event Notes
VMP 7

	Tran	Vert	Long	
PPV	0.0700	0.570	0.240	in/s
ZC Freq	32	32	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	13:39:28	13:45:08	13:45:08	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.611 in/s on July 28, 2015 at 13:45:08



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

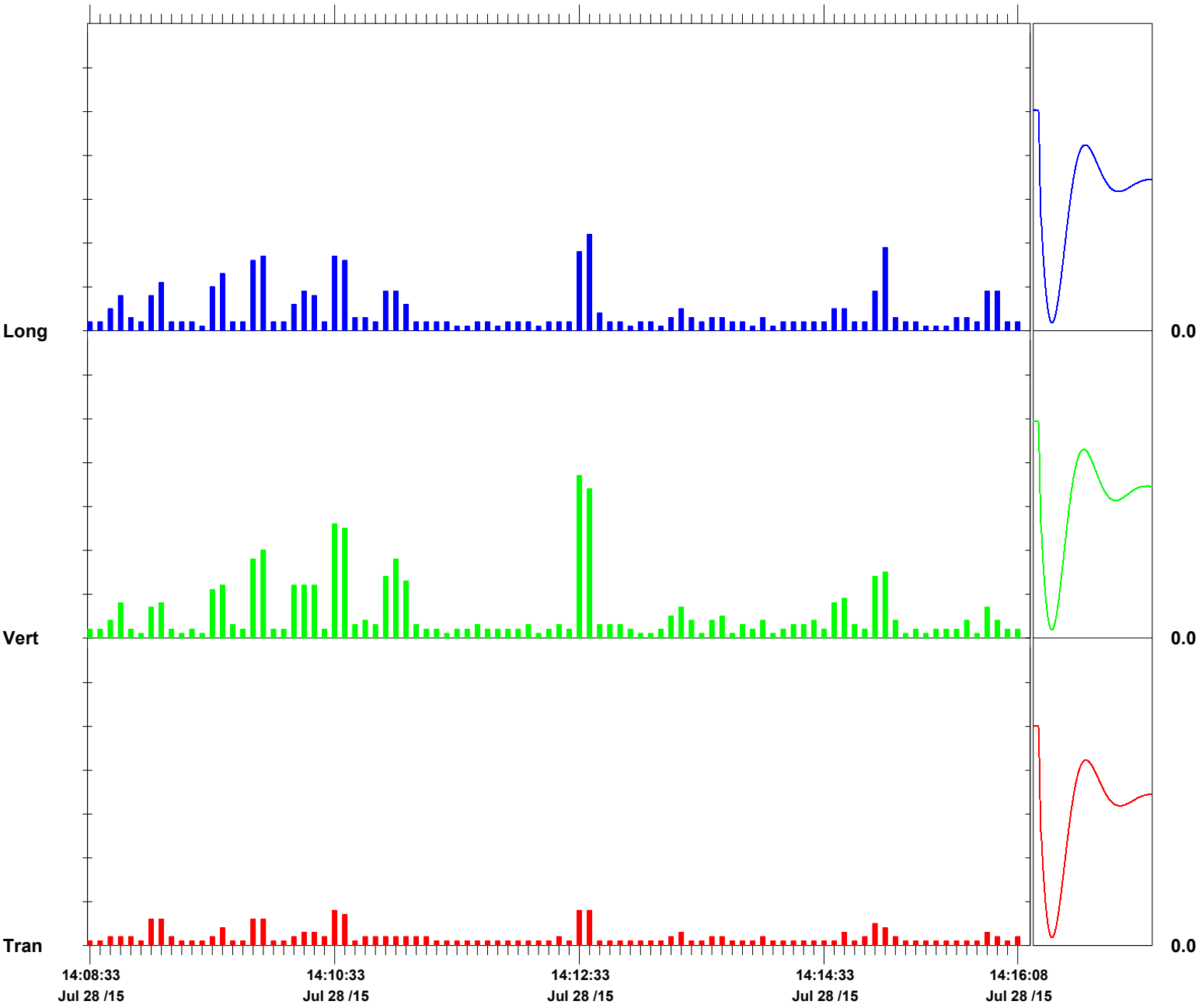
Histogram Start Time 14:08:28 July 28, 2015
Histogram Finish Time 14:16:08 July 28, 2015
Number of Intervals 92.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYD0.M40

Post Event Notes
VMP 6

	Tran	Vert	Long	
PPV	0.0400	0.185	0.110	in/s
ZC Freq	39	37	28	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	14:10:33	14:12:33	14:12:38	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.4	Hz
Overswing Ratio	3.9	3.6	3.8	

Peak Vector Sum 0.203 in/s on July 28, 2015 at 14:12:33



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

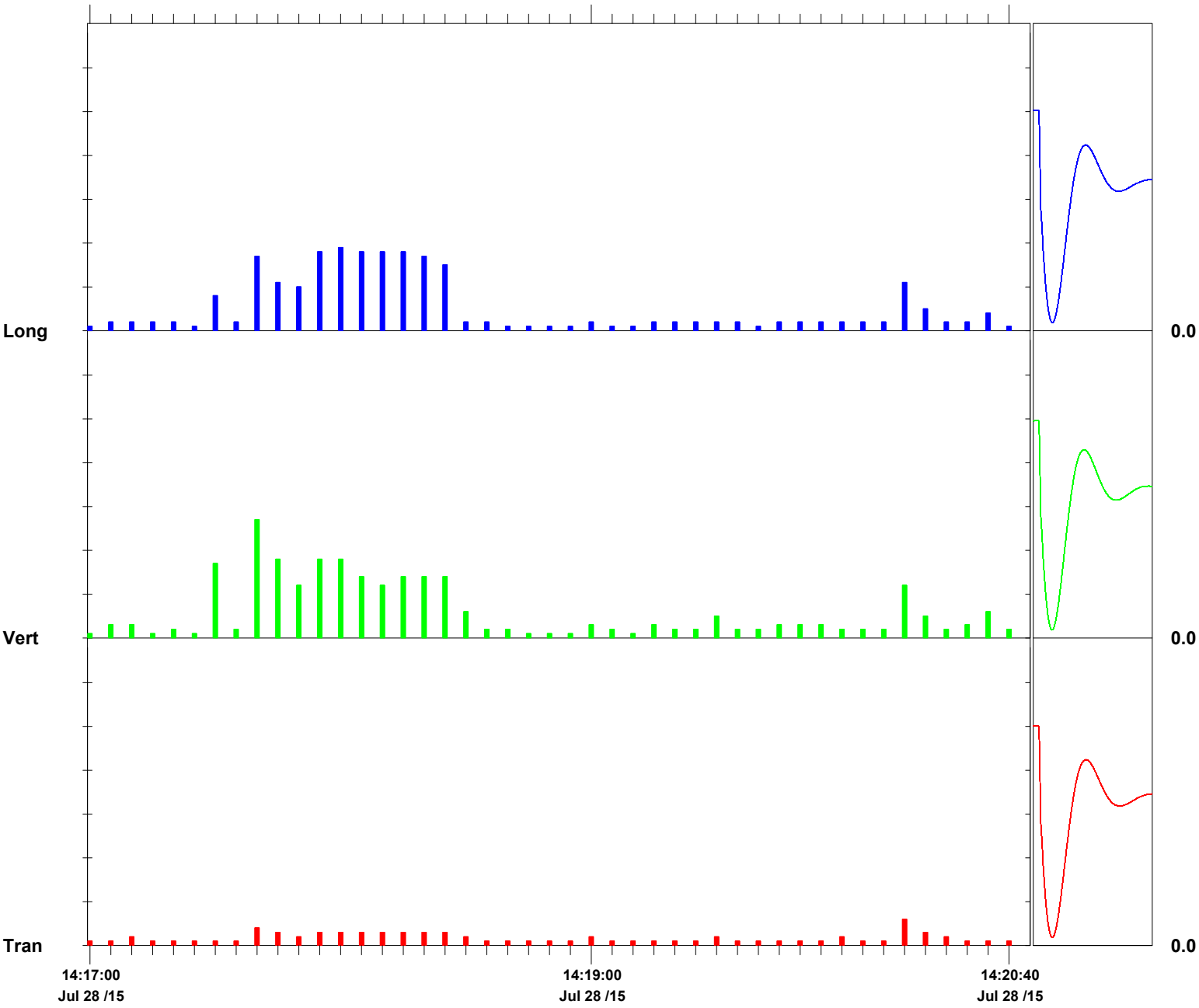
Histogram Start Time 14:16:55 July 28, 2015
Histogram Finish Time 14:20:40 July 28, 2015
Number of Intervals 45.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYD1.070

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0300	0.135	0.0950	in/s
ZC Freq	43	37	32	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	14:20:15	14:17:40	14:18:00	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.8	3.6	3.8	

Peak Vector Sum 0.135 in/s on July 28, 2015 at 14:17:40



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

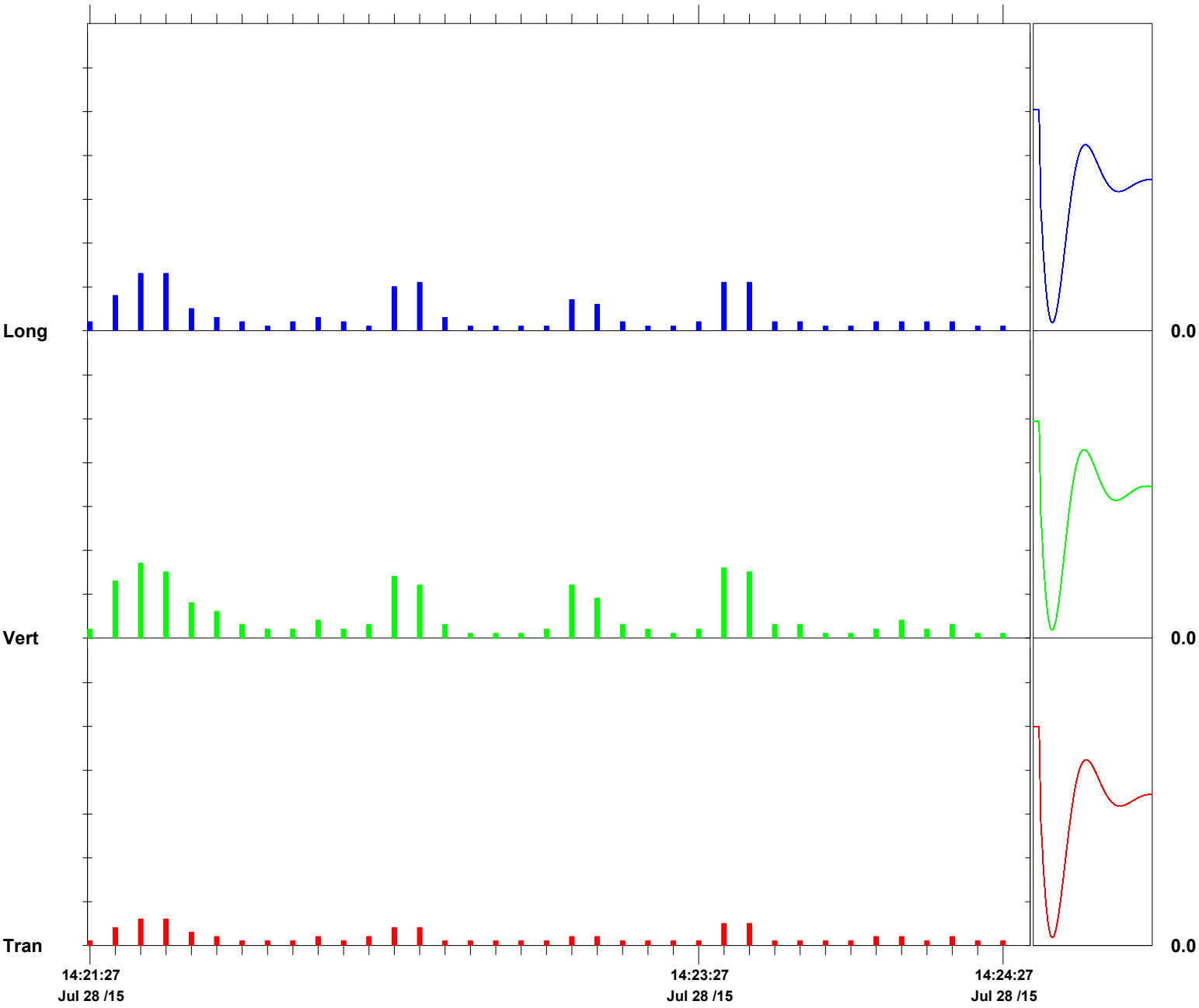
Histogram Start Time 14:21:22 July 28, 2015
Histogram Finish Time 14:24:28 July 28, 2015
Number of Intervals 37.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Gas Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYD1.7M0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0300	0.0850	0.0650	in/s
ZC Freq	32	30	30	Hz
Date	Jul 28 /15	Jul 28 /15	Jul 28 /15	
Time	14:21:37	14:21:37	14:21:37	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	3.8	3.6	3.8	

Peak Vector Sum 0.103 in/s on July 28, 2015 at 14:21:37



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 ~~South~~ North 1/26/17

Prepared by
Geocomp Engineering

July 29th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

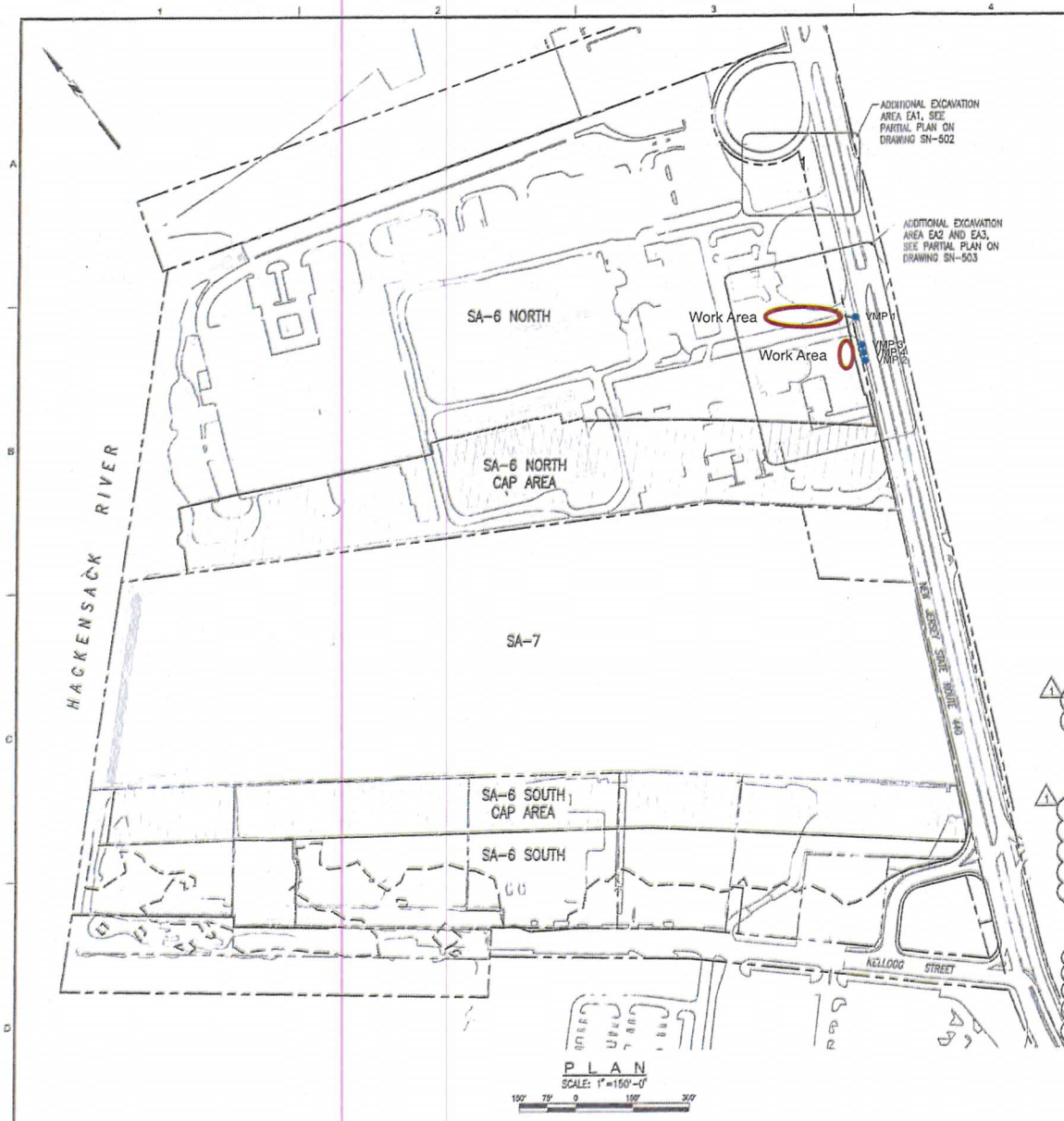
NOTES:

Summary of Work:
Sheet pile driving commenced at 9:30 AM and ended at 2:00 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the water main.

5 sheets were driven and 9 were brought to grade with 6 recorded exceedances, i.e., the 0.5 limit was exceeded at 12:48 PM, 12:57 PM, 1:20 PM, 1:22 PM, 1:25 PM and 1:44 PM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water Main:
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec

Errors:
The top of each report states all data was collected for the force main but should read water main. All future water main data will have the correct label.



Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from rocking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, CMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point, (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

PETER W. NEARING

NO.	DATE	DSGN	DR	CHK	APVD
1	10/31/14	G.S.	B.B.	G.P.	P.W.D.
0	09/17/13				

REVISION

1 ISSUED FOR NJDOT REVIEW GP
0 ISSUED FOR CONSTRUCTION FMD BS' APVD

NJ PROFESSIONAL ENGINEER
PETER W. NEARING
NJ LICENSE NUMBER GE 46522

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Honeywell
101 COLUMBIA RD. P.O. BOX 2245, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STORAGE AREA NORTH
SITES 007 AND 008
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL

TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 Horizon Blvd, Suite 113
Hamilton, NJ. 08619
(609) 890 - 2929
NJ Certificate of Authorization Number 24GA28018600

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 52 OF 70

Instantel

Event Report

Histogram Start Time	09:25:50 July 29, 2015
Histogram Finish Time	10:09:35 July 29, 2015
Number of Intervals	525.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

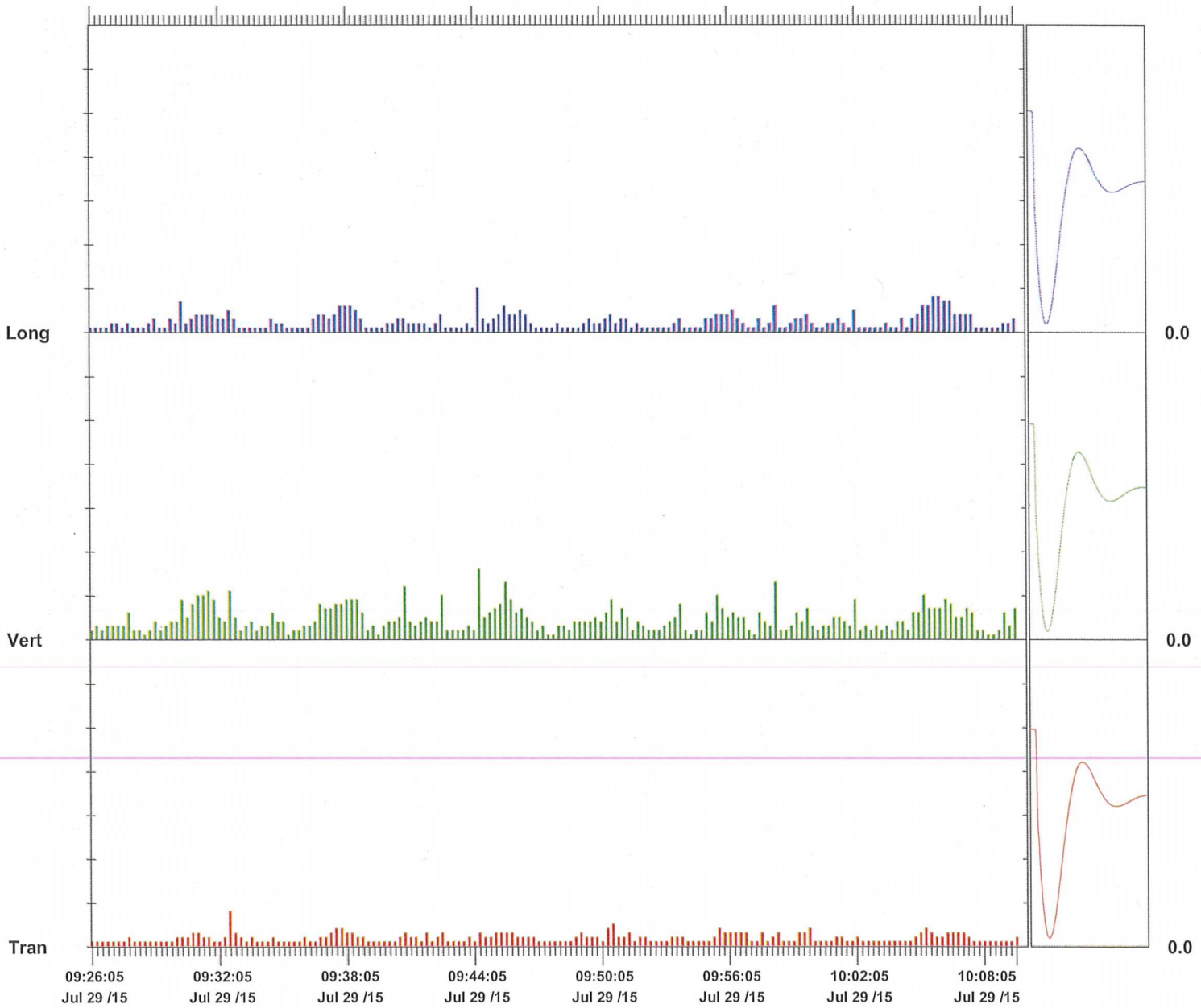
Notes
Location: SA 6 ~~South~~ North Force Main
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street~~ and Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYEI.720

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0400	0.0800	0.0500	in/s
ZC Freq	8.4	15	15	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	09:32:25	09:44:10	09:44:10	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.0955 in/s on July 29, 2015 at 09:44:10



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Instantel

Event Report

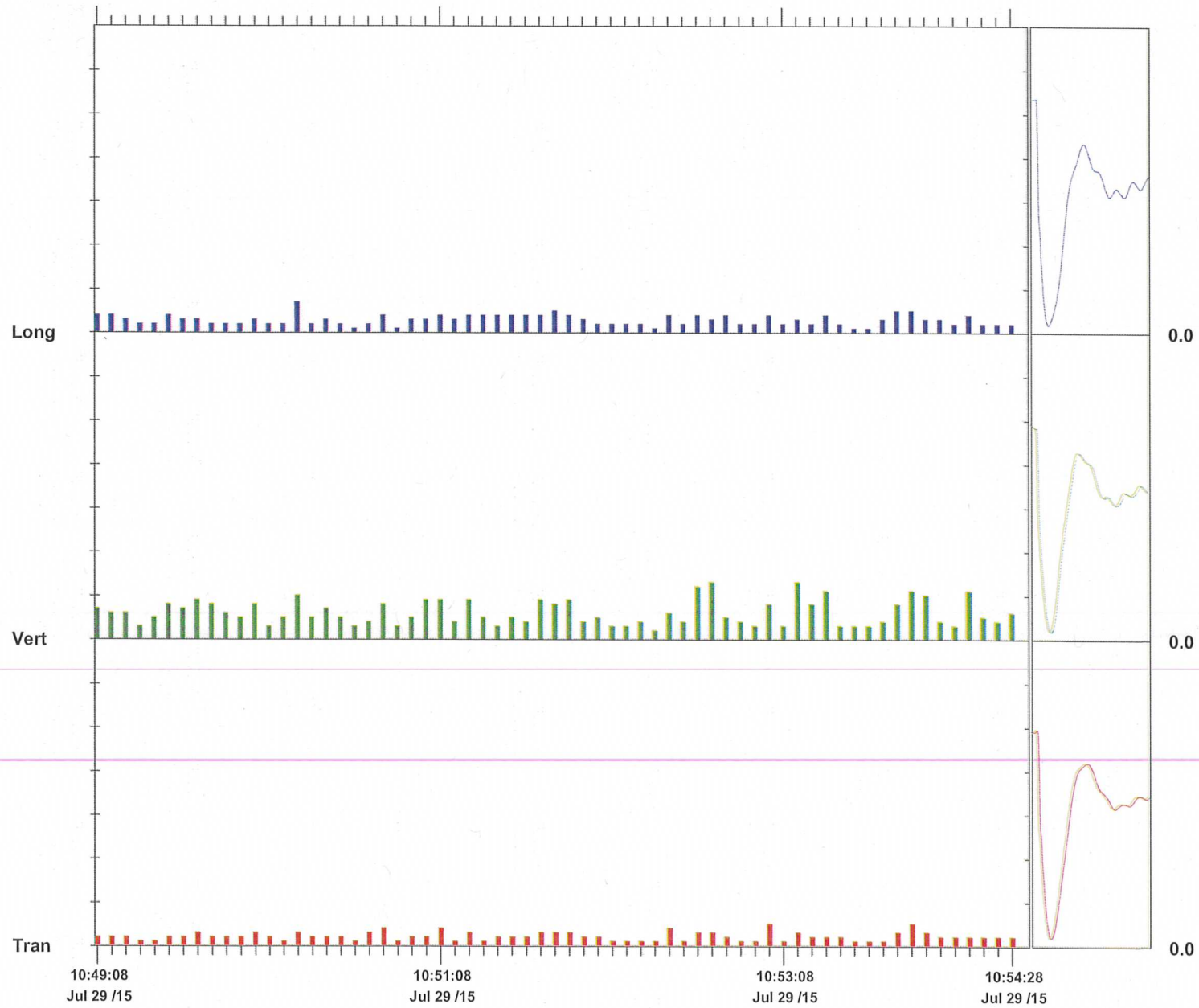
Histogram Start Time	10:49:03 July 29, 2015
Histogram Finish Time	10:54:30 July 29, 2015
Number of Intervals	65.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and Route 440~~ 5 1/29/15

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYEM.1R0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0250	0.0650	0.0350	in/s
ZC Freq	6.5	9.0	23	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	10:53:03	10:52:43	10:50:18	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.5	Hz
Overswing Ratio	4.1	3.7	3.4	

Peak Vector Sum 0.0669 in/s on July 29, 2015 at 10:52:43



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

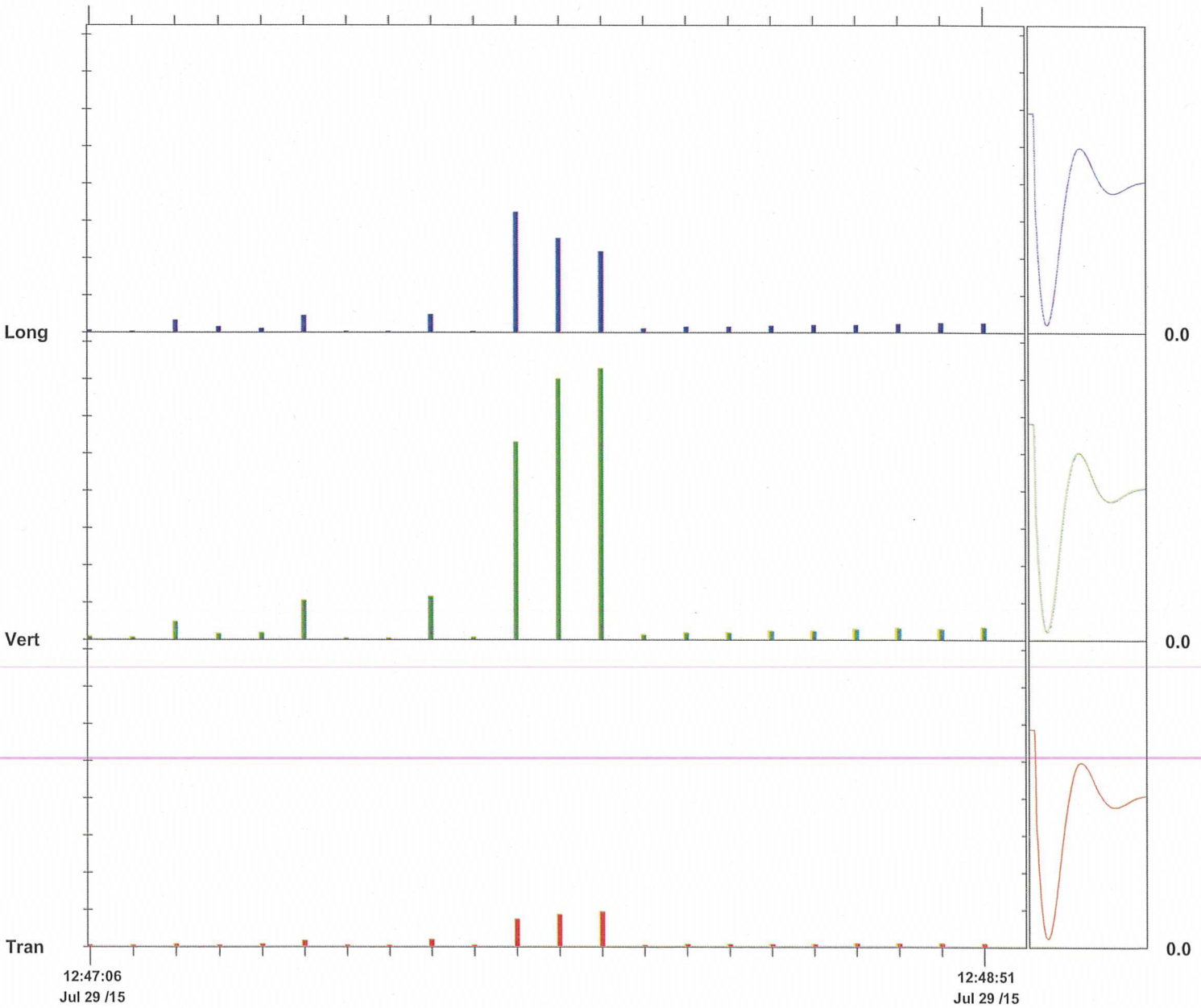
Histogram Start Time	12:47:01 July 29, 2015
Histogram Finish Time	12:48:52 July 29, 2015
Number of Intervals	22.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYER.ID0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.185	1.45	0.645	in/s
ZC Freq	43	39	28	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	12:48:06	12:48:06	12:47:56	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	3.9	

Peak Vector Sum 1.49 in/s on July 29, 2015 at 12:48:06



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

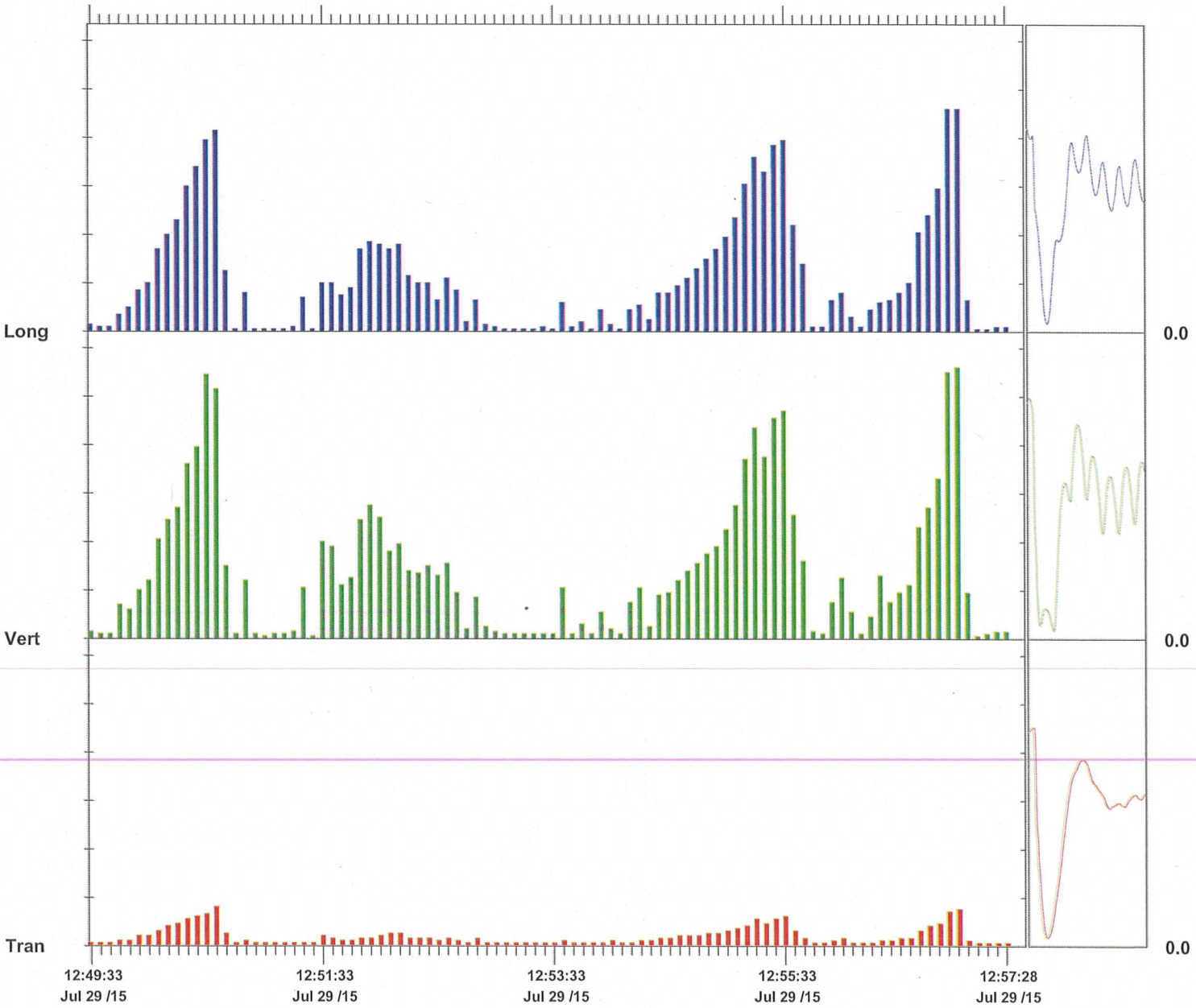
Histogram Start Time	12:49:28 July 29, 2015
Histogram Finish Time	12:57:30 July 29, 2015
Number of Intervals	96.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYER.MG0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0800	0.560	0.460	in/s
ZC Freq	37	30	32	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	12:50:38	12:57:03	12:56:58	
Sensor Check	Passed	Check	Passed	
Frequency	7.3	8.3	7.2	Hz
Overswing Ratio	3.8	19.1	2.9	

Peak Vector Sum 0.707 in/s on July 29, 2015 at 12:56:58



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

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Event Report

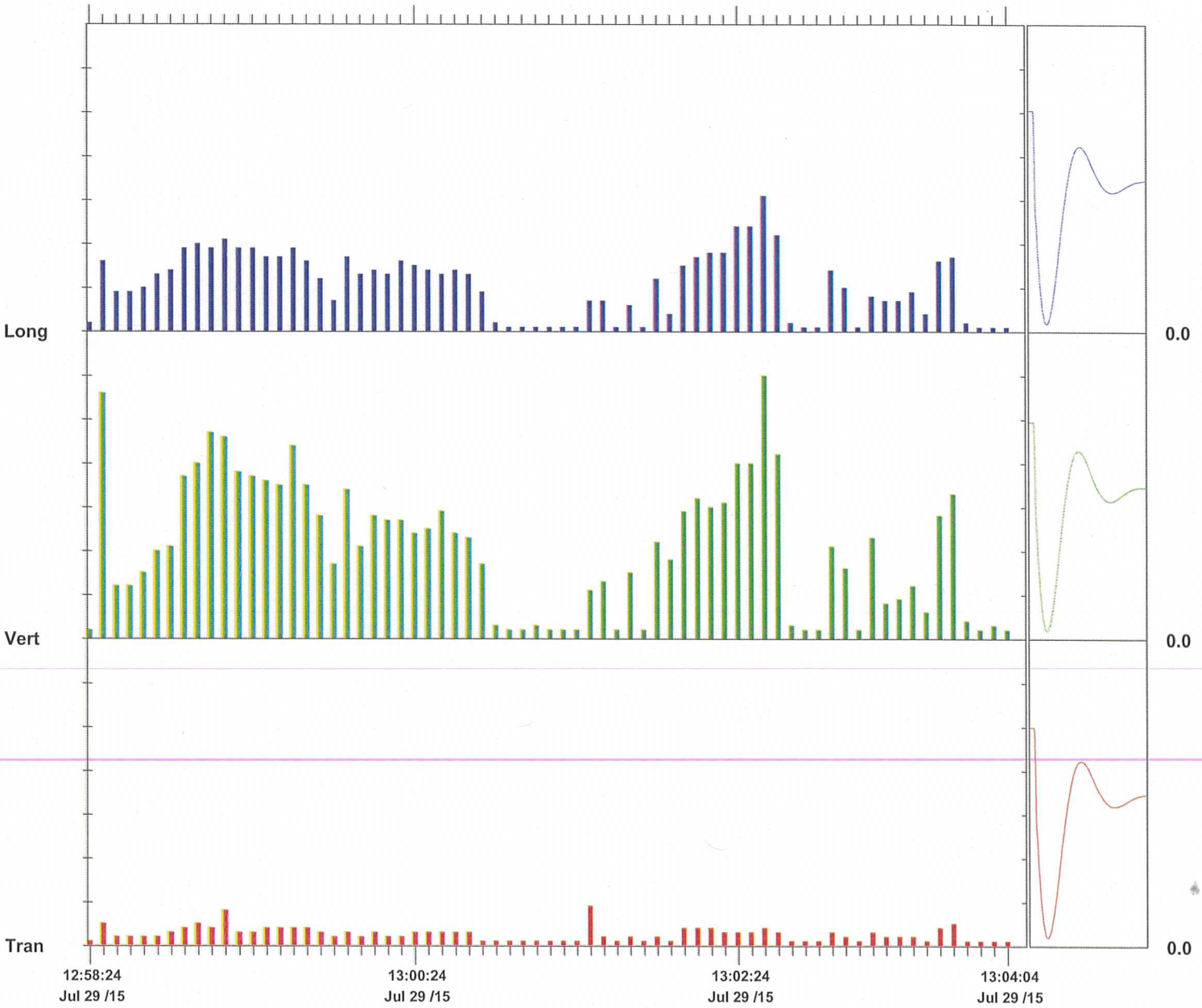
Histogram Start Time	12:58:19 July 29, 2015
Histogram Finish Time	13:04:07 July 29, 2015
Number of Intervals	69.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYES.170

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0450	0.300	0.155	in/s
ZC Freq	34	32	34	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:01:29	13:02:34	13:02:34	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.338 in/s on July 29, 2015 at 13:02:34



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Instantel

Event Report

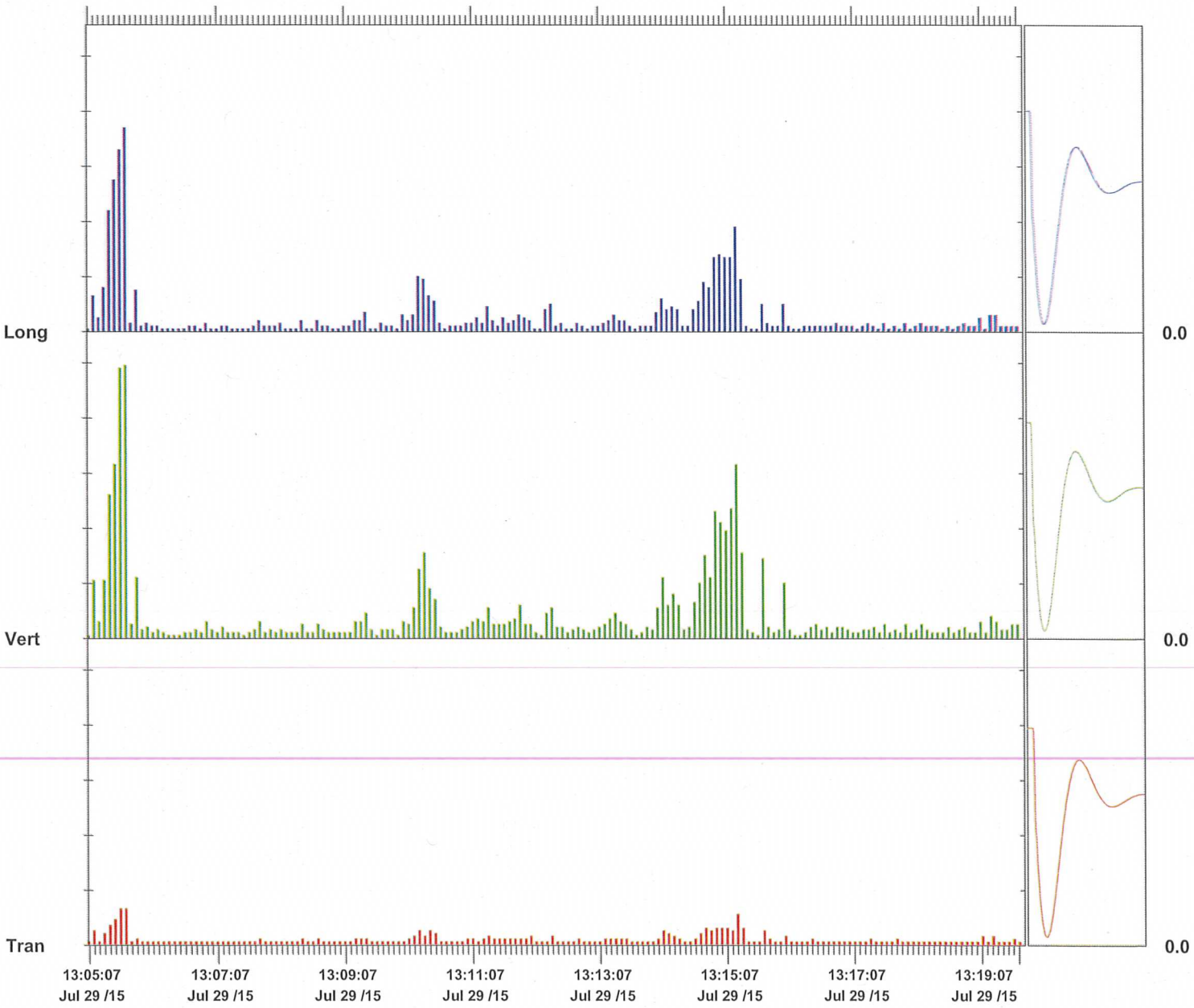
Histogram Start Time	13:05:02 July 29, 2015
Histogram Finish Time	13:19:43 July 29, 2015
Number of Intervals	176.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYES.CE0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0650	0.495	0.370	in/s
ZC Freq	37	32	32	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:05:37	13:05:42	13:05:42	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.8	3.6	3.9	

Peak Vector Sum 0.581 in/s on July 29, 2015 at 13:05:42



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

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Event Report

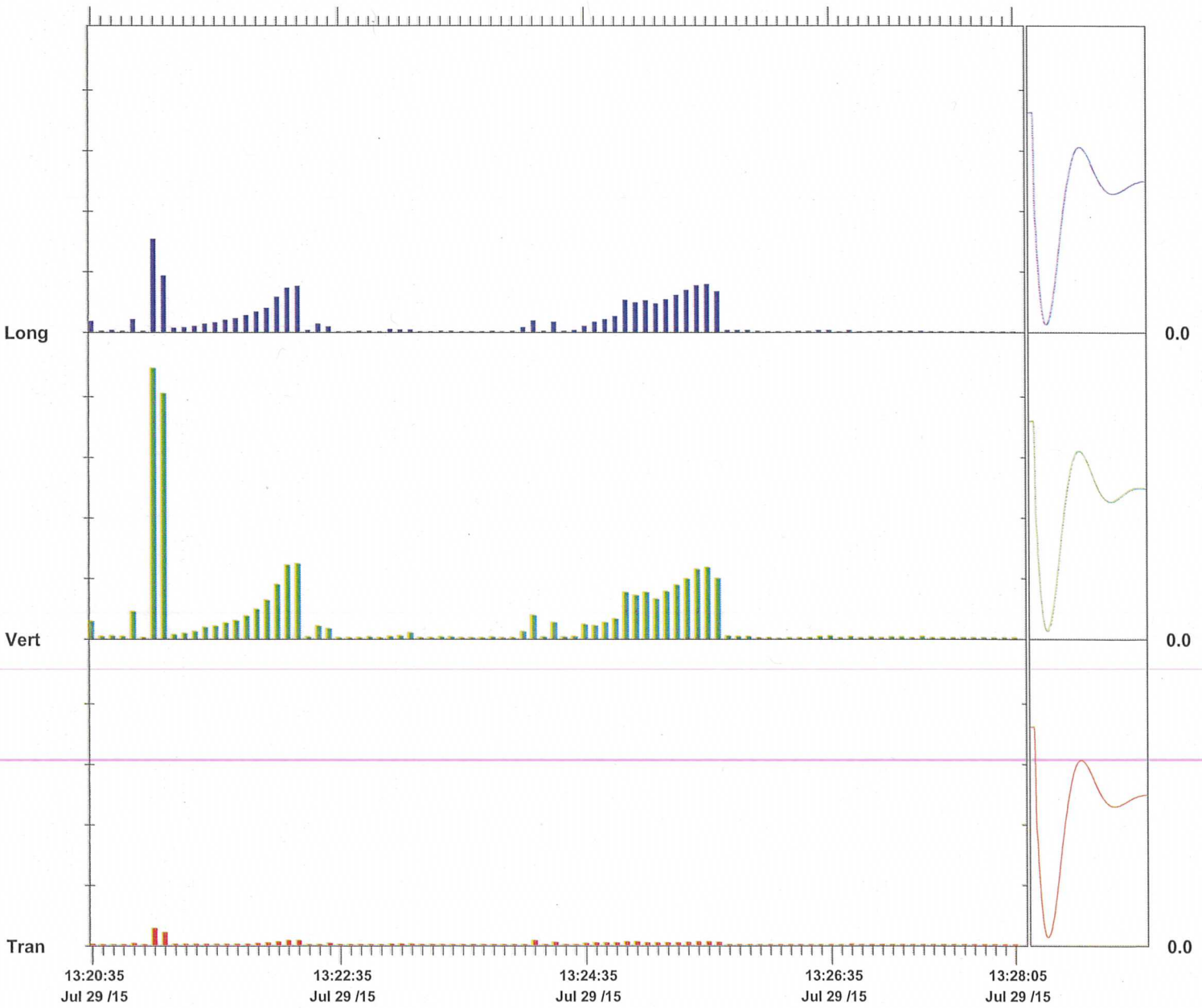
Histogram Start Time	13:20:30 July 29, 2015
Histogram Finish Time	13:28:05 July 29, 2015
Number of Intervals	91.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYET.260

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.140	2.23	0.770	in/s
ZC Freq	47	37	28	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:21:05	13:21:05	13:21:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.8	3.6	3.9	

Peak Vector Sum 2.24 in/s on July 29, 2015 at 13:21:05



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div

Sensor Check

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Event Report

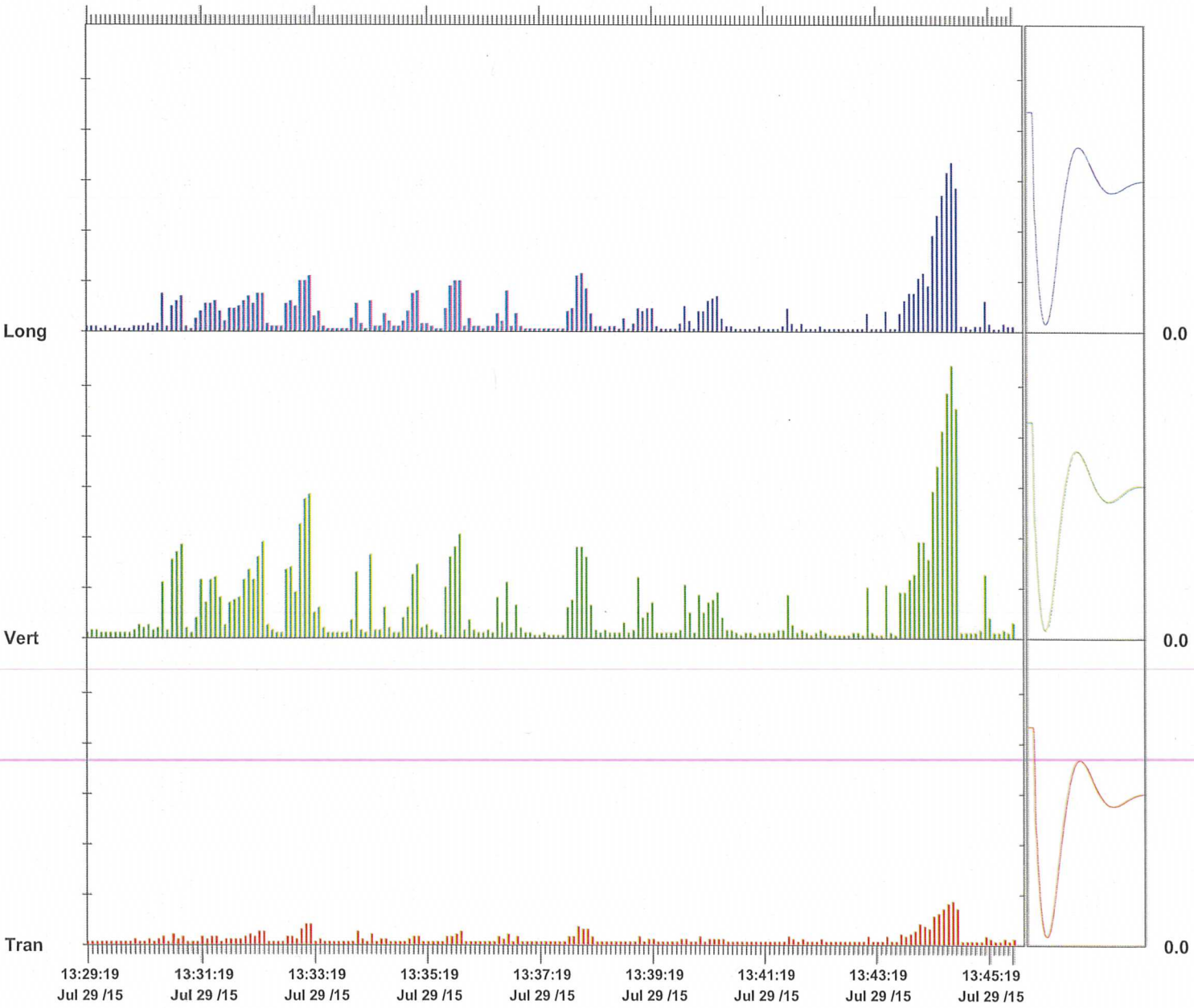
Histogram Start Time	13:29:14 July 29, 2015
Histogram Finish Time	13:45:45 July 29, 2015
Number of Intervals	198.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Force Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYET.GQ0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0850	0.540	0.335	in/s
ZC Freq	32	32	34	Hz
Date	Jul 29 /15	Jul 29 /15	Jul 29 /15	
Time	13:44:39	13:44:39	13:44:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.629 in/s on July 29, 2015 at 13:44:39



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 ~~South~~ North 1/26/17

Prepared by
Geocomp Engineering

July 31th, 2015
For ENTACT, LLC

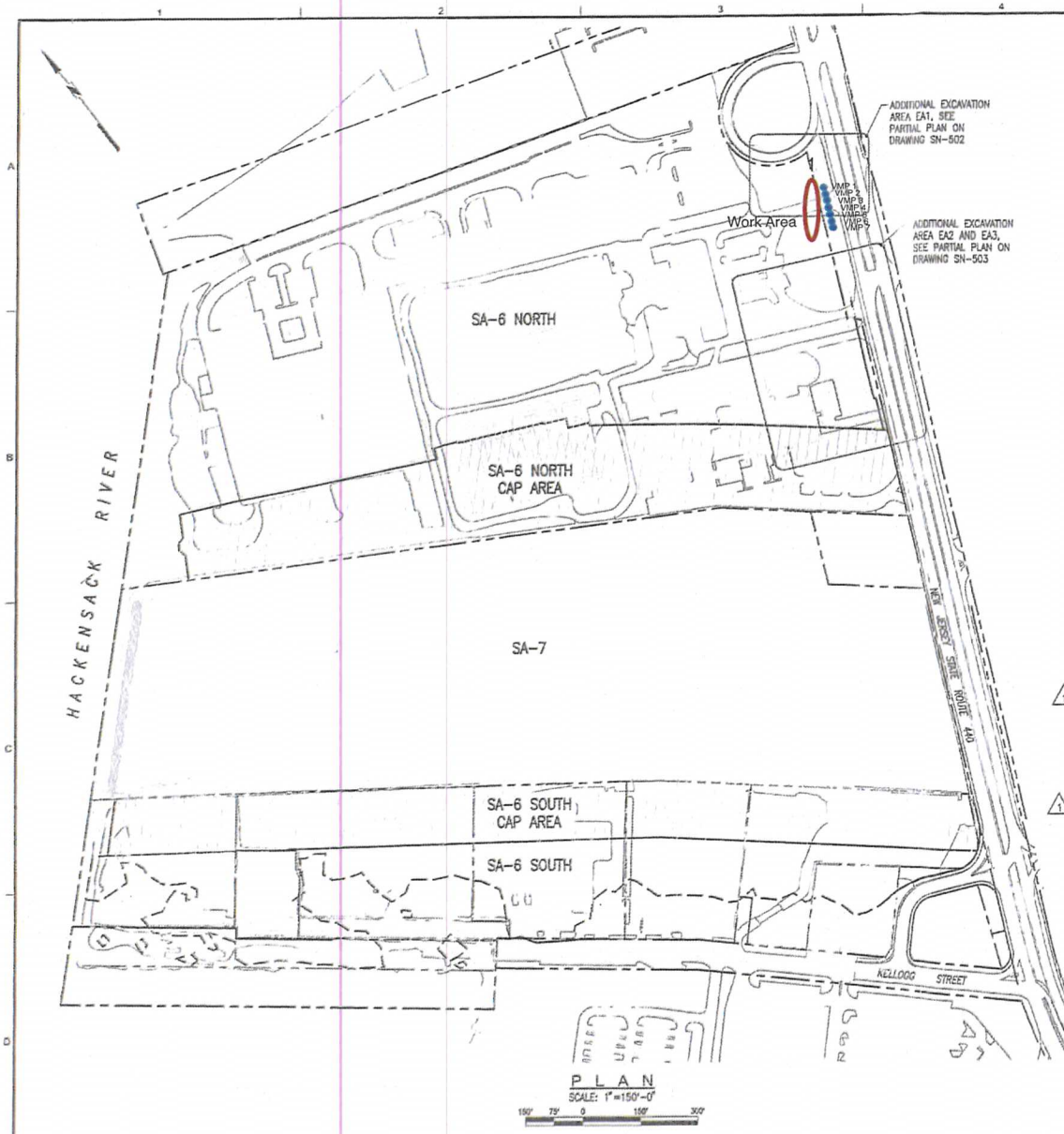
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 7:50 AM and ended at 2:30 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas main.

23 sheets were driven 2 recorded exceedances, i.e., the 2.0 limit was exceeded at 1:22 PM and 1:25 PM. The 1:25 PM spike was caused by the machine being knocked and was unrelated to construction activities. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Main:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec



Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point, (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

FILE NUMBER 11173

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

Honeywell
101 ERVINE RD., SUITE 105, EWING, NJ 07628

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

NO.	DATE		
1	10/31/14	ISSUED FOR NJDOT REVIEW	GP
0	05/17/13	ISSUED FOR CONSTRUCTION	FWD
		REVISION	BY
DSGN	G.S.	DR	
	B.B.	CHK	APVD
	G.P.		APVD

PETER W. REAPING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE 49022
F.W.D.

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 890-1892
NJ Certificate of Authorization Number 24GA27993600

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 62 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL DESIGNS AND INTELLECTUAL PROPERTIES EMBODIED THEREIN. IT IS CONFIDENTIAL AND IS NOT TO BE REPRODUCED, PUBLISHED OR USED IN WHOLE OR PART, FOR THE MATERIAL DESCRIBED THEREIN, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PLACE TO BY AMEC.

FILE NAME: G:\DMC\SITES\11173\DGN\11173DGN-SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:19 AM

Instantel

Event Report

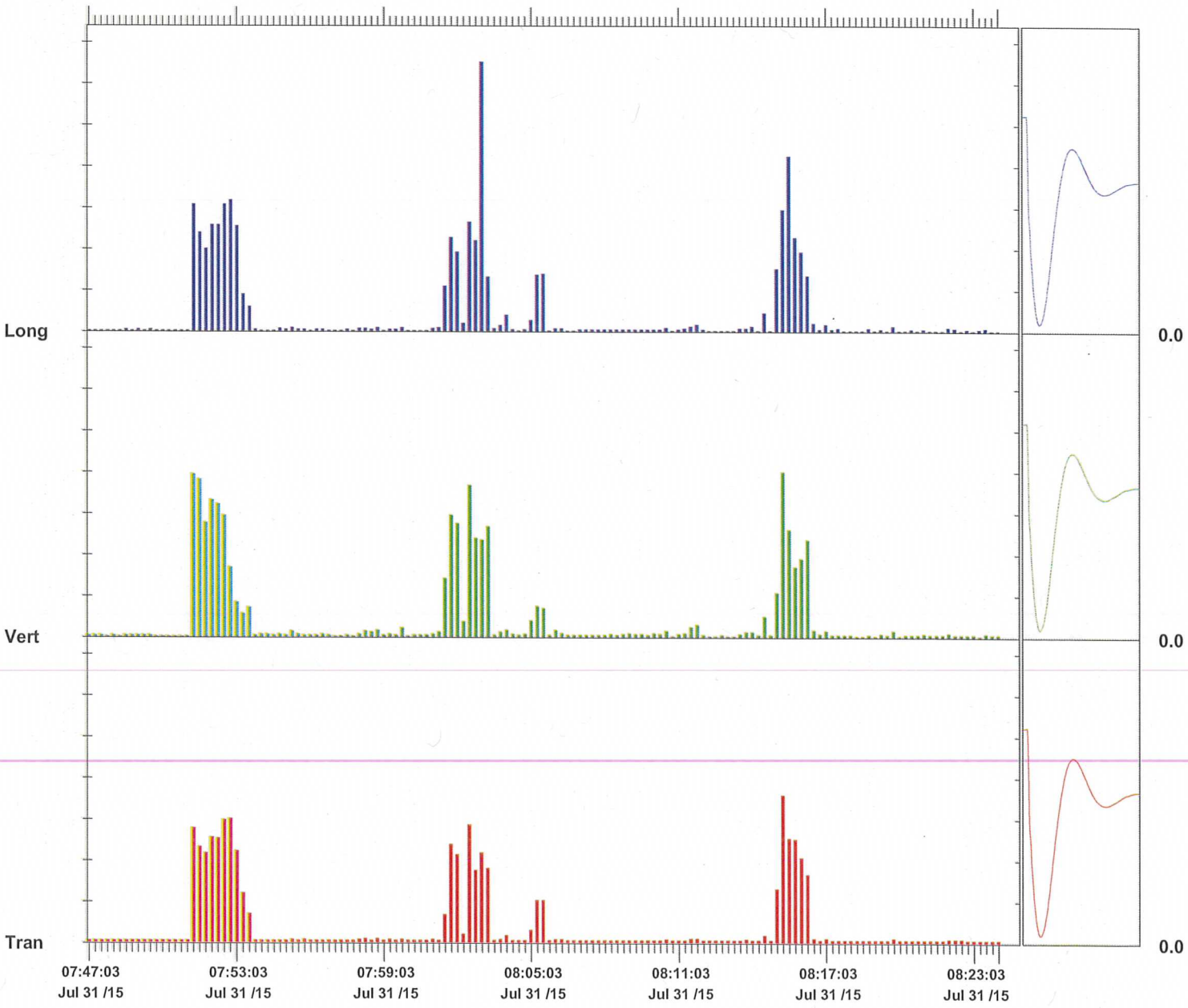
Histogram Start Time	07:46:48 July 31, 2015
Histogram Finish Time	08:23:54 July 31, 2015
Number of Intervals	445.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYI2.Y00

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.715	0.800	1.30	in/s
ZC Freq	39	39	47	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	08:15:13	08:15:13	08:02:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 1.32 in/s on July 31, 2015 at 08:02:53



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

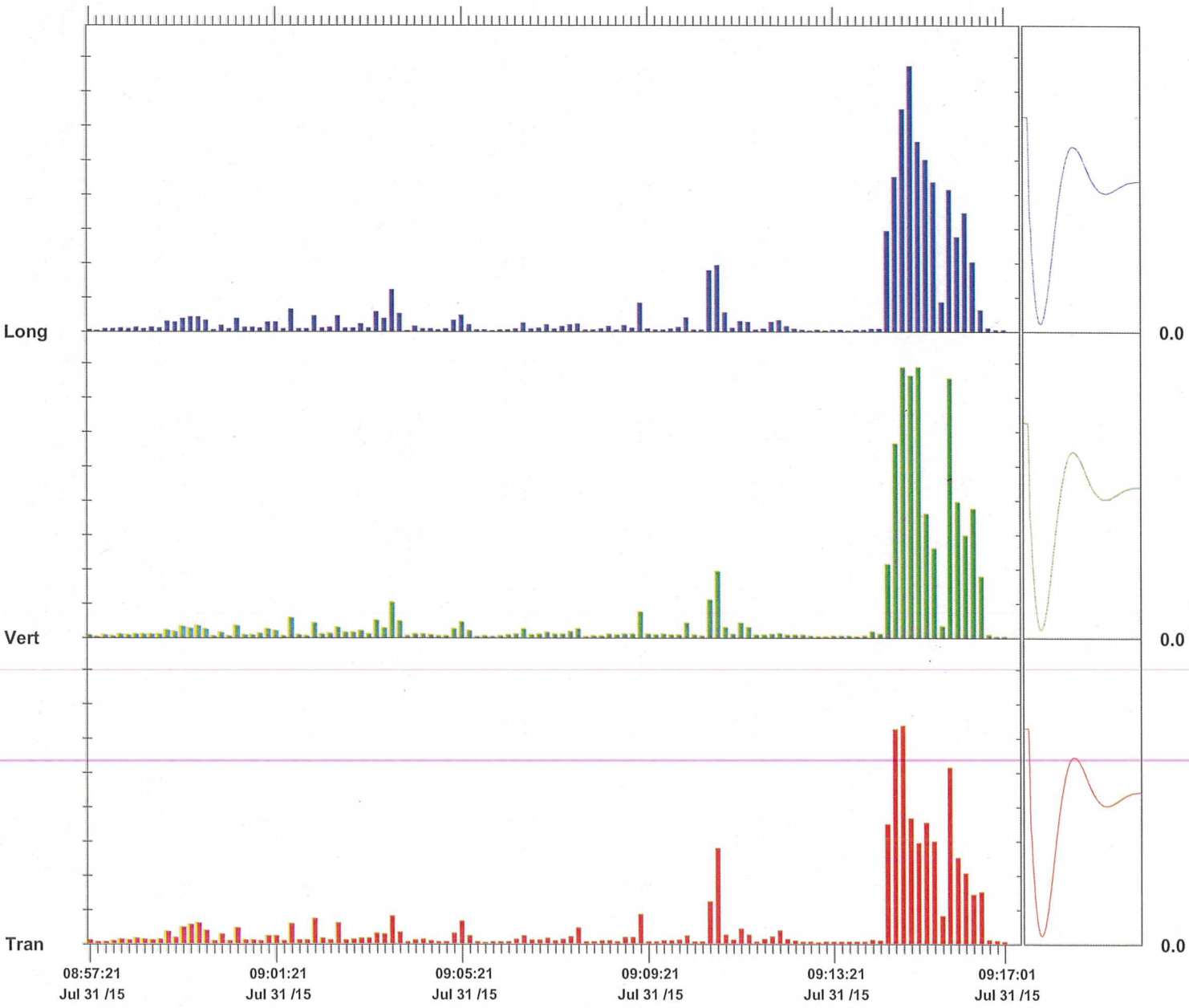
Histogram Start Time	08:57:11 July 31, 2015
Histogram Finish Time	09:17:05 July 31, 2015
Number of Intervals	238.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/22/15

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYI6.7B0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	1.27	1.57	1.54	in/s
ZC Freq	28	39	43	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	09:14:46	09:14:51	09:14:56	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.7	3.8	

Peak Vector Sum 1.81 in/s on July 31, 2015 at 09:14:46



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

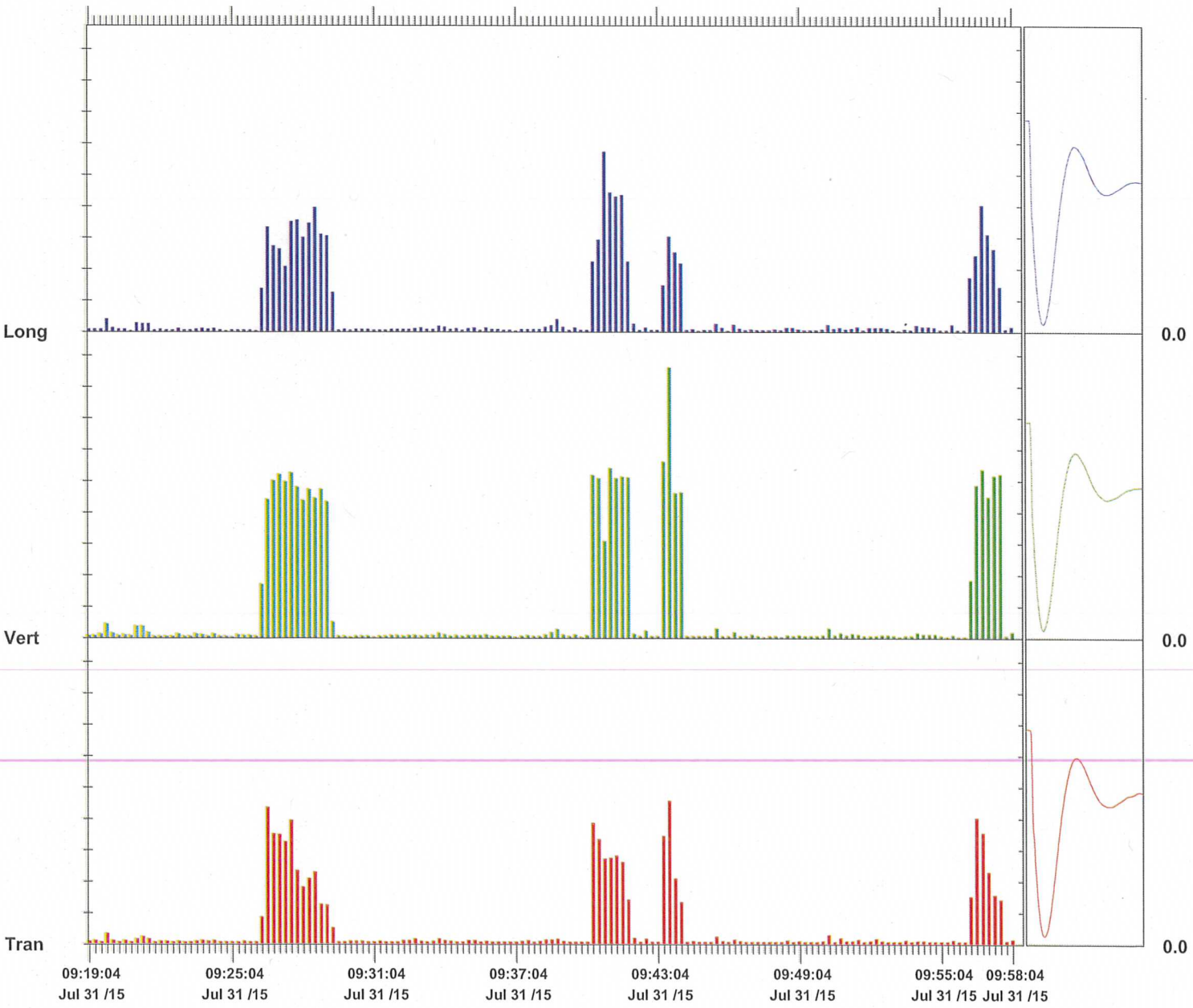
Histogram Start Time 09:18:49 July 31, 2015
Histogram Finish Time 09:58:06 July 31, 2015
Number of Intervals 471.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South~~ North Gas Main
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYI7.7D0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.910	1.72	1.14	in/s
ZC Freq	32	30	23	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	09:43:29	09:43:24	09:40:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.77 in/s on July 31, 2015 at 09:43:24



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

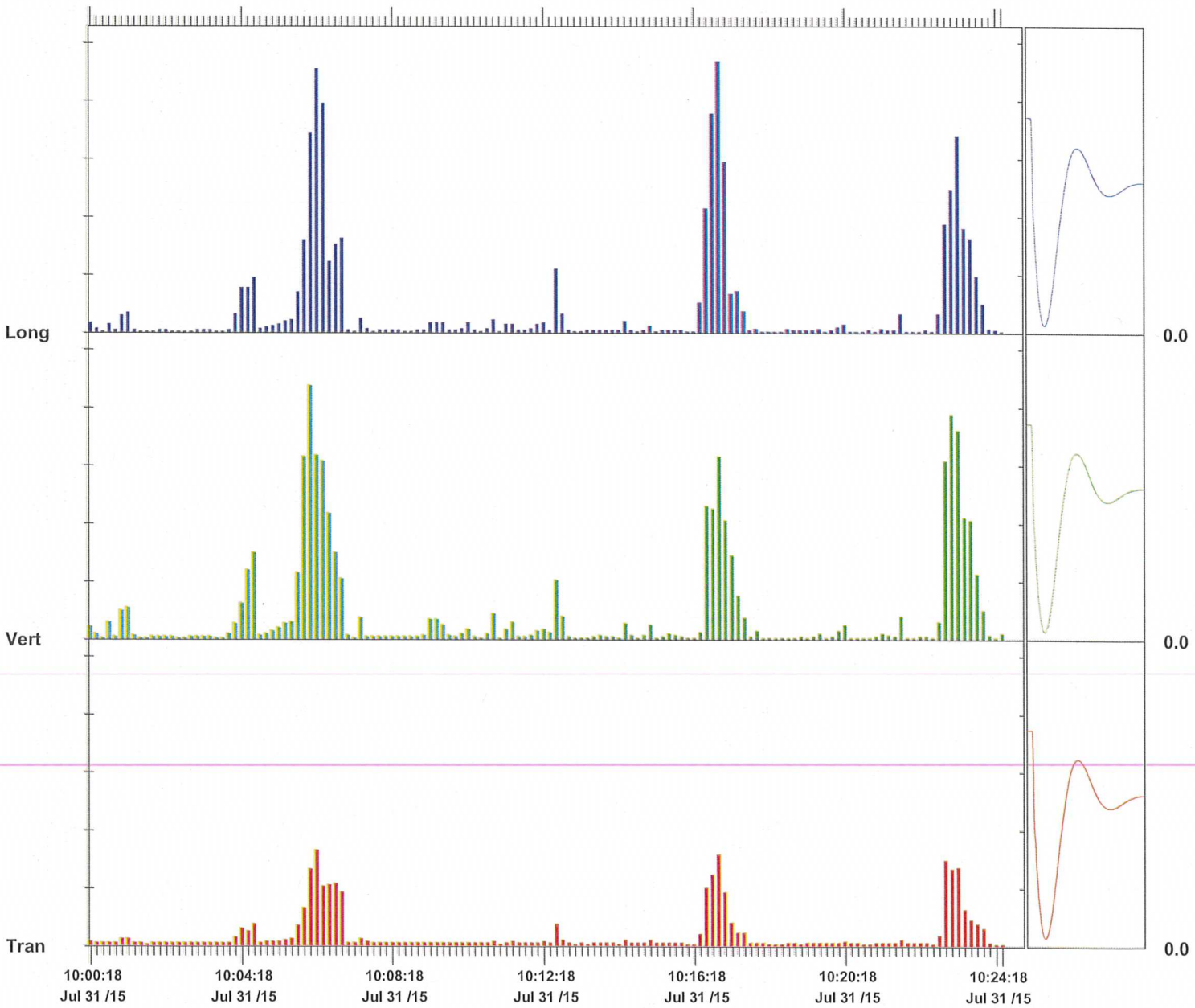
Histogram Start Time	10:00:08 July 31, 2015
Histogram Finish Time	10:24:31 July 31, 2015
Number of Intervals	292.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYI9.480

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.330	0.875	0.935	in/s
ZC Freq	39	28	43	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	10:06:13	10:06:03	10:16:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.3	Hz
Overswing Ratio	3.6	3.7	3.8	

Peak Vector Sum 1.04 in/s on July 31, 2015 at 10:06:18



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

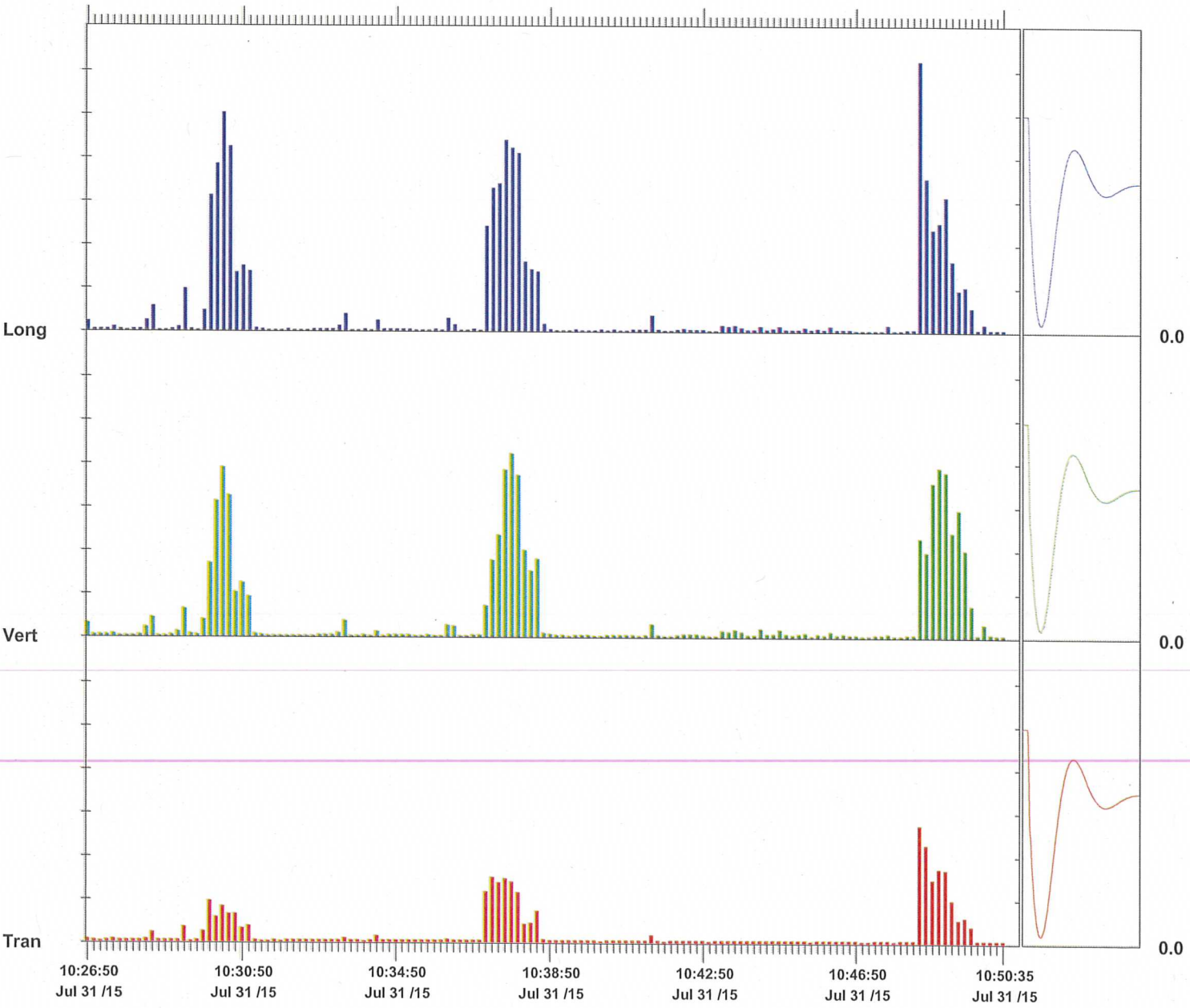
Histogram Start Time	10:26:40 July 31, 2015
Histogram Finish Time	10:50:35 July 31, 2015
Number of Intervals	287.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYIA.CG0

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.540	0.845	1.24	in/s
ZC Freq	26	37	23	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	10:48:30	10:37:50	10:48:30	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.31 in/s on July 31, 2015 at 10:48:30



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

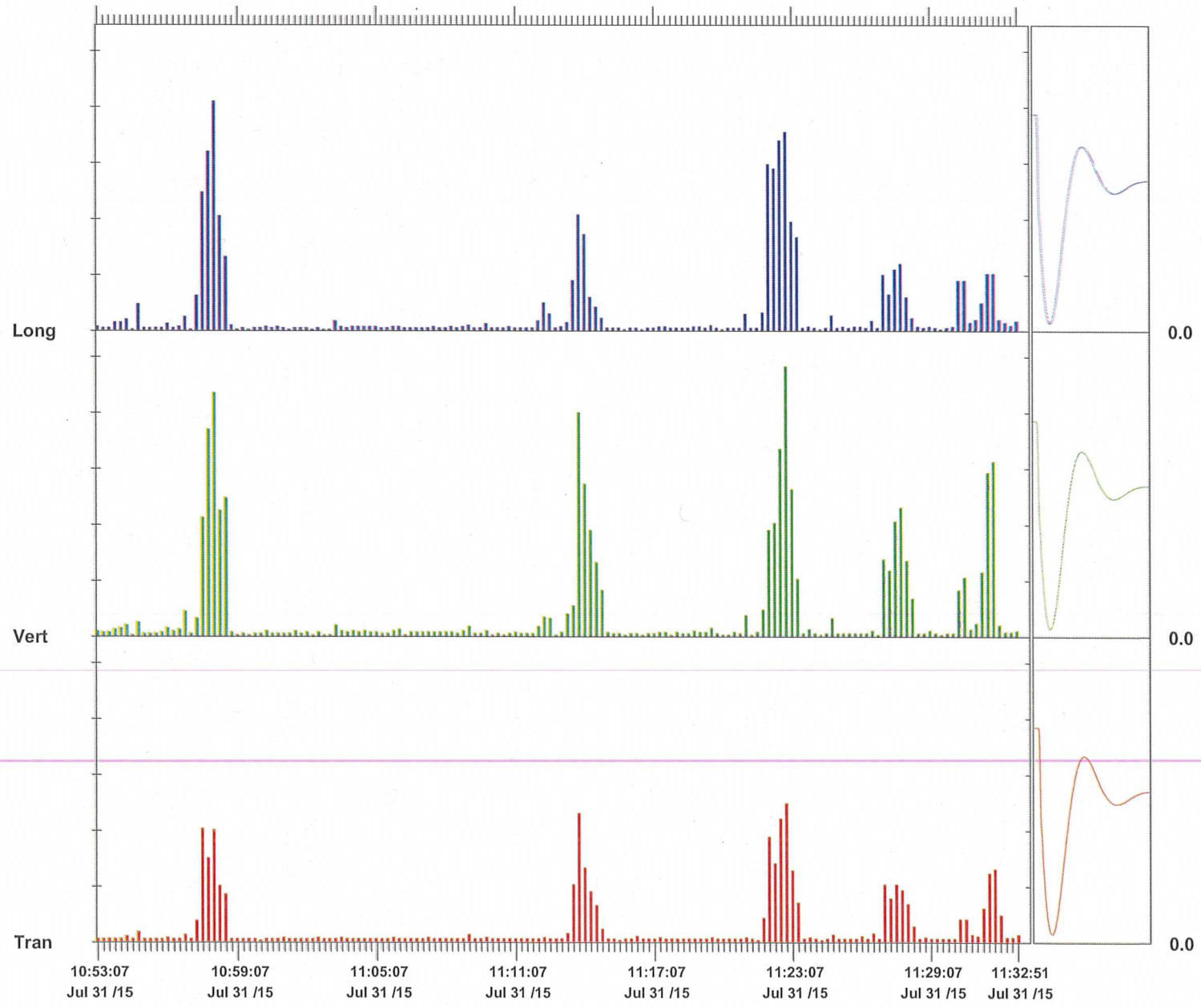
Histogram Start Time	10:52:52 July 31, 2015
Histogram Finish Time	11:32:51 July 31, 2015
Number of Intervals	479.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 6/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYIB.K40

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.495	0.965	0.820	in/s
ZC Freq	39	39	43	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	11:22:47	11:22:47	10:58:02	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.07 in/s on July 31, 2015 at 10:58:02



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

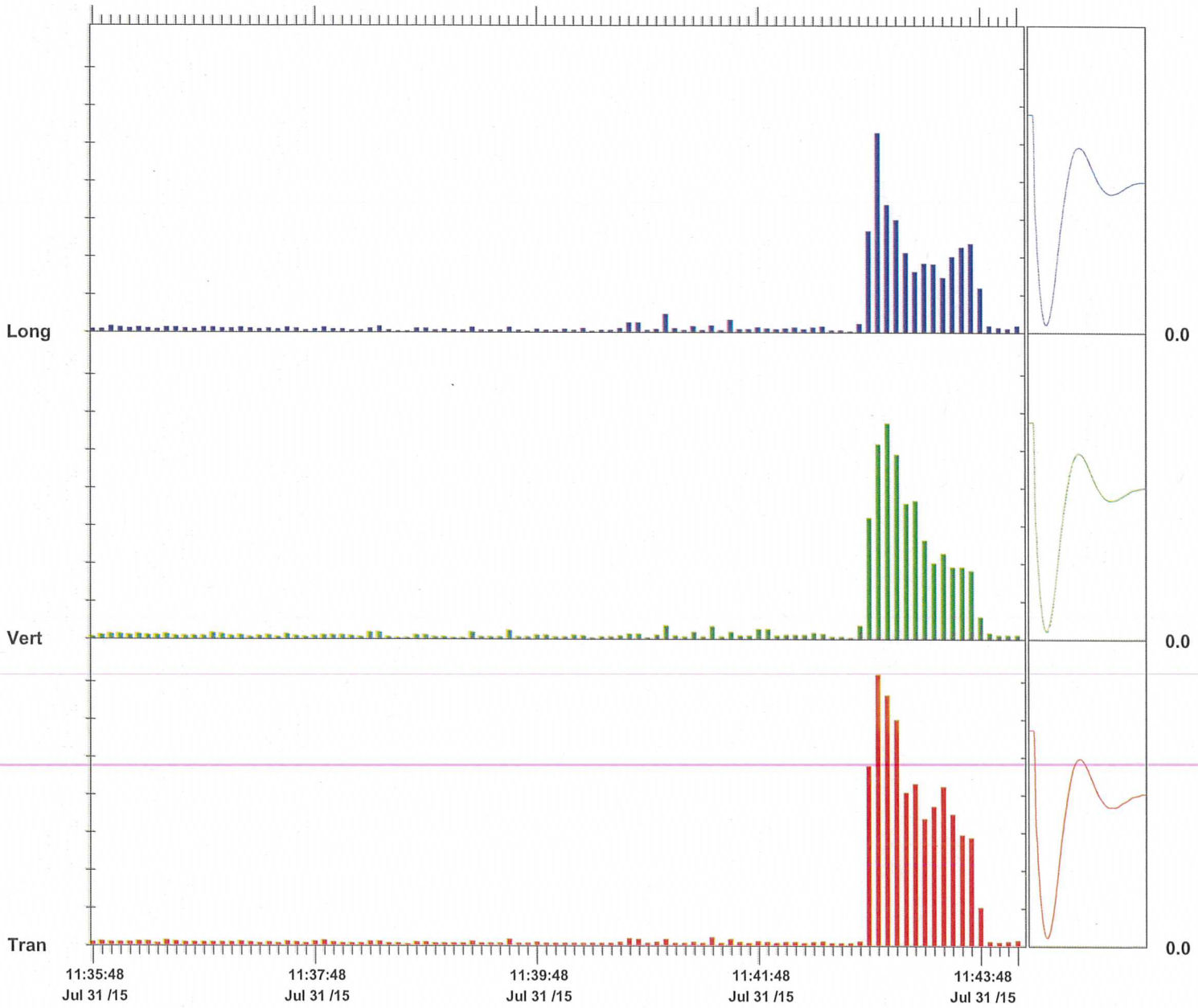
Histogram Start Time	11:35:43 July 31, 2015
Histogram Finish Time	11:44:10 July 31, 2015
Number of Intervals	101.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYID.JJ0

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	1.43	1.14	1.05	in/s
ZC Freq	28	43	30	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	11:42:53	11:42:58	11:42:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.6	3.8	3.8	

Peak Vector Sum 1.98 in/s on July 31, 2015 at 11:42:53



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

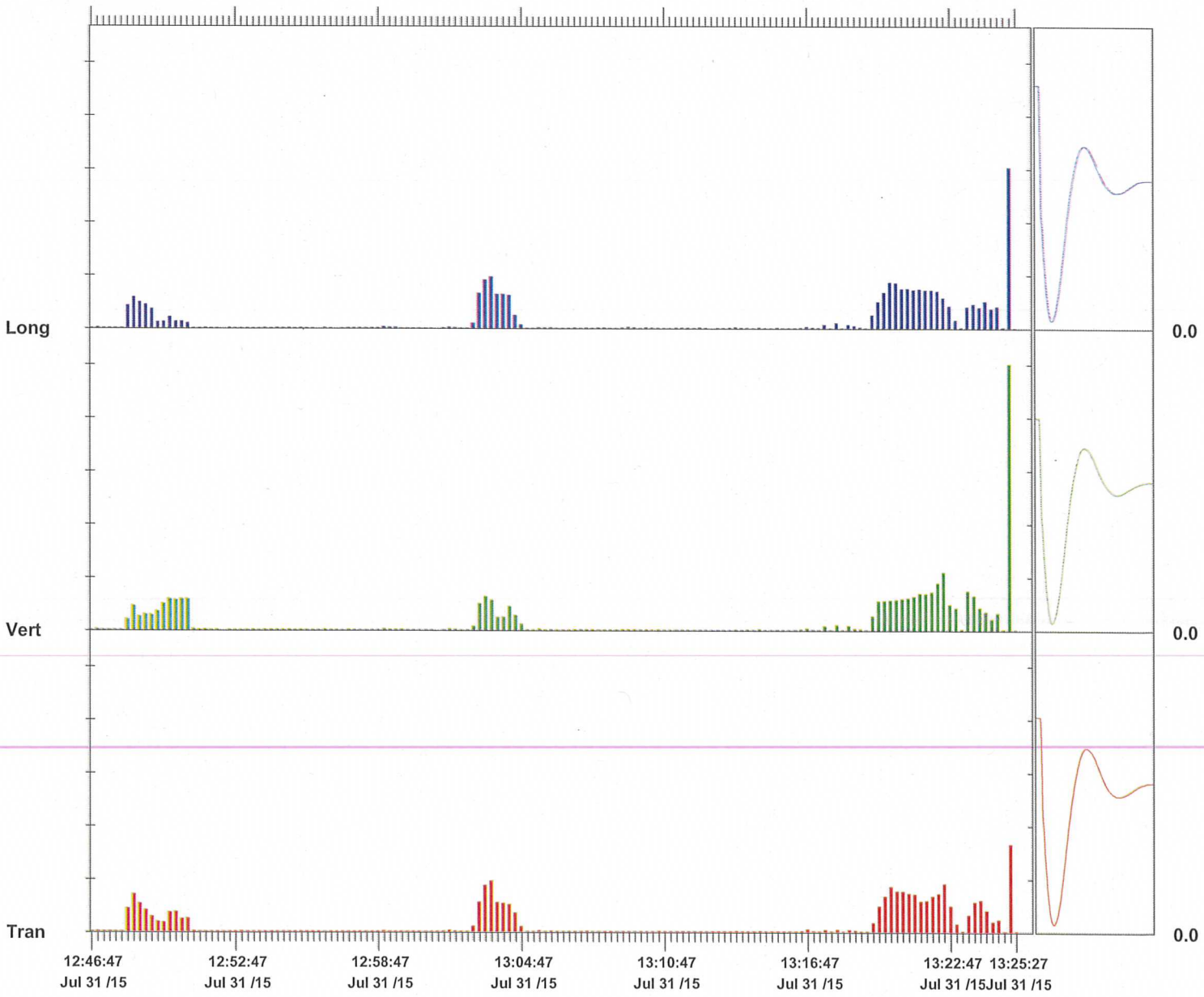
Histogram Start Time	12:46:32 July 31, 2015
Histogram Finish Time	13:25:27 July 31, 2015
Number of Intervals	466.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYIG.TK0

Post Event Notes
VMP 6
Machine was knocked giving the 9.1 spike. Please ignore it.

	Tran	Vert	Long	
PPV	3.29	***	6.06	in/s
ZC Freq	1.7	9.1	3.7	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	13:25:17	13:25:17	13:25:17	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.6	Hz
Overswing Ratio	3.6	3.8	3.8	

Peak Vector Sum *** in/s on July 31, 2015 at 13:25:17
*** **: Out of Range**



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 2.00 in/s/div

Sensor Check

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Instantel

Event Report

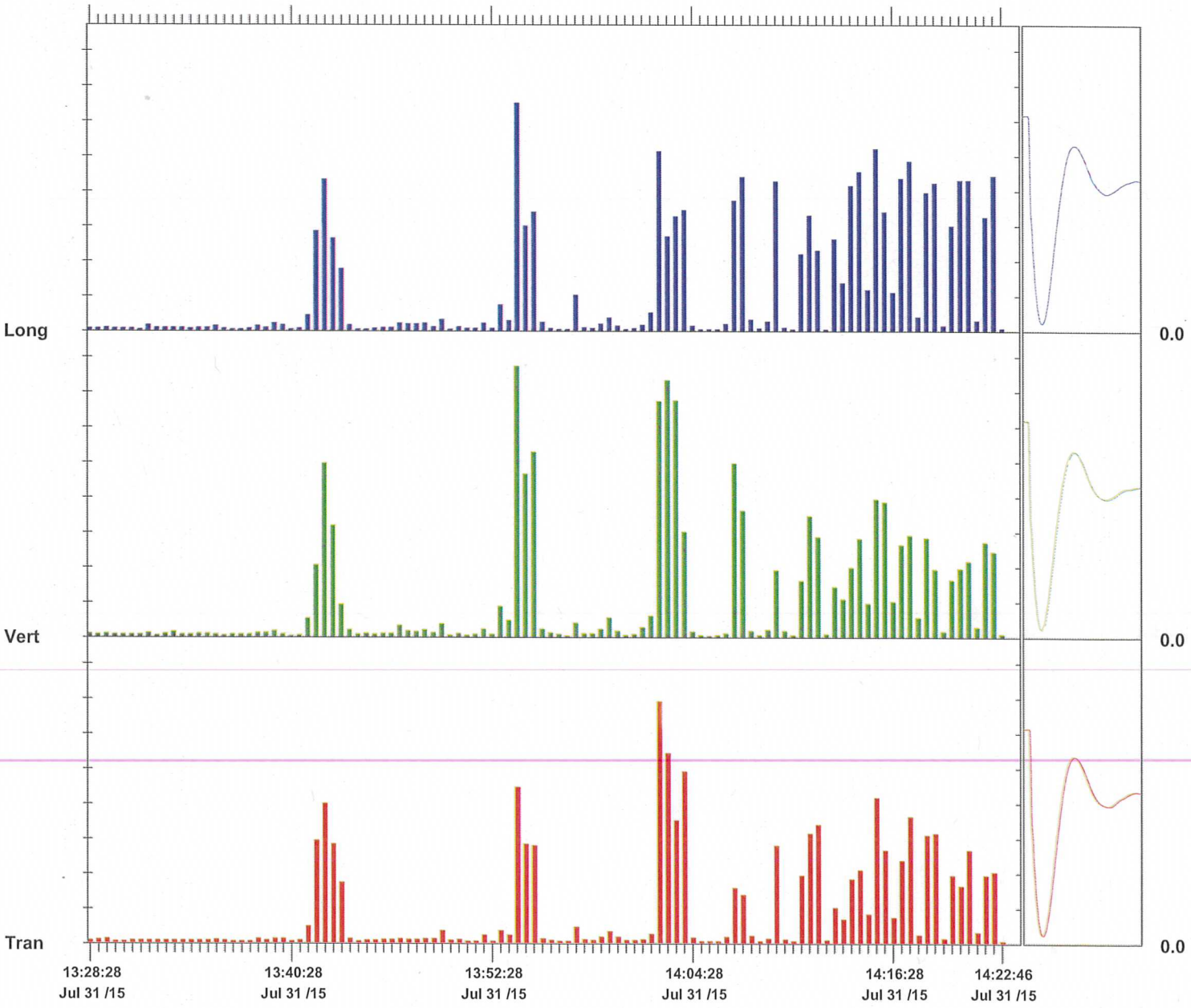
Histogram Start Time 13:27:58 July 31, 2015
Histogram Finish Time 14:22:46 July 31, 2015
Number of Intervals 657.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South~~ North Gas Main
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 6/22/17

Serial Number BE11212 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name M212FYII.QM0

Post Event Notes
VMP 7

	Tran	Vert	Long	
PPV	1.38	1.54	1.30	in/s
ZC Freq	37	30	28	Hz
Date	Jul 31 /15	Jul 31 /15	Jul 31 /15	
Time	14:02:23	13:53:53	13:53:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.4	Hz
Overswing Ratio	3.6	3.8	3.8	

Peak Vector Sum 2.08 in/s on July 31, 2015 at 13:53:53



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 ~~South~~ North 1/26/17

Prepared by
Geocomp Engineering

August 3rd, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

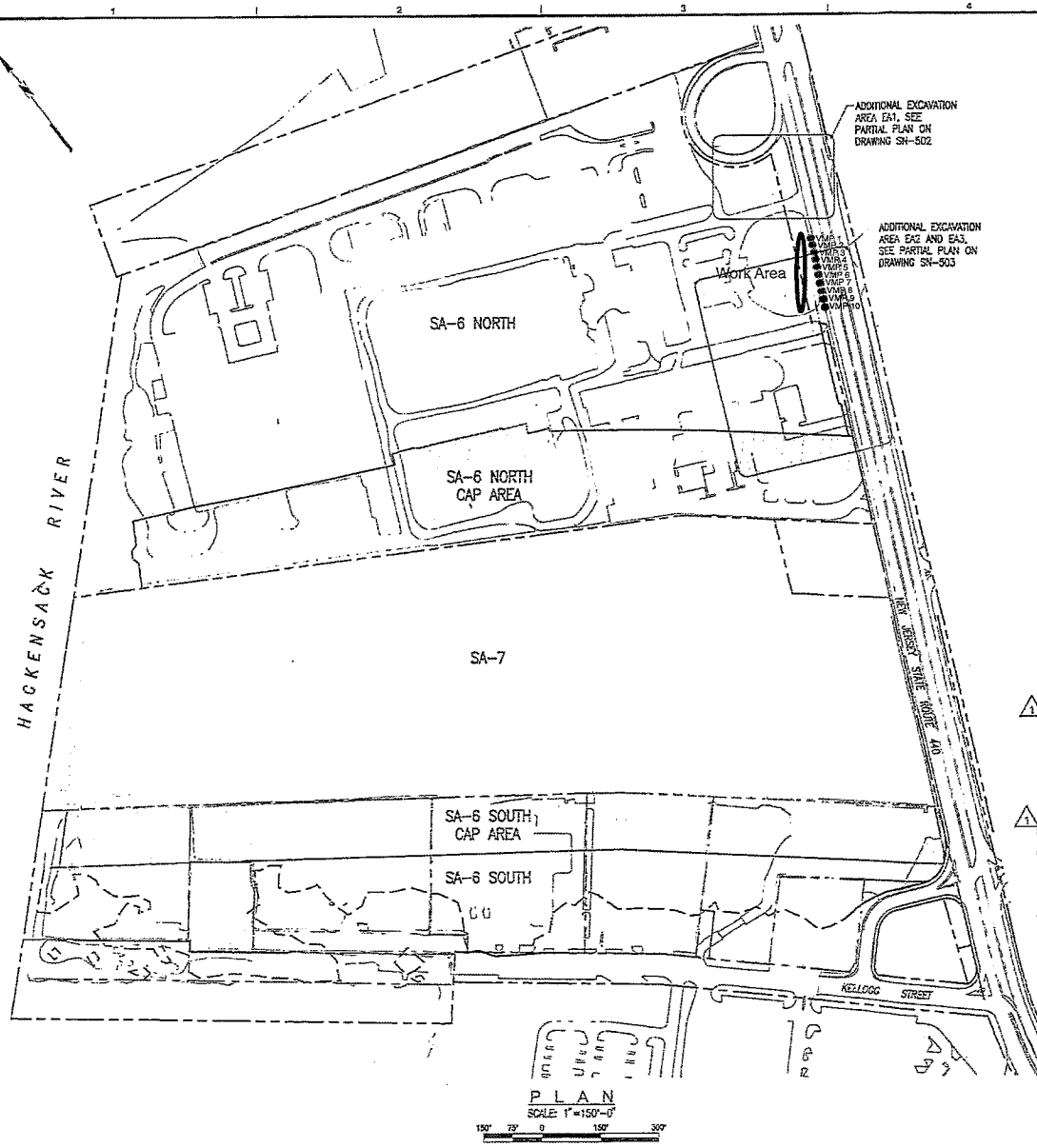
NOTES:

Summary of Work:
Sheet pile driving commenced at 6:30 AM and ended at 2:30 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas main and water main.

30 sheets were driven 1 recorded exceedance, i.e., the 2.0 gas main limit was exceeded at 10:47 AM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Main:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec

Water Main
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec



PLAN
SCALE: 1" = 150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from rocking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. 1
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point, (X, Y, Z) (baseline reading). 1
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. 1
28. Elevation are based on NGVD 1929 Datum.

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122
FILE NUMBER 11173

Honeywell
101 COLUMBIA RD – BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 007 AND 009
JERSEY CITY, NEW JERSEY

NO.	DATE	DSGN	DR	CHK	A'PVD
1	10/31/14	G.S.	B.B.	G.P.	P.W.D.
0	09/17/13				

ISSUED FOR NJDOT REVIEW – GP – FWD – BY – A'PVD
ISSUED FOR CONSTRUCTION – FWD – BY – A'PVD
REVISION

PETER W. DEMKO
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE 46632

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS
CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

amec
Environment & Infrastructure, Inc.
200 Andrews Mills Blvd, Suite 113
Hamden, NJ 08619
(609) 689-2320
NJ Certificate of Authorization Number 24GA28000600

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 52 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND IS CONSIDERED CONFIDENTIAL INFORMATION AND IS NOT TO BE REPRODUCED THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY AGREED TO BY AMEC.

FILE NAME: G:\DWG\2013\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:15 AM

Event Report

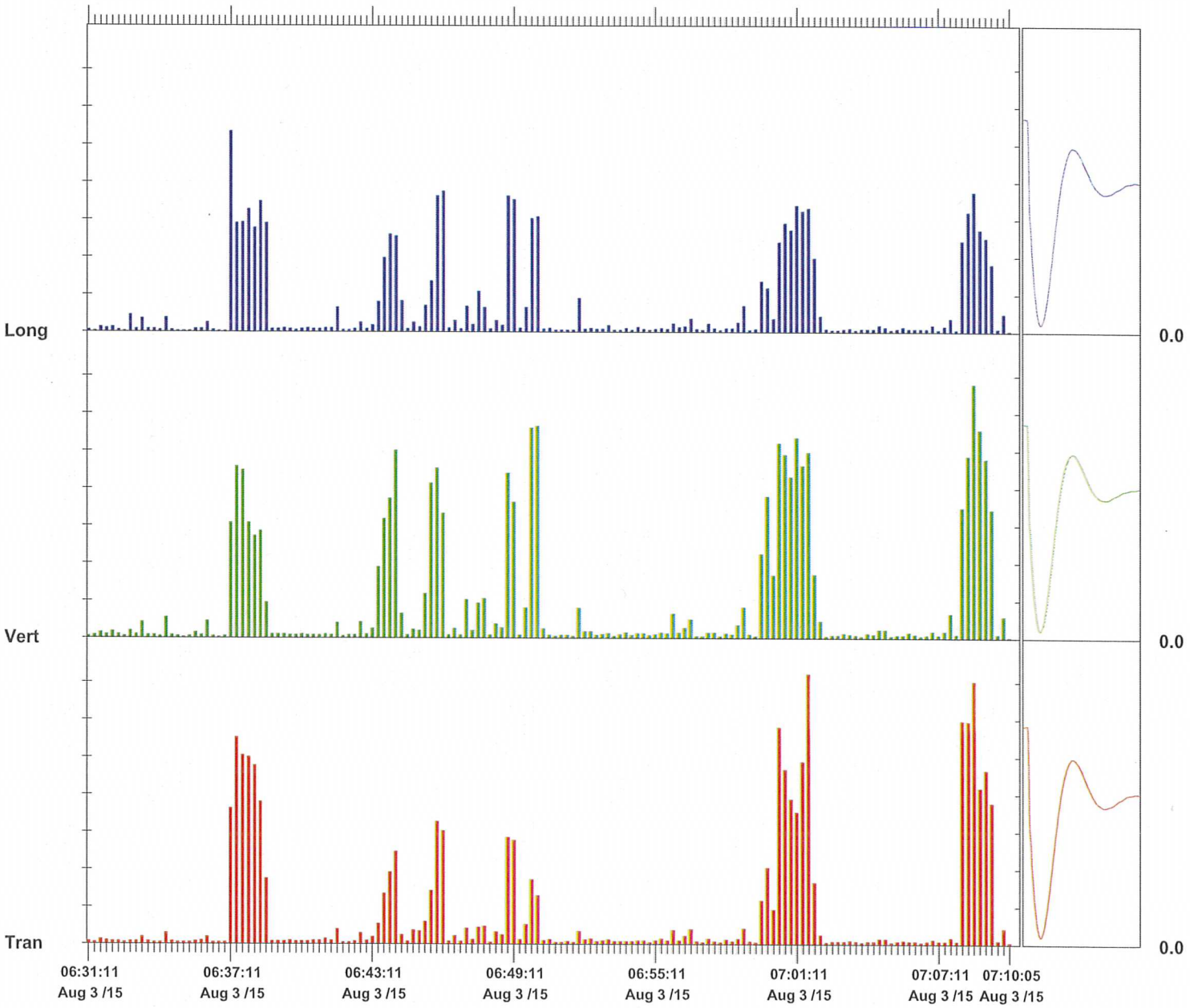
Histogram Start Time	06:30:56 August 3, 2015
Histogram Finish Time	07:10:05 August 3, 2015
Number of Intervals	469.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 5/22/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.4 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNJ.FK0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	1.44	1.35	1.07	in/s
ZC Freq	73	34	27	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	07:01:31	07:08:36	06:37:11	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.7	3.9	3.9	

Peak Vector Sum 1.72 in/s on August 3, 2015 at 07:01:31



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

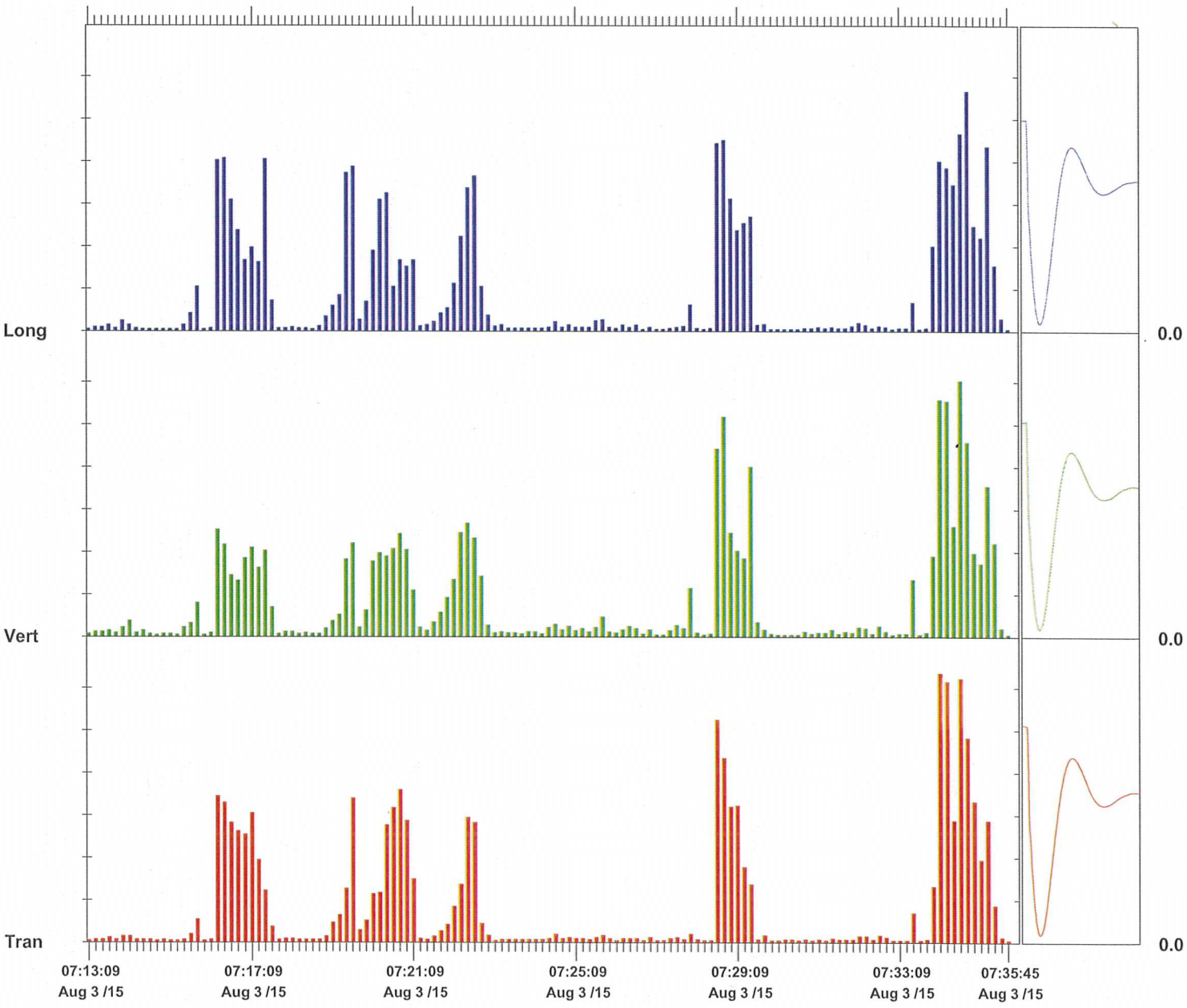
Histogram Start Time	07:12:59 August 3, 2015
Histogram Finish Time	07:35:45 August 3, 2015
Number of Intervals	273.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/29/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNL.DN0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	1.27	1.20	1.13	in/s
ZC Freq	32	32	28	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	07:34:04	07:34:39	07:34:49	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.76 in/s on August 3, 2015 at 07:34:04



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

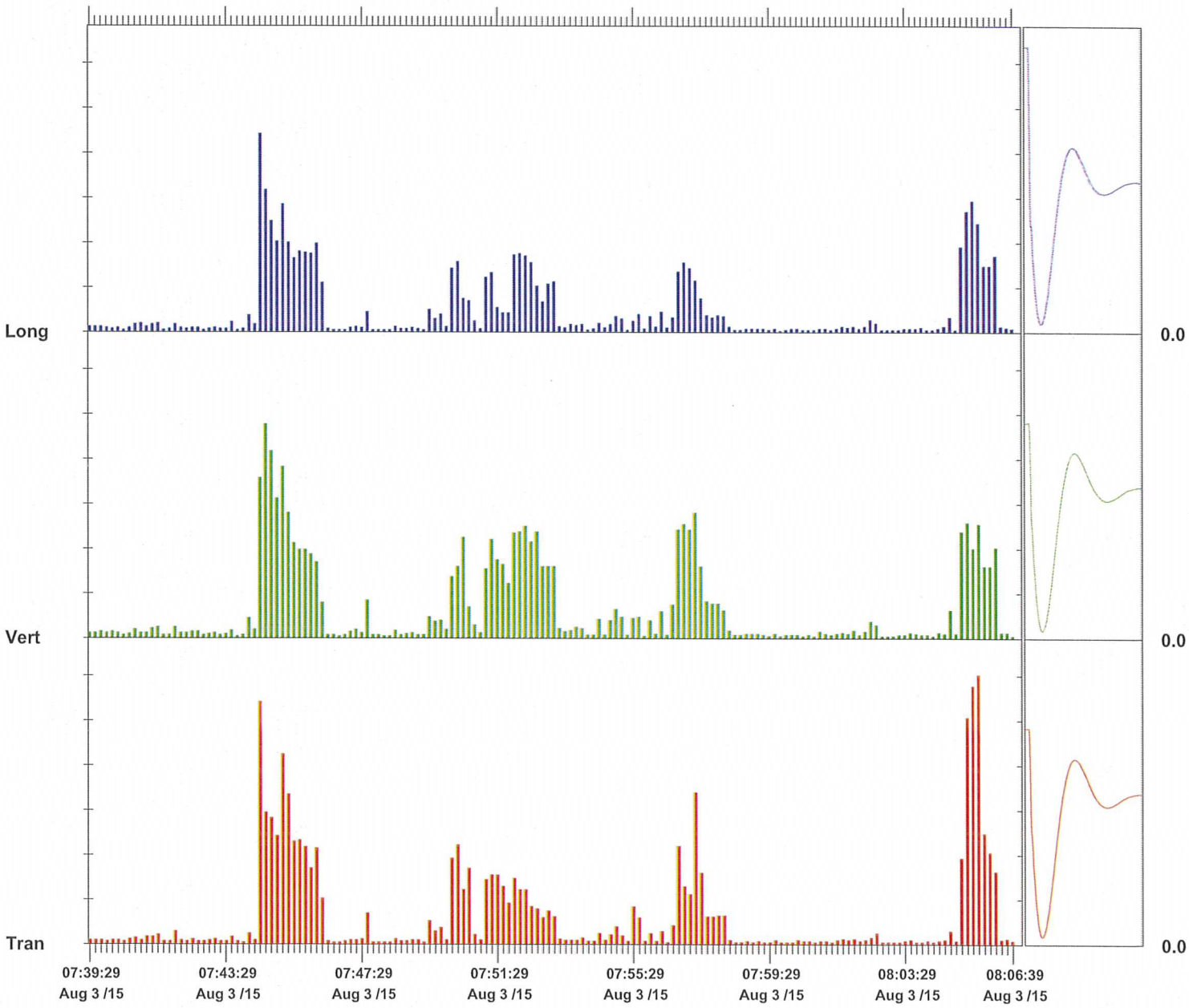
Histogram Start Time	07:39:19 August 3, 2015
Histogram Finish Time	08:06:42 August 3, 2015
Number of Intervals	328.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 11/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNM.LJ0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	1.20	0.955	0.885	in/s
ZC Freq	30	28	37	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	08:05:34	07:44:39	07:44:29	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.7	Hz
Overswing Ratio	3.7	3.7	3.8	

Peak Vector Sum 1.26 in/s on August 3, 2015 at 07:44:24



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

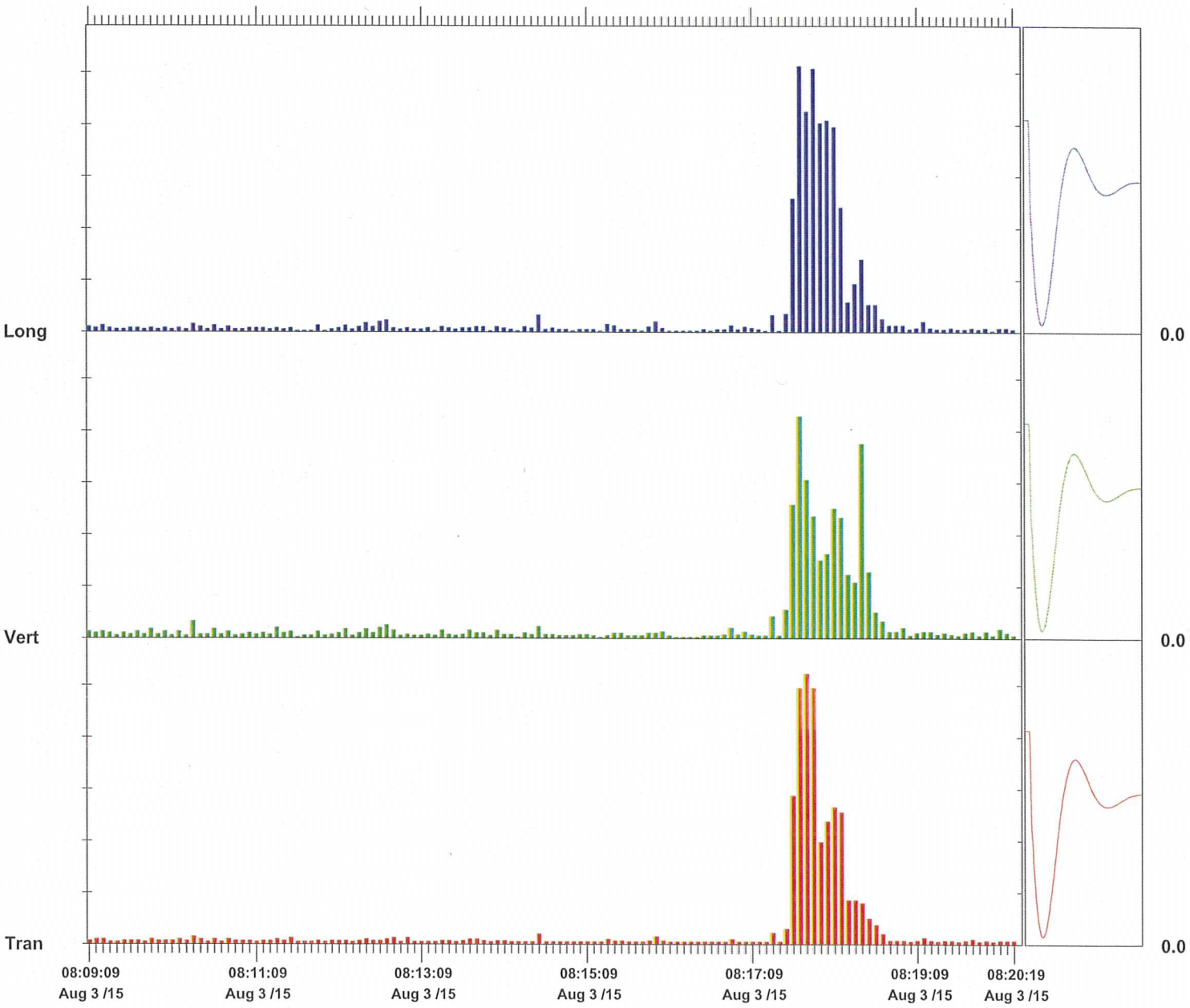
Histogram Start Time	08:09:04 August 3, 2015
Histogram Finish Time	08:20:20 August 3, 2015
Number of Intervals	135.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNN.Z40

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	1.04	0.855	1.02	in/s
ZC Freq	30	30	30	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	08:17:49	08:17:44	08:17:44	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.43 in/s on August 3, 2015 at 08:17:44



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

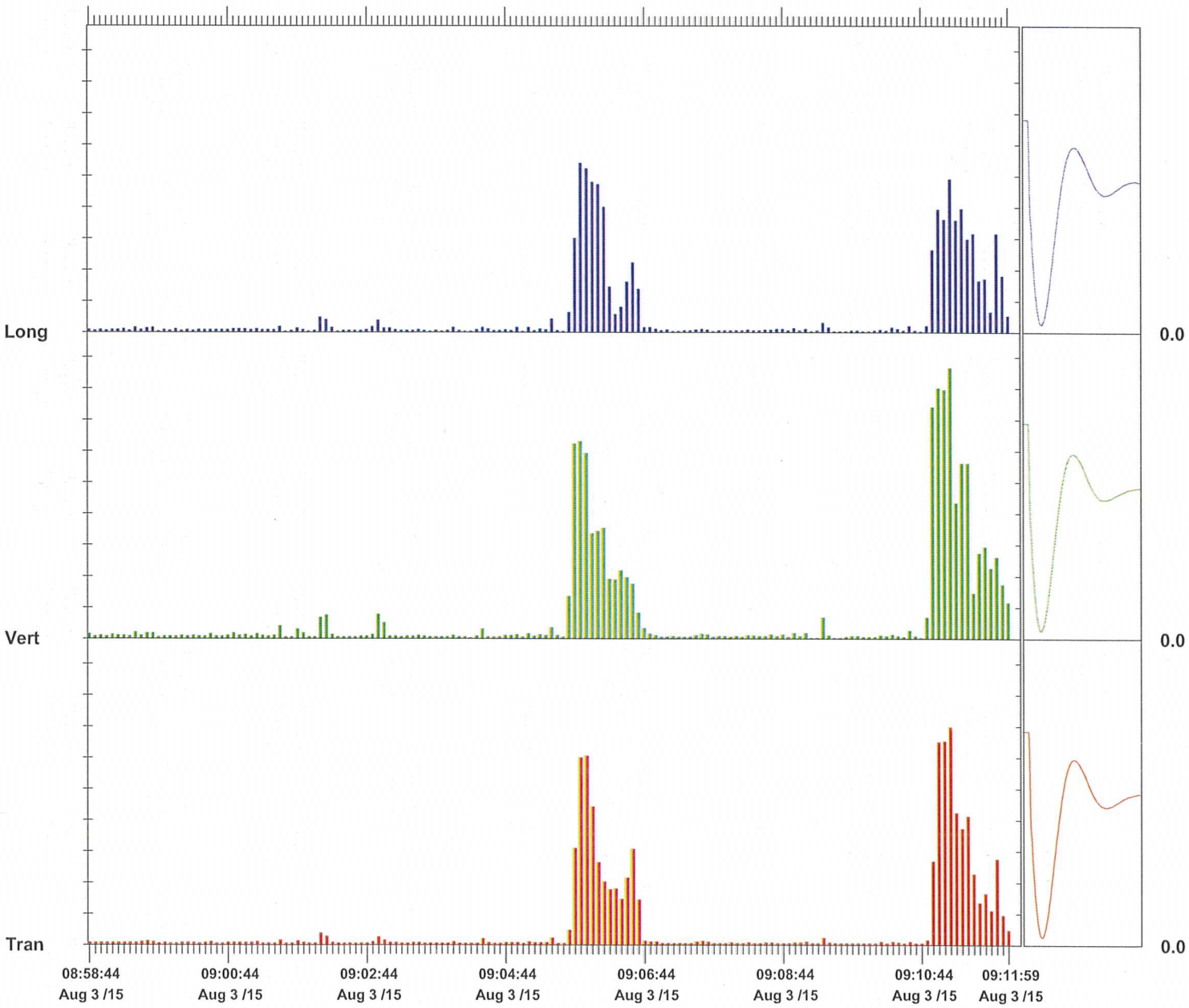
Histogram Start Time	08:58:39 August 3, 2015
Histogram Finish Time	09:12:02 August 3, 2015
Number of Intervals	160.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNQ.9R0

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	1.39	1.73	1.08	in/s
ZC Freq	30	32	30	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	09:11:09	09:11:09	09:05:49	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.3	Hz
Overswing Ratio	3.7	3.9	3.8	

Peak Vector Sum 2.35 in/s on August 3, 2015 at 09:11:09



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Instantel

Event Report

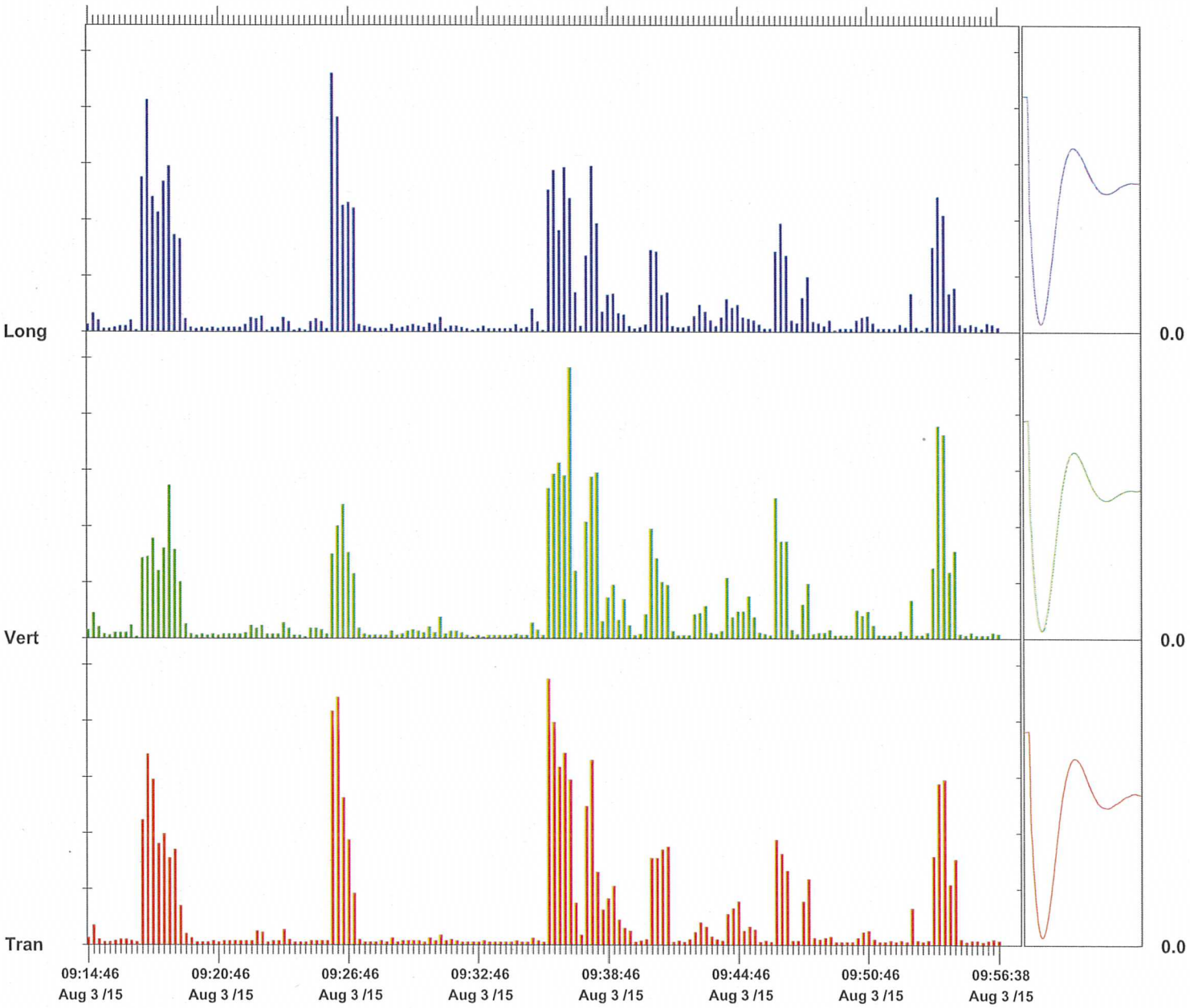
Histogram Start Time	09:14:31 August 3, 2015
Histogram Finish Time	09:56:38 August 3, 2015
Number of Intervals	505.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNR.070

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.950	0.965	0.920	in/s
ZC Freq	30	28	32	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	09:35:56	09:36:51	09:26:01	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.7	3.9	

Peak Vector Sum 1.14 in/s on August 3, 2015 at 09:36:51



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

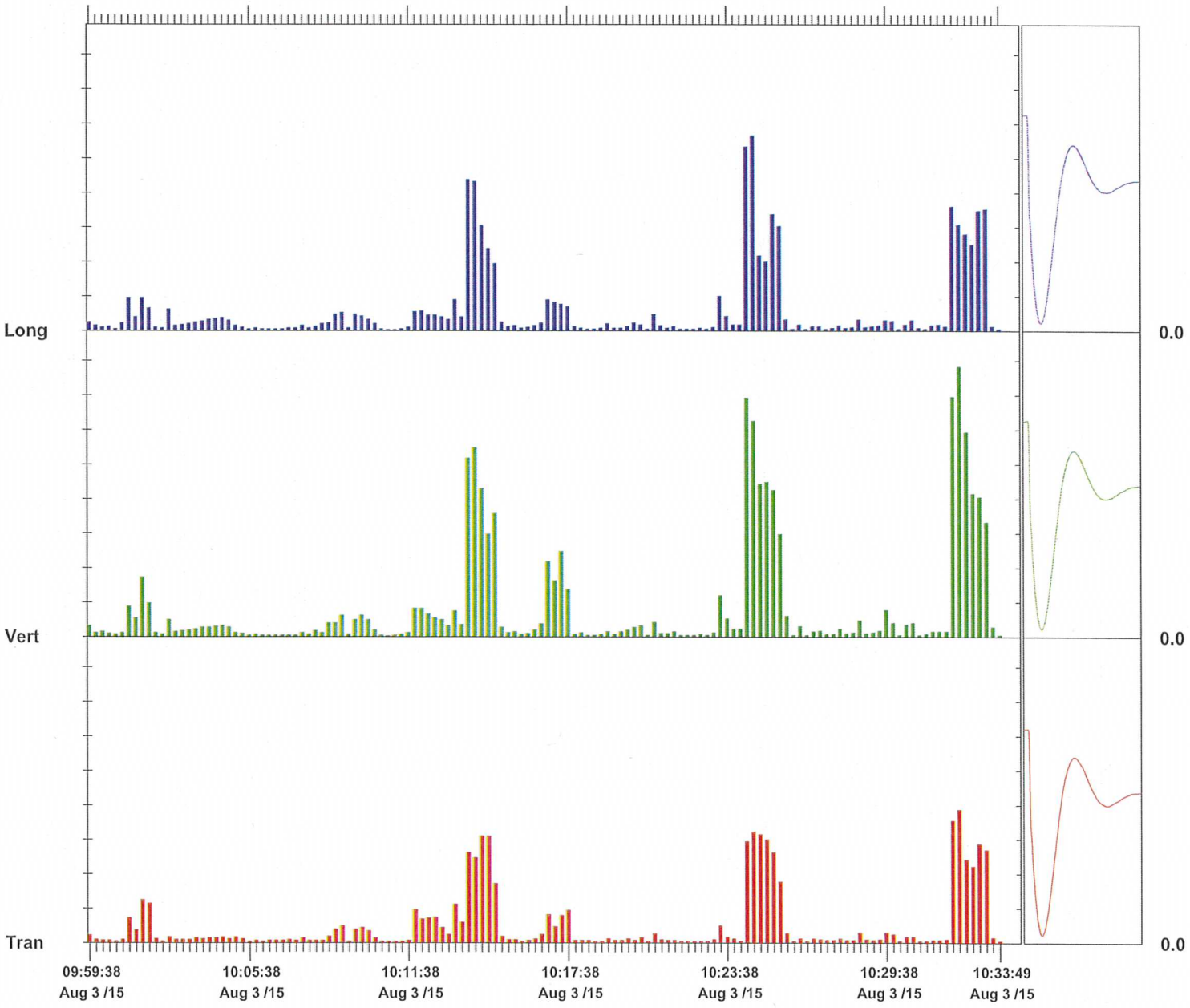
Histogram Start Time	09:59:23 August 3, 2015
Histogram Finish Time	10:33:49 August 3, 2015
Number of Intervals	413.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Gas Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNT.2Z0

Post Event Notes
VMP 6

	Tran	Vert	Long	
PPV	0.775	1.56	1.13	in/s
ZC Freq	32	30	30	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	10:32:18	10:32:18	10:24:33	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.7	

Peak Vector Sum 1.72 in/s on August 3, 2015 at 10:32:18



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Instantel

Event Report

Histogram Start Time	10:35:48 August 3, 2015
Histogram Finish Time	10:56:10 August 3, 2015
Number of Intervals	244.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

Notes

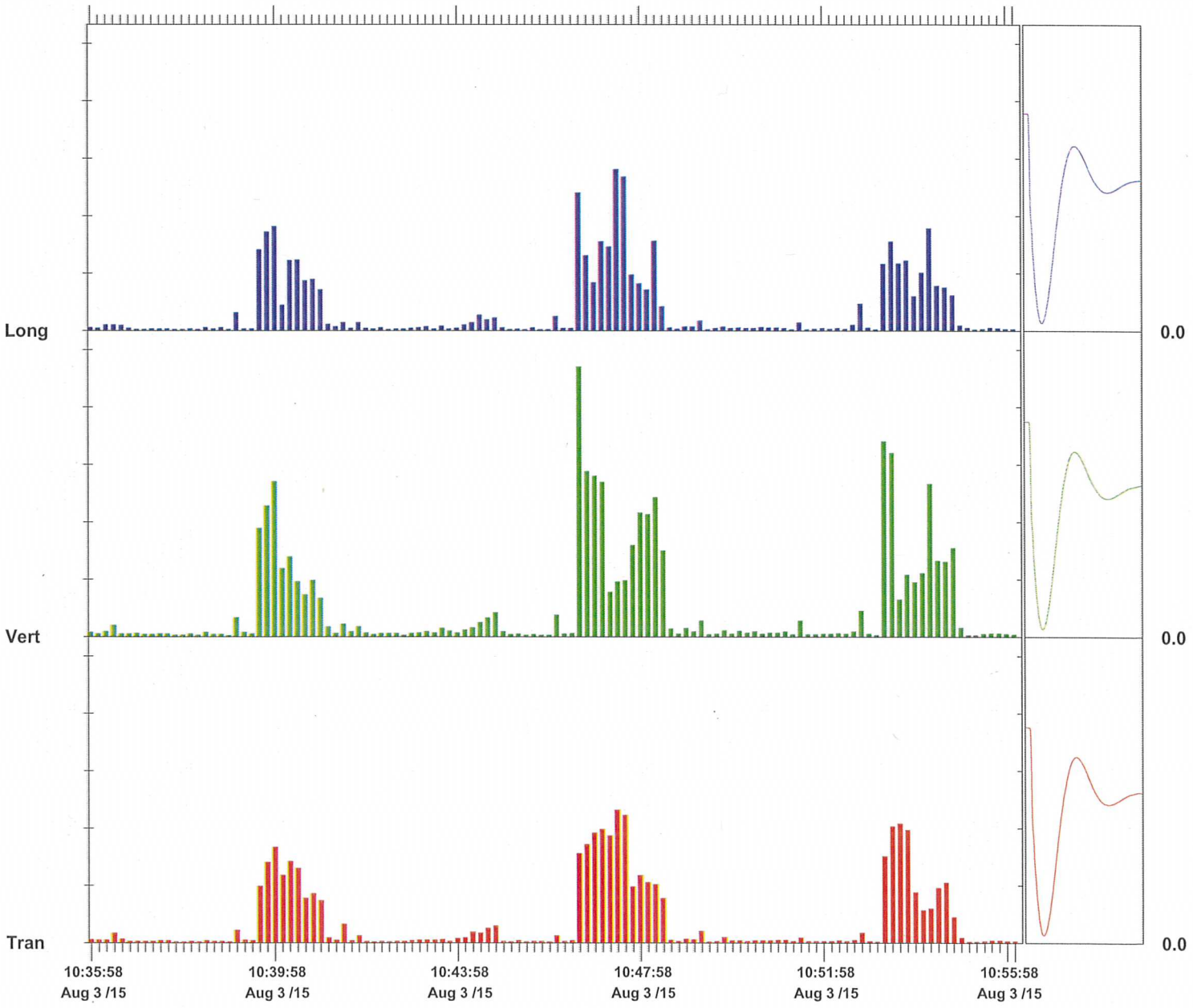
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNU.RO0

Post Event Notes
VMP 7

	Tran	Vert	Long	
PPV	1.16	2.35	1.40	in/s
ZC Freq	34	26	43	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	10:47:28	10:46:33	10:47:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 2.60 in/s on August 3, 2015 at 10:46:33



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.500 in/s/div

Sensor Check

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Event Report

Histogram Start Time	10:58:04 August 3, 2015
Histogram Finish Time	11:48:10 August 3, 2015
Number of Intervals	601.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

Notes

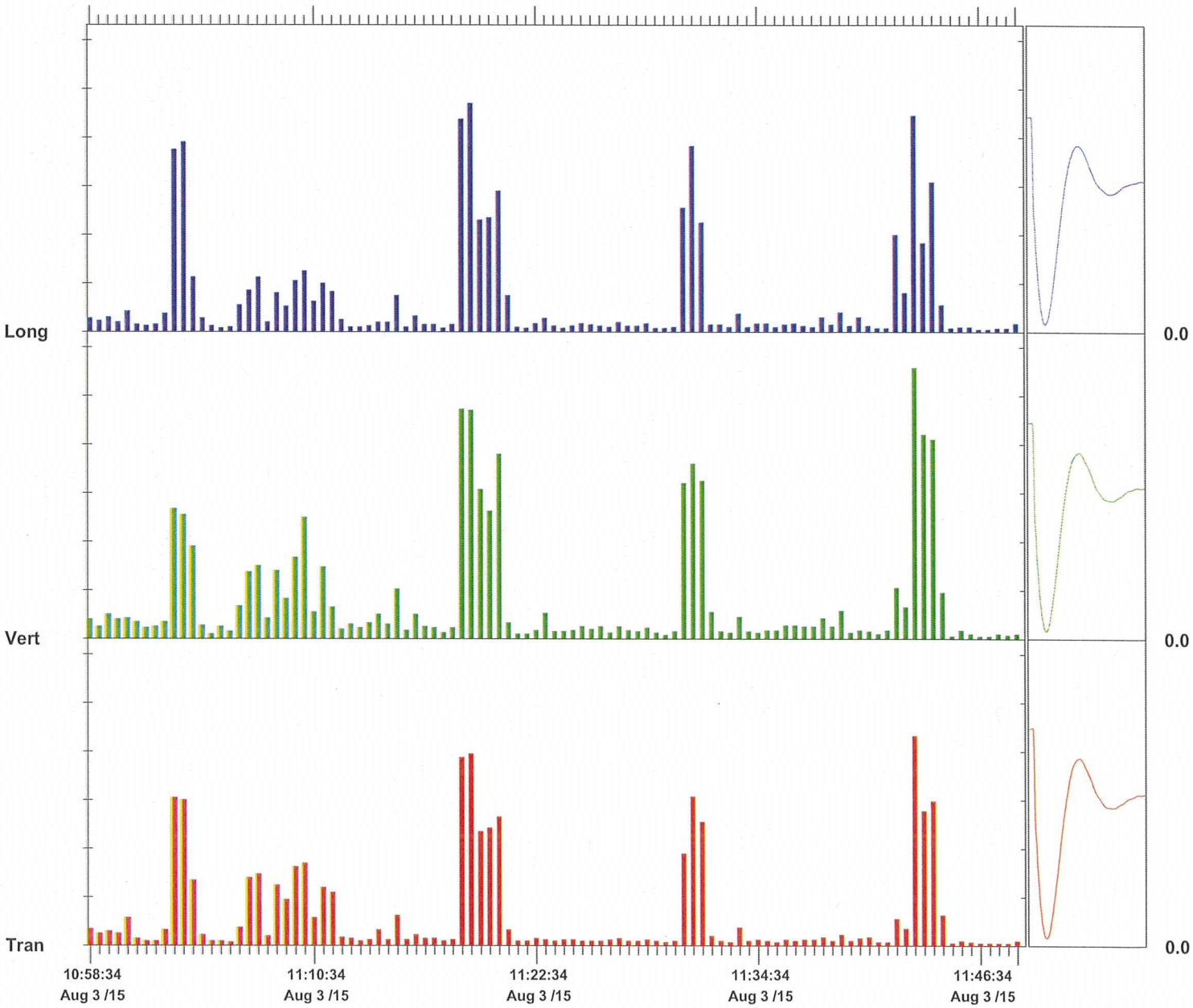
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYNV.SS0

Post Event Notes
VMP 8

	Tran	Vert	Long	
PPV	0.865	1.11	0.940	in/s
ZC Freq	37	39	30	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	11:42:59	11:42:54	11:18:44	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.6	3.8	3.7	

Peak Vector Sum 1.37 in/s on August 3, 2015 at 11:42:54



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

Histogram Start Time	12:45:40 August 3, 2015
Histogram Finish Time	13:38:46 August 3, 2015
Number of Intervals	637.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps

Notes

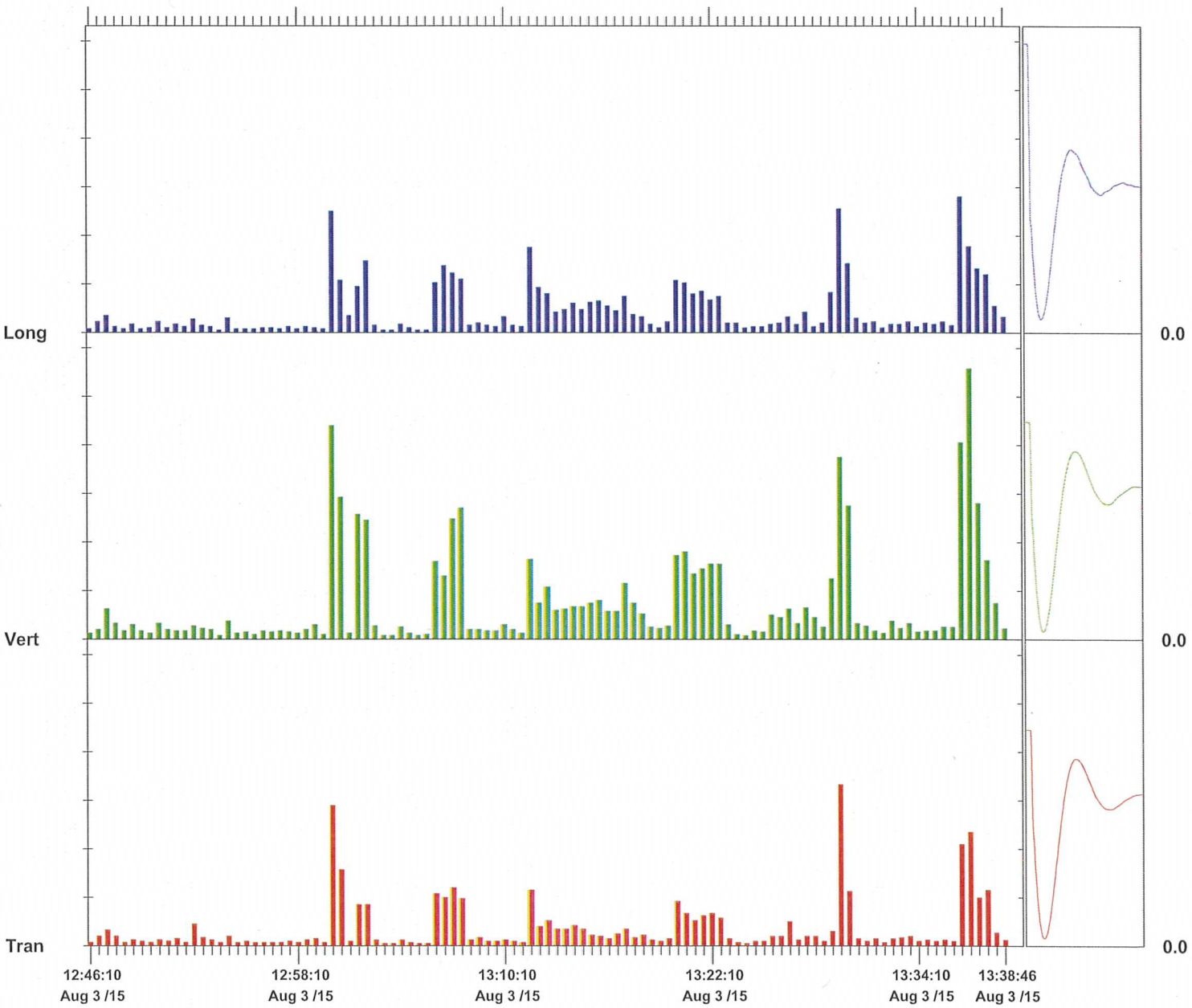
Location: SA 6 ~~South Gas Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and Route 440~~ 1/27/17

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYO0.S40

Post Event Notes
VMP 9

	Tran	Vert	Long	
PPV	0.665	1.11	0.560	in/s
ZC Freq	37	32	15	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	13:29:30	13:36:50	13:36:20	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.8	Hz
Overswing Ratio	3.6	3.6	3.9	

Peak Vector Sum 1.14 in/s on August 3, 2015 at 13:36:50



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

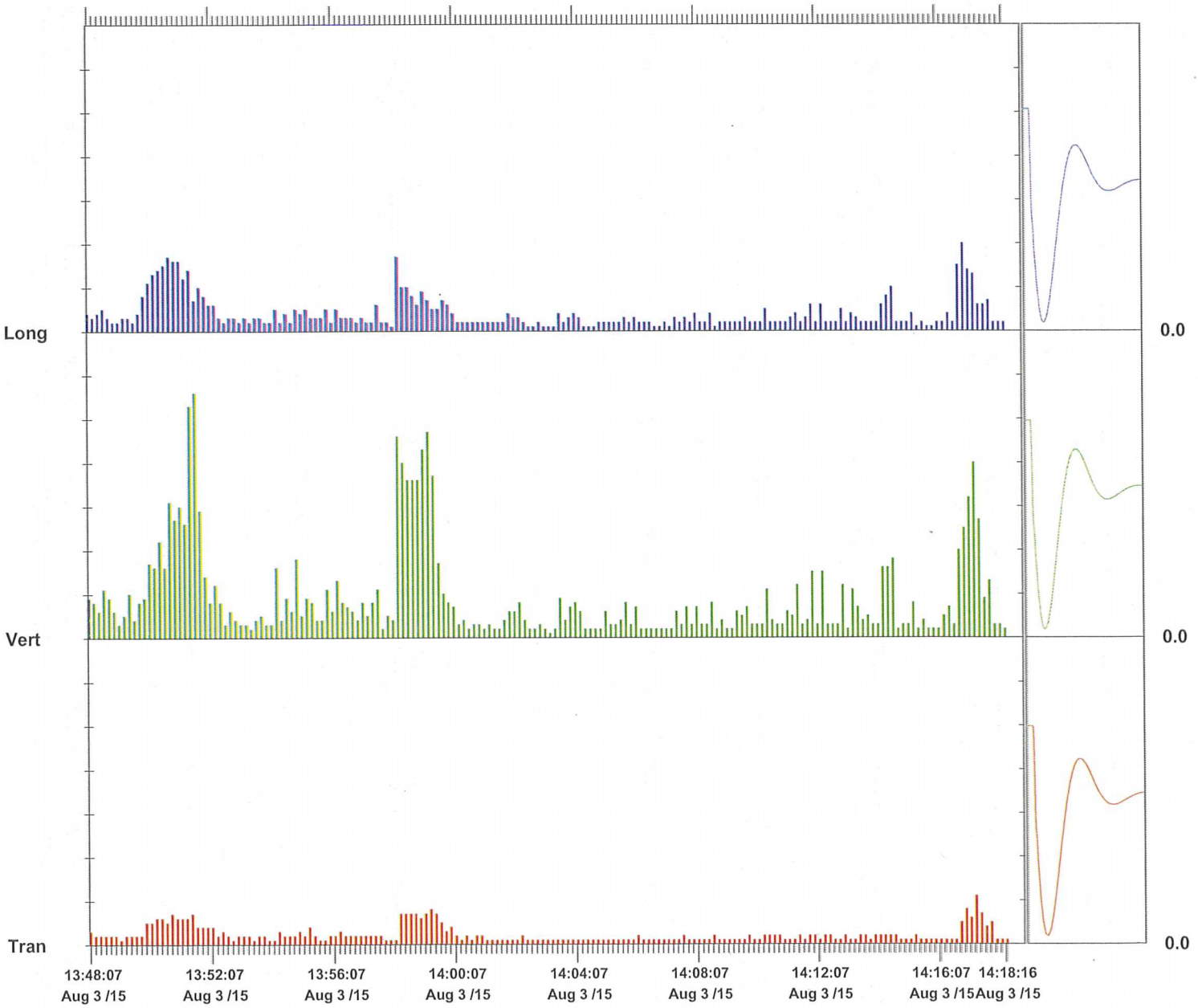
Histogram Start Time	13:47:57 August 3, 2015
Histogram Finish Time	14:18:16 August 3, 2015
Number of Intervals	363.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Water Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/28/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYO3.NX0

Post Event Notes
VMP 10

	Tran	Vert	Long	
PPV	0.0550	0.280	0.1000	in/s
ZC Freq	37	39	23	Hz
Date	Aug 3 /15	Aug 3 /15	Aug 3 /15	
Time	14:17:12	13:51:32	14:16:57	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.6	7.3	Hz
Overswing Ratio	3.9	3.6	3.9	

Peak Vector Sum 0.280 in/s on August 3, 2015 at 13:51:32



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Geocomp

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 South North 1/26/17

Prepared by
Geocomp Engineering

August 4th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

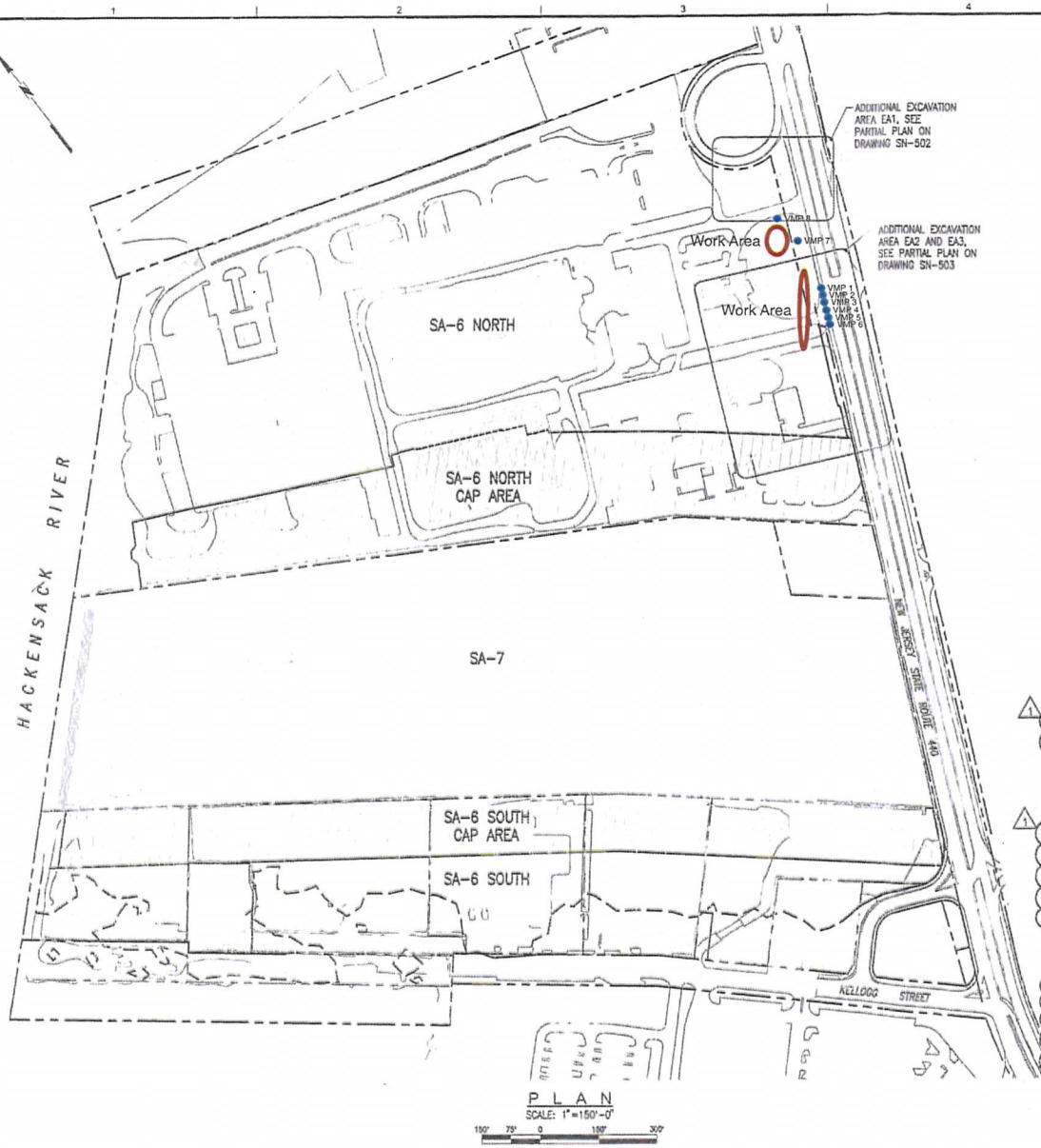
Summary of Work:
Sheet pile driving commenced at 6:30 AM and ended at 11:20 AM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the gas main, water main, and force main.

17 sheets were driven no recorded exceedances. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Main:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec

Water Main
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec

Force Main
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point. If required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point, (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec
    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations.
28. Elevation are based on NGVD 1929 Datum.

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 WEST 34TH STREET, NEW YORK, NY 10122
FILE NUMBER 11173

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

Honeywell
101 COLUMBIA RD., BOX 2180, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

NO.	DATE	DSGN	DR	CHK	APVD
1	10/31/14	G.S.	B.B.	G.P.	G.P.
0	09/17/13				

ISSUED FOR NJDOT REVIEW
ISSUED FOR CONSTRUCTION
REVISION

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-48622
P.W.D. 10/31/14

amec
Environment & Infrastructure, Inc.
285 Millcreek Park, Suite 113
Uniontown, PA 15401
(330) 699 - 2929
NJ Certificate of Authorization Number 24GA28018200

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-9317
DWG SN-501
SHEET 82 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDES ALL STATUTORY AND COMMON LAW RIGHTS, AND MAY NOT BE USED, REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF AMEC. ANY USE, REPRODUCTION, MODIFICATION, DISTRIBUTION, PUBLICATION, OR DISCLOSURE OF THIS DRAWING, IN WHOLE OR IN PART, NOT FOR THE MATERIAL DESCRIBED THEREIN, FOR THE USE OF THE ORIGINAL FOR ANY PURPOSE OTHER THAN PREVIOUSLY PREAUTHORIZED IN WRITING BY AMEC.

FILE NAME: G:\DWGS\11173\SN\SN501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

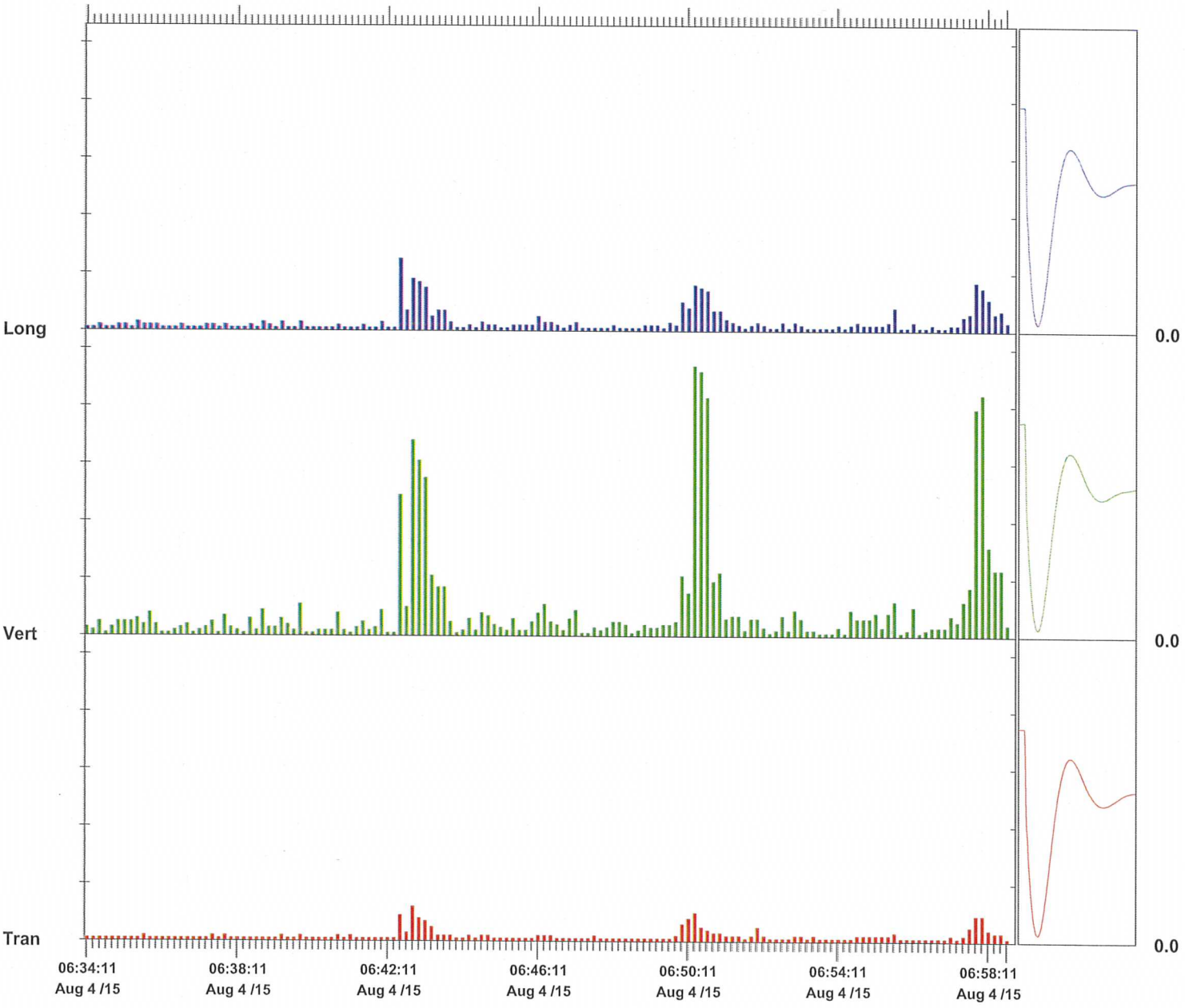
Histogram Start Time	06:34:01 August 4, 2015
Histogram Finish Time	06:58:39 August 4, 2015
Number of Intervals	295.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Water Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPE.8P0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.0600	0.470	0.125	in/s
ZC Freq	34	39	17	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	06:42:51	06:50:21	06:42:26	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.472 in/s on August 4, 2015 at 06:50:21



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

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Event Report

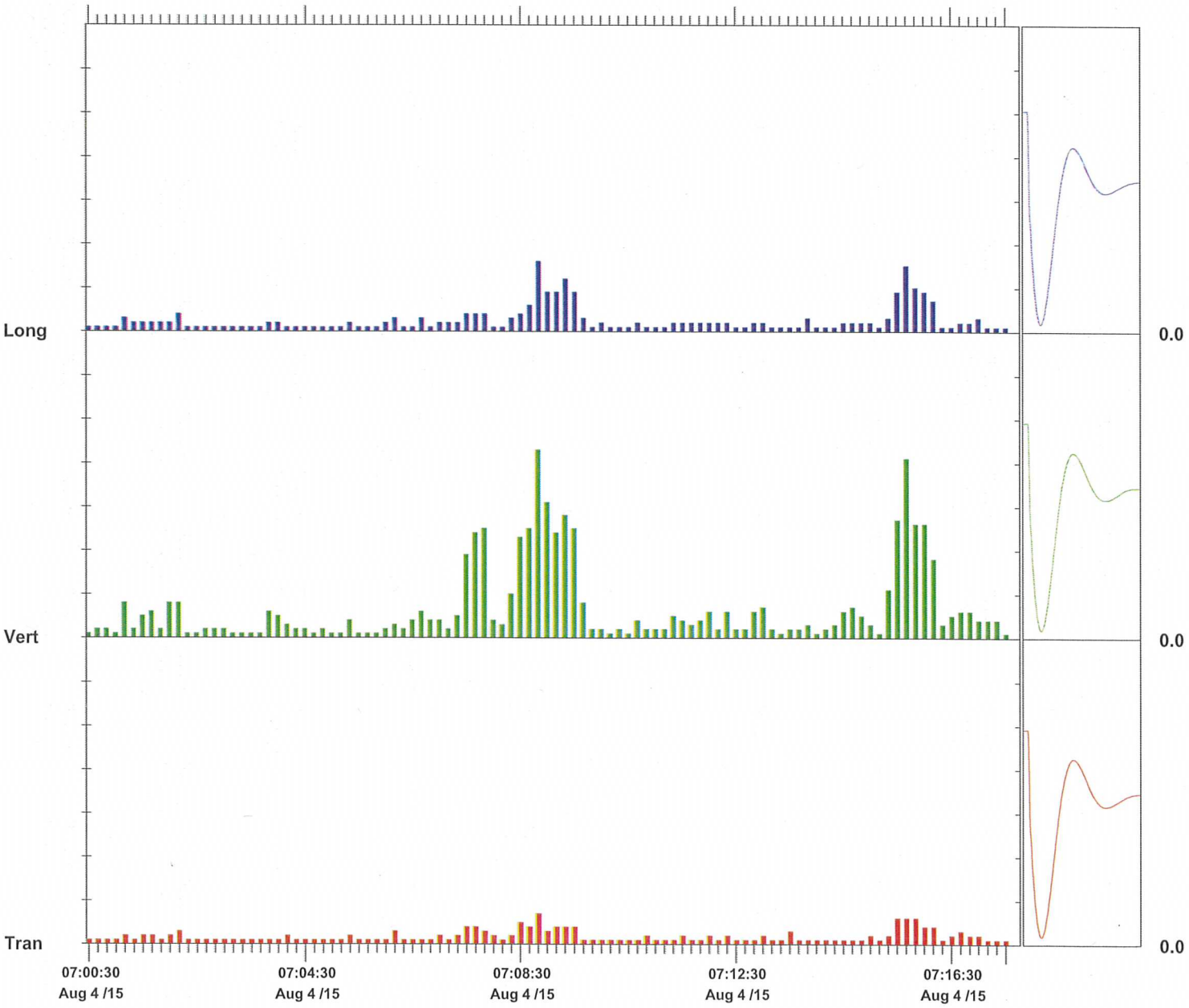
Histogram Start Time 07:00:20 August 4, 2015
Histogram Finish Time 07:17:27 August 4, 2015
Number of Intervals 205.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Water Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYPF.GK0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0350	0.215	0.0800	in/s
ZC Freq	34	37	43	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	07:08:45	07:08:50	07:08:50	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.215 in/s on August 4, 2015 at 07:08:50



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Instantel

Event Report

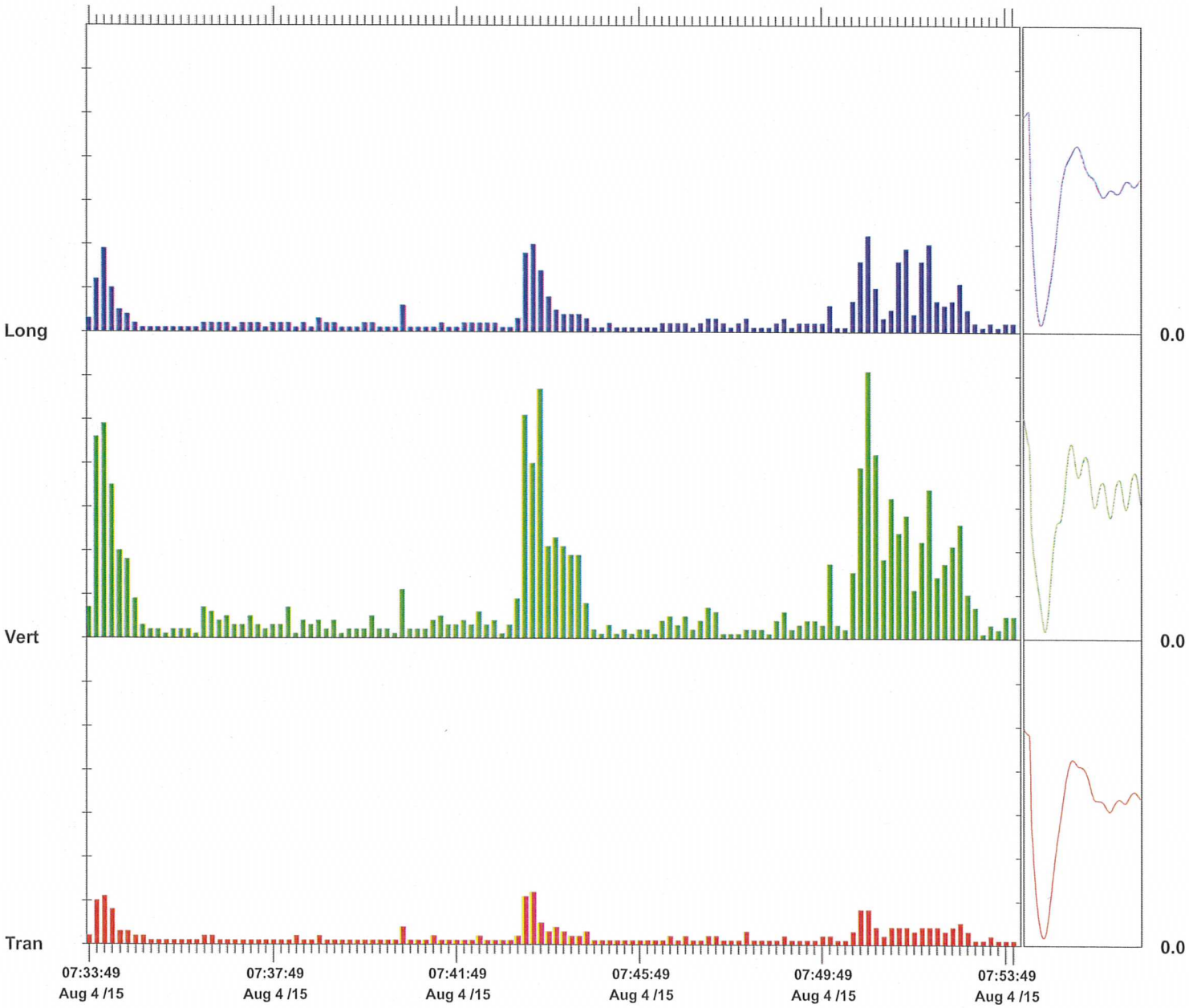
Histogram Start Time 07:33:39 August 4, 2015
Histogram Finish Time 07:53:55 August 4, 2015
Number of Intervals 243.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 ~~South Water Main~~ North
Client: Entact
User Name: Geocomp
General: ~~Kellogg Street and~~ Route 440 1/27/17

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.2 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYPH.030

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0600	0.305	0.110	in/s
ZC Freq	34	39	32	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	07:43:24	07:50:49	07:50:44	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.0	7.6	Hz
Overswing Ratio	3.7	3.0	3.7	

Peak Vector Sum 0.305 in/s on August 4, 2015 at 07:50:49



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Event Report

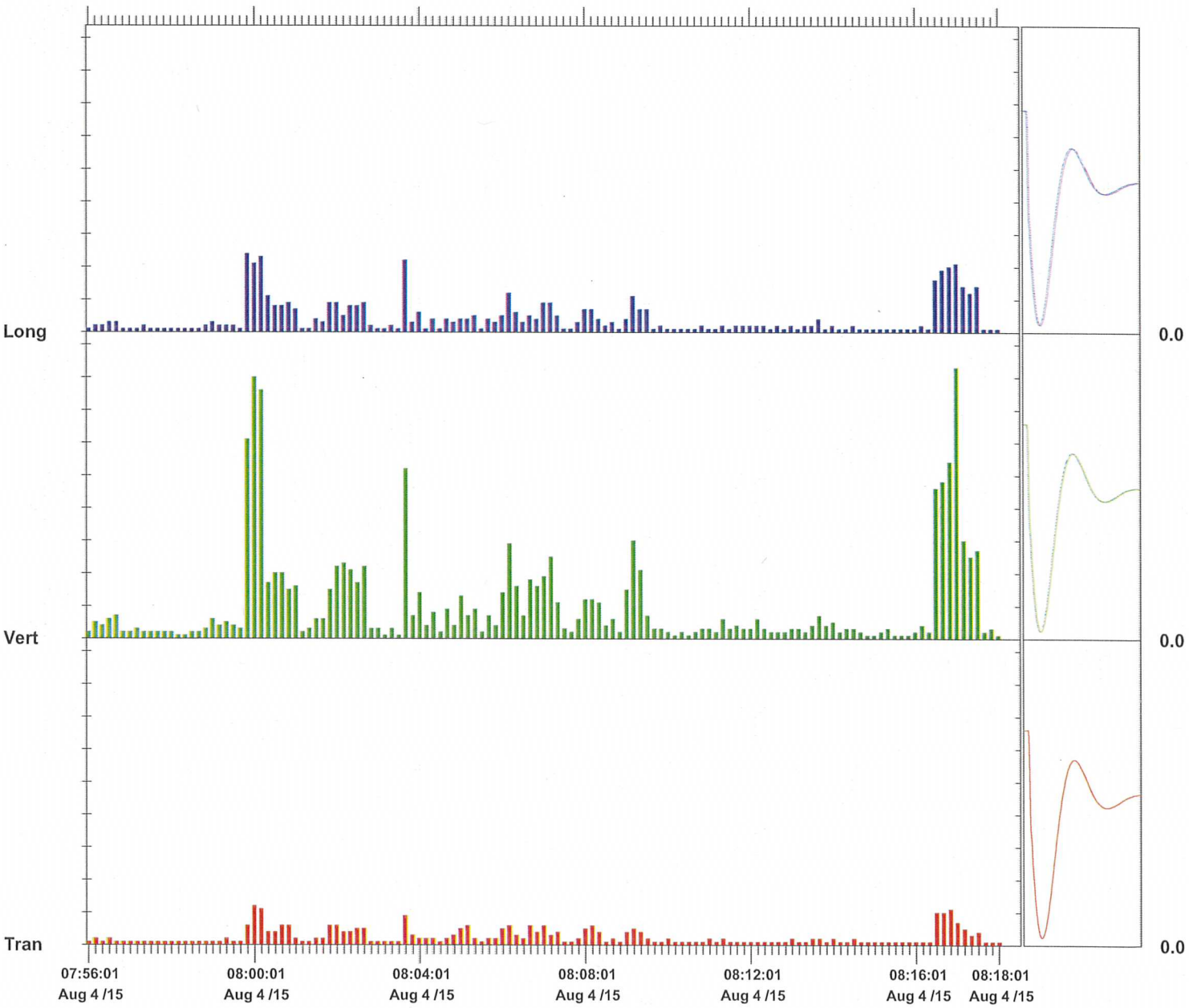
Histogram Start Time	07:55:51 August 4, 2015
Histogram Finish Time	08:18:02 August 4, 2015
Number of Intervals	266.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Water Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPI.130

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0600	0.415	0.120	in/s
ZC Freq	47	39	30	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	08:00:01	08:16:56	07:59:51	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.422 in/s on August 4, 2015 at 08:16:56



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Event Report

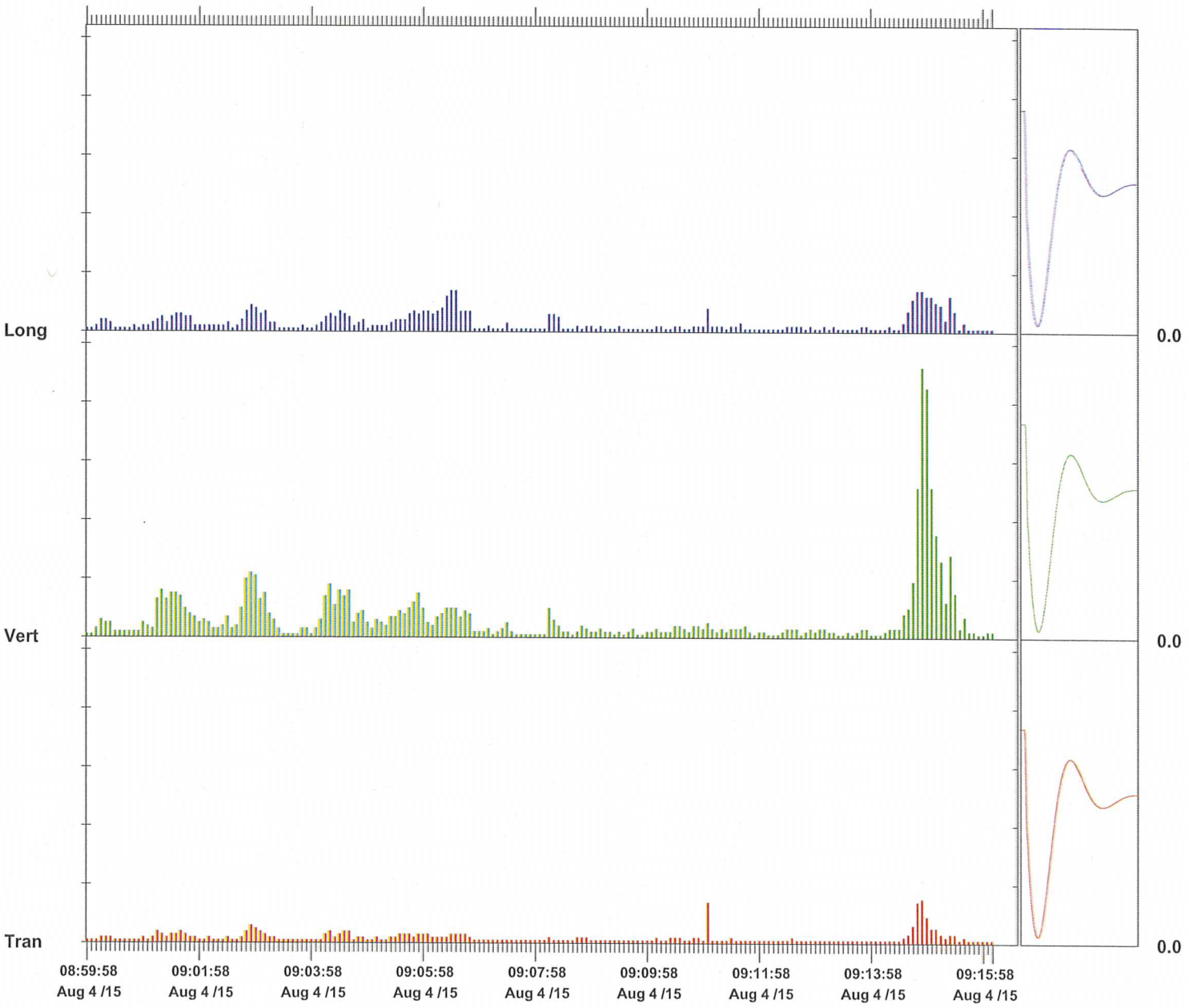
Histogram Start Time	08:59:53 August 4, 2015
Histogram Finish Time	09:16:11 August 4, 2015
Number of Intervals	195.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South Water Main~~ North
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPK.ZT0

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0750	0.460	0.0700	in/s
ZC Freq	34	39	30	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	09:14:53	09:14:53	09:06:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.463 in/s on August 4, 2015 at 09:14:53



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div

Sensor Check

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Event Report

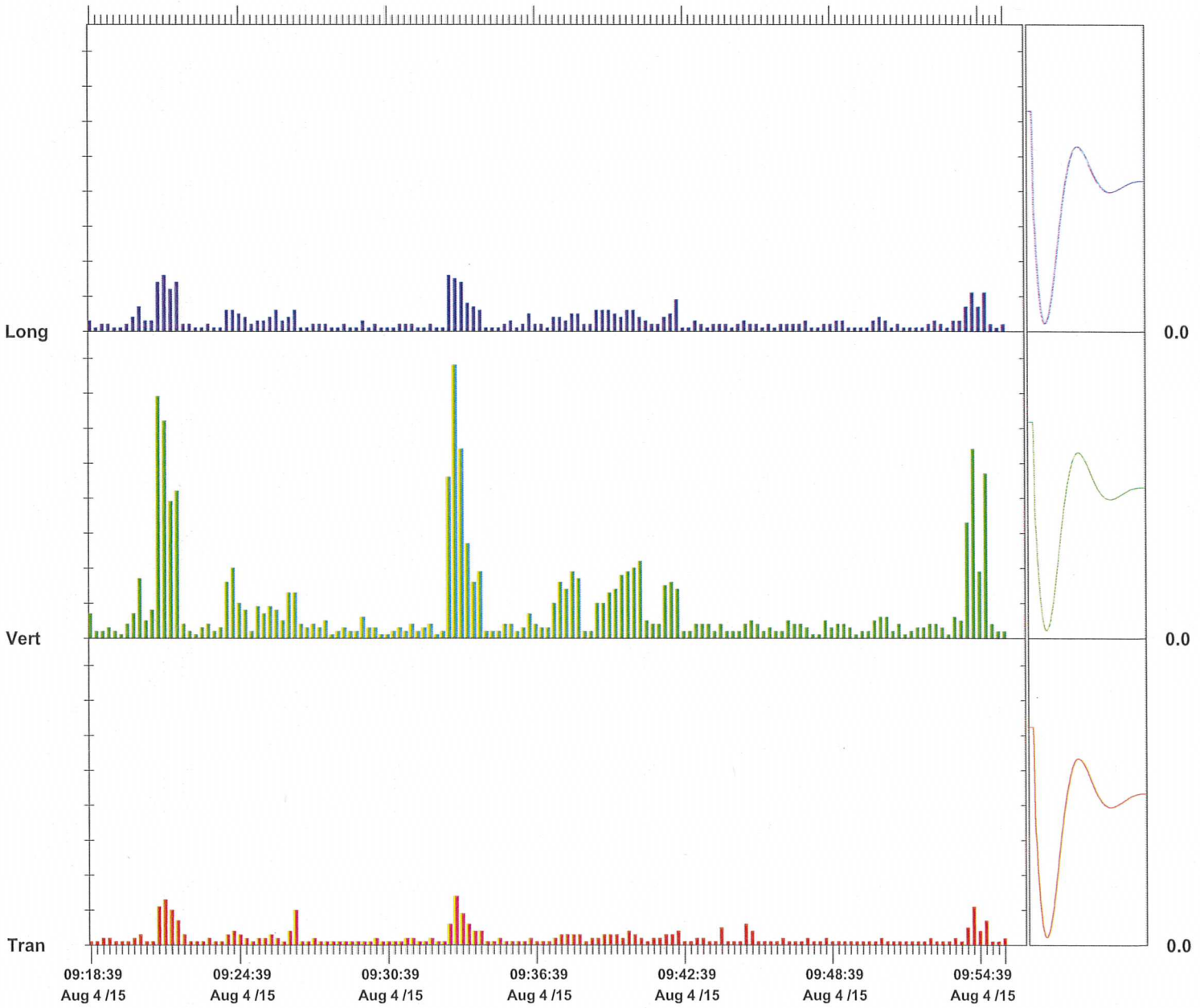
Histogram Start Time	09:18:24 August 4, 2015
Histogram Finish Time	09:55:41 August 4, 2015
Number of Intervals	447.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Water Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPL.UO0

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.0700	0.390	0.0800	in/s
ZC Freq	37	34	43	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	09:33:19	09:33:19	09:21:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.392 in/s on August 4, 2015 at 09:33:19



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

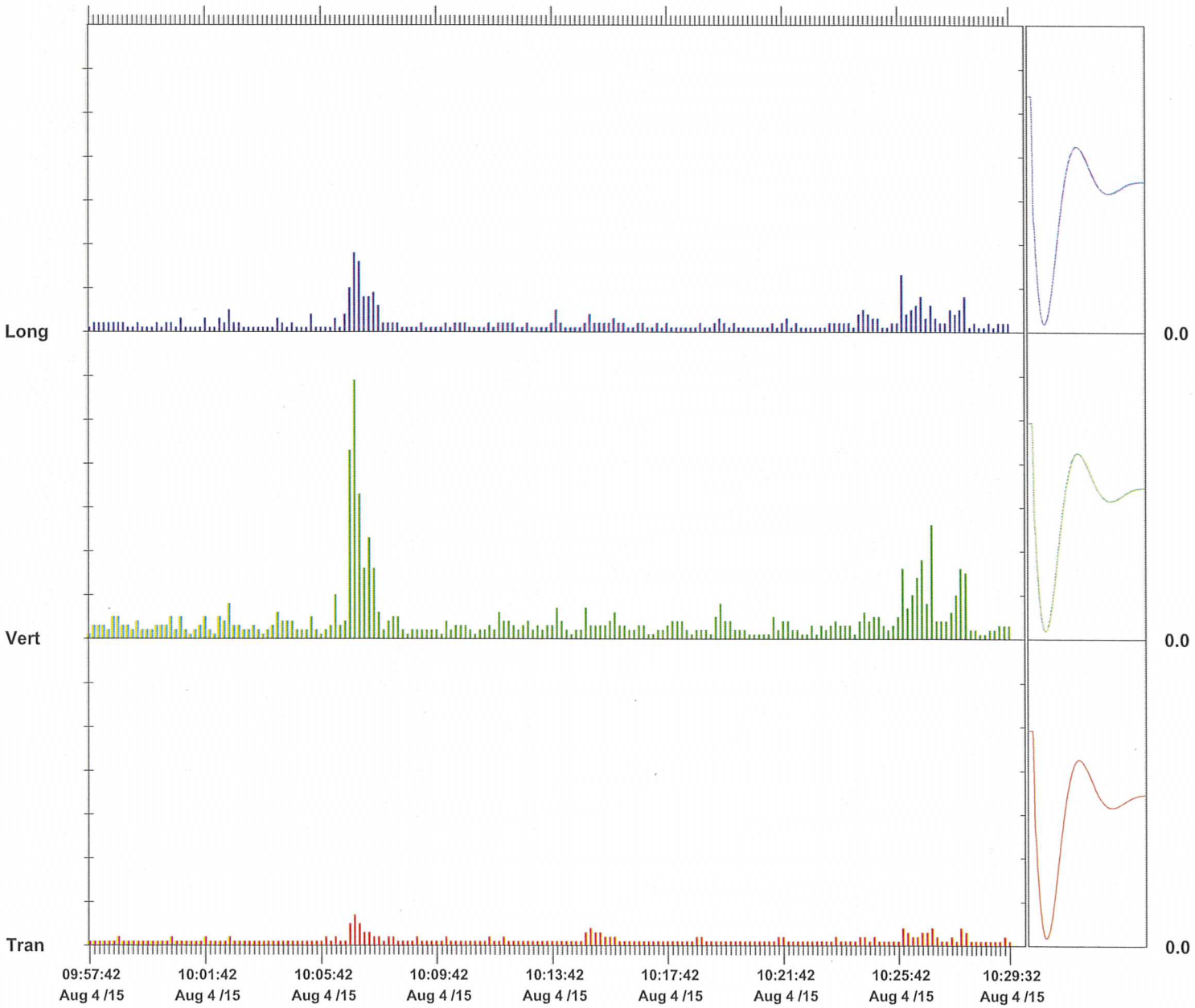
Histogram Start Time	09:57:32 August 4, 2015
Histogram Finish Time	10:29:36 August 4, 2015
Number of Intervals	384.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Water Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440 1/27/19

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPN.NW0

Post Event Notes
VMP 6

	Tran	Vert	Long	
PPV	0.0350	0.295	0.0900	in/s
ZC Freq	32	32	37	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	10:06:47	10:06:52	10:06:52	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.6	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 0.305 in/s on August 4, 2015 at 10:06:52



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

Format © 1995-2013 Xmark Corporation

Event Report

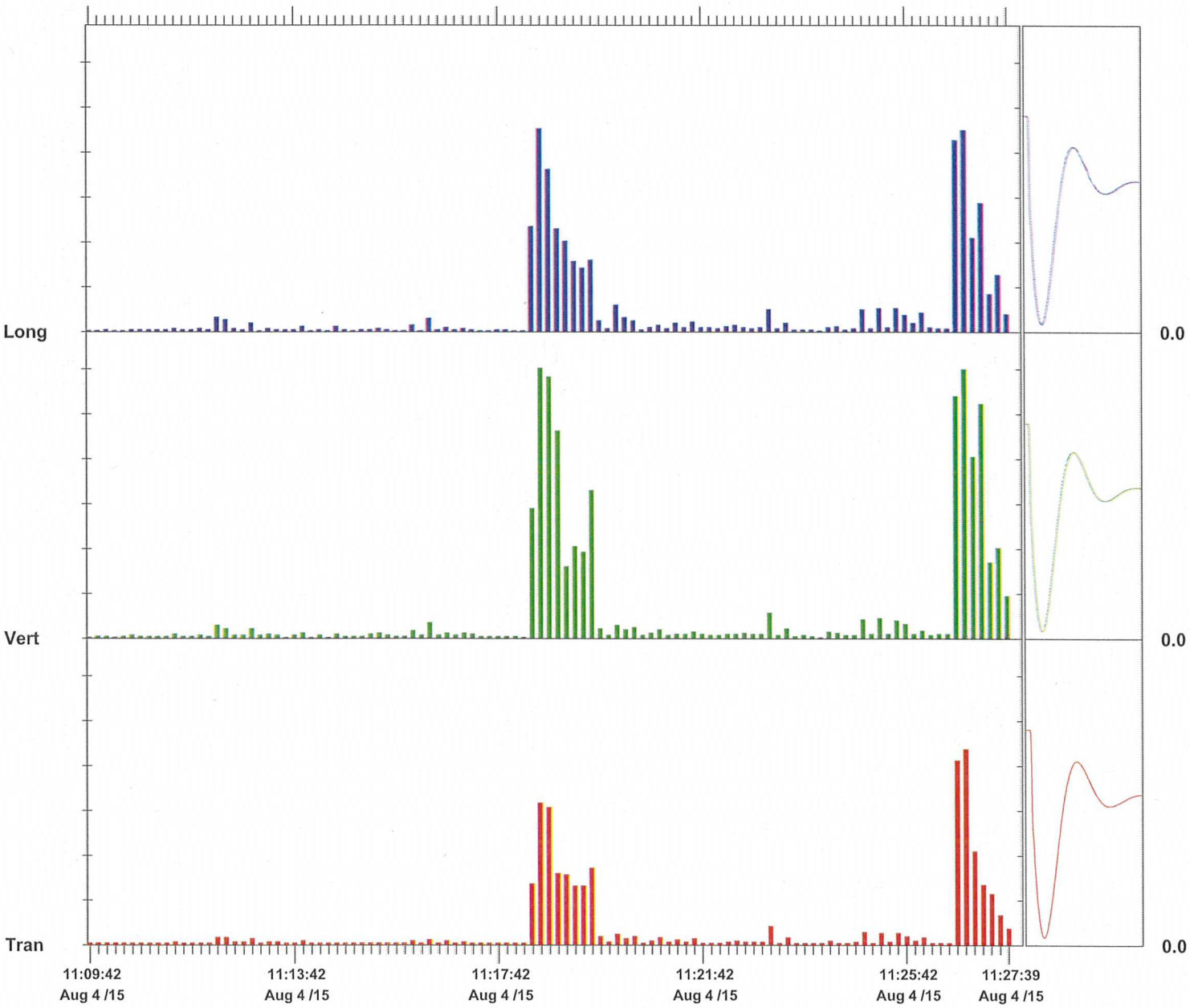
Histogram Start Time	11:09:32 August 4, 2015
Histogram Finish Time	11:27:39 August 4, 2015
Number of Intervals	217.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Gas Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

Serial Number	BE11212 V 10.72-8.17 MiniMate Plus
Battery Level	6.4 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	M212FYPQ.ZW0

Post Event Notes
VMP 7

	Tran	Vert	Long	
PPV	0.875	1.20	0.905	in/s
ZC Freq	32	30	30	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	11:26:47	11:18:32	11:18:27	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.4	Hz
Overswing Ratio	3.9	3.7	3.8	

Peak Vector Sum 1.59 in/s on August 4, 2015 at 11:26:47



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div

Sensor Check

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Event Report

Histogram Start Time	11:10:08 August 4, 2015
Histogram Finish Time	11:28:36 August 4, 2015
Number of Intervals	221.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 ~~South~~ North Water Main
Client:	Entact
User Name:	Geocomp
General:	~~Kellogg Street and~~ Route 440

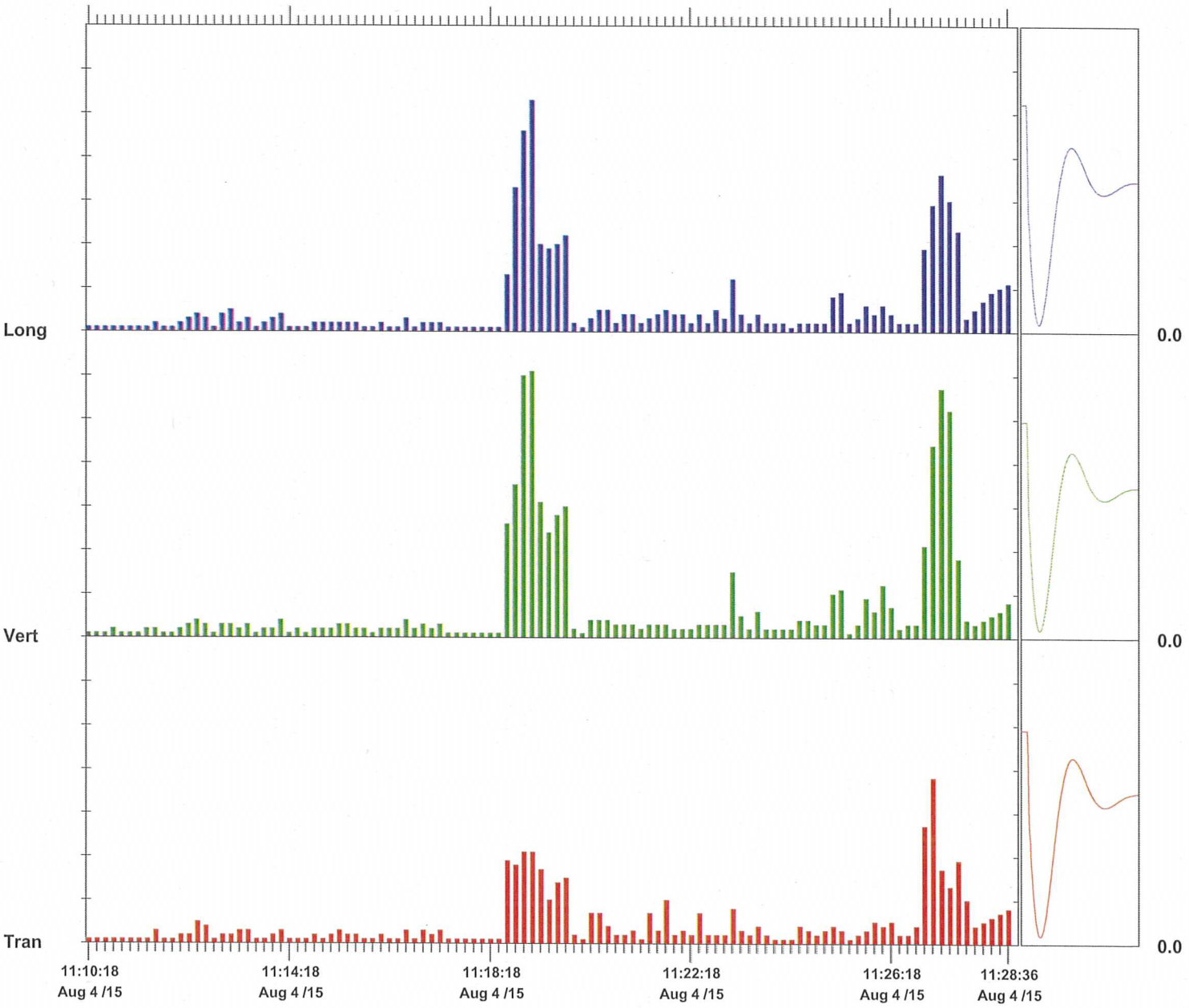
4/27/17

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYPR.0W0

Post Event Notes
Force Main - VMP 8

	Tran	Vert	Long	
PPV	0.190	0.305	0.265	in/s
ZC Freq	30	34	28	Hz
Date	Aug 4 /15	Aug 4 /15	Aug 4 /15	
Time	11:27:03	11:19:08	11:19:03	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.5	Hz
Overswing Ratio	3.7	3.7	3.7	

Peak Vector Sum 0.321 in/s on August 4, 2015 at 11:18:58



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div

Sensor Check

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Geocomp
Technologies to manage risk
for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 South

Prepared by
Geocomp Engineering

August 5th, 2015
For ENTACT, LLC

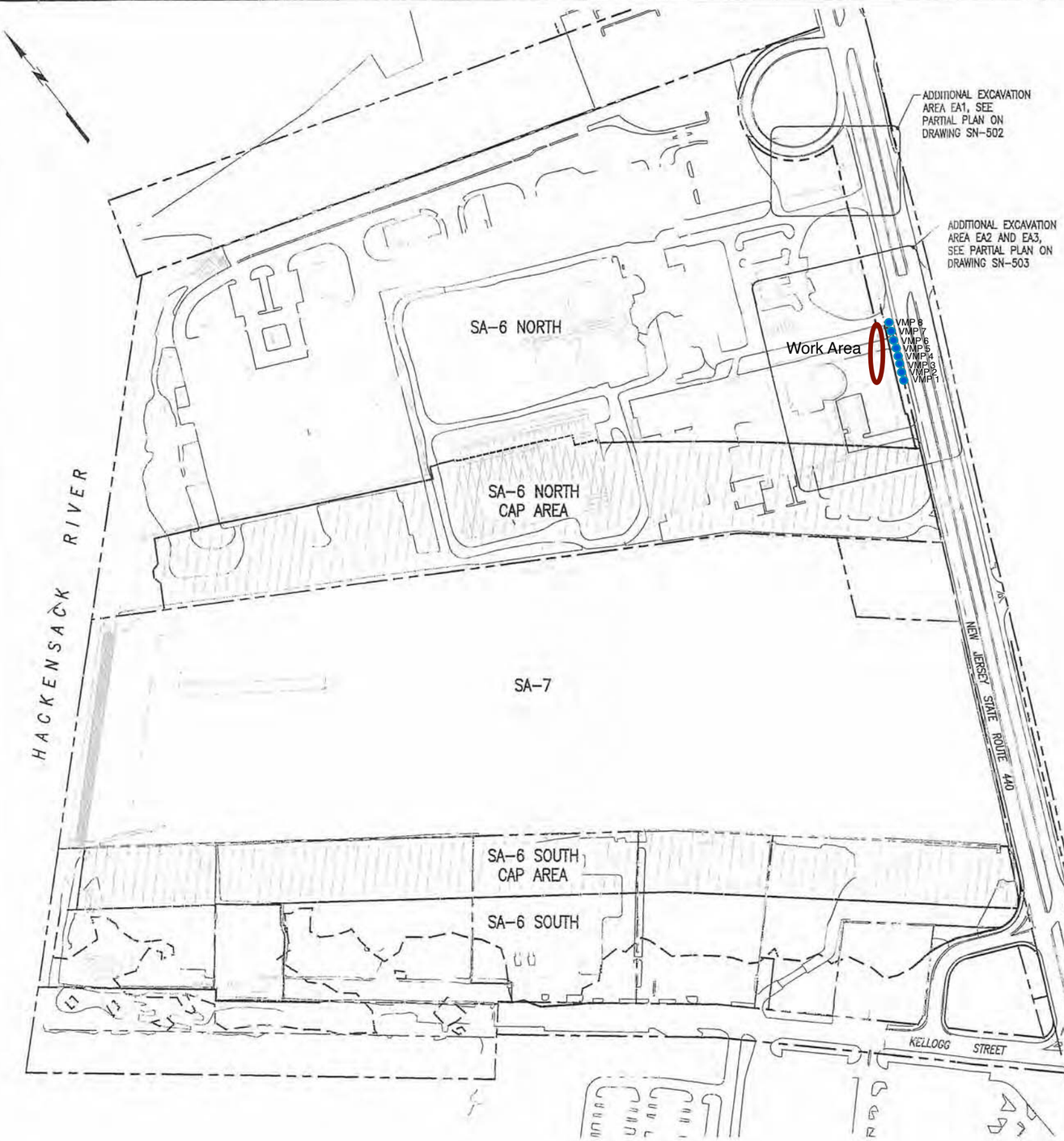
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 7:50 AM and ended at 1:30 PM. An Instantel Micromate was used to record vibrations via a geophone placed on the ground over the water main.

18 sheets were driven and brought to grade with 6 recorded exceedances, i.e., the 0.5 limit was exceeded at 7:22 AM, 7:37 AM, 7:43 AM, 9:20 AM, 10:10 AM, and 10:33 AM. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water Main:
Trigger Level: 0.25 in/sec
Alert Level: 0.5 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. (1) Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. (1) Survey location of monitoring point. (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
1	10/31/14	G.S.	B.B.	G.P.	APVD	GP	ISSUED FOR NJDOT REVIEW
0	06/17/13					FWD	ISSUED FOR CONSTRUCTION

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522
P.W.D. LICENSE NUMBER EXPIRES ON LAST DAY OF THE MONTH OF THE YEAR SHOWN

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

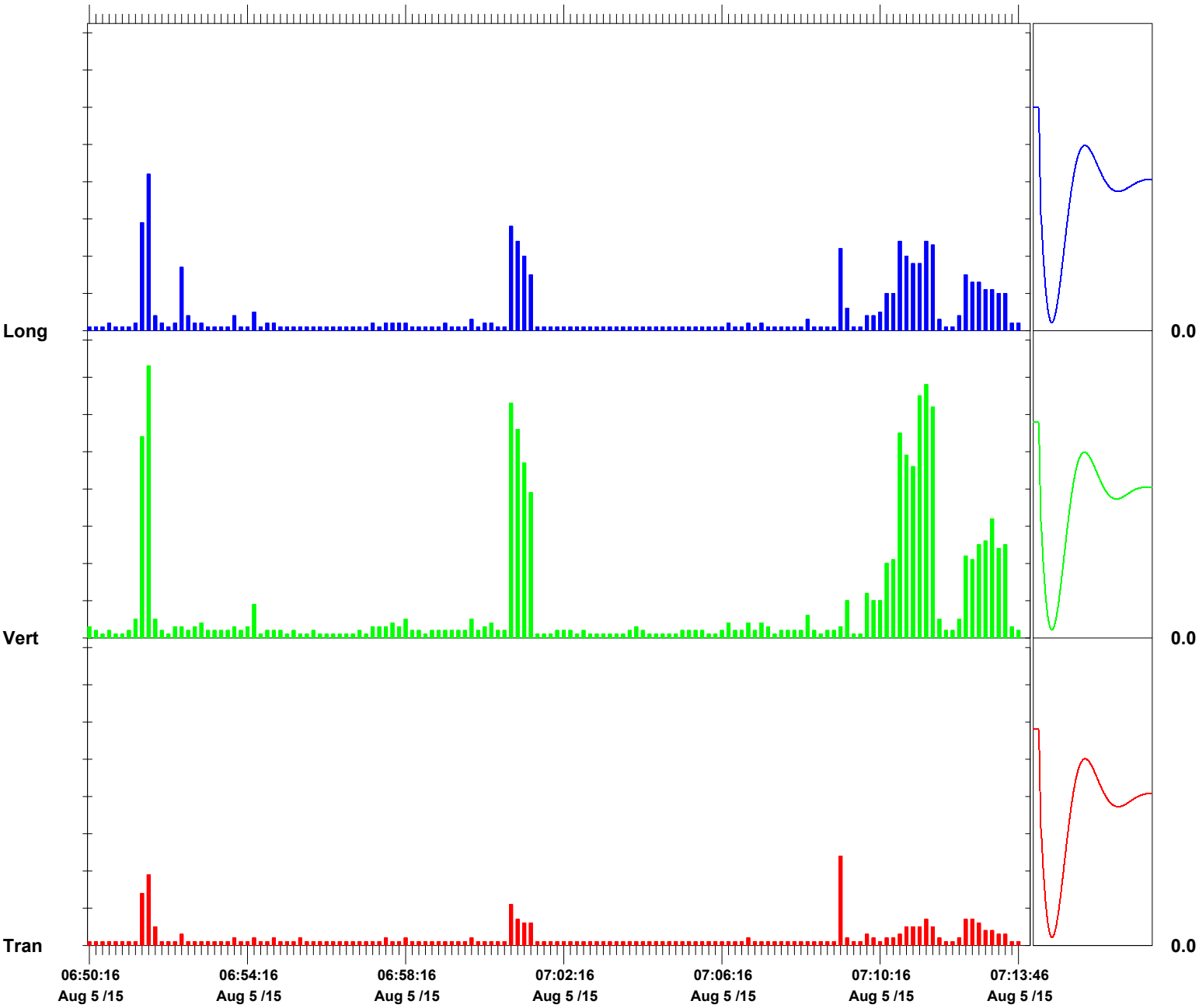
Histogram Start Time 06:50:06 August 5, 2015
Histogram Finish Time 07:13:47 August 5, 2015
Number of Intervals 284.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYR9.NI0

Post Event Notes
VMP 1

	Tran	Vert	Long	
PPV	0.120	0.365	0.210	in/s
ZC Freq	16	28	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	07:09:16	06:51:41	06:51:41	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.419 in/s on August 5, 2015 at 06:51:41



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

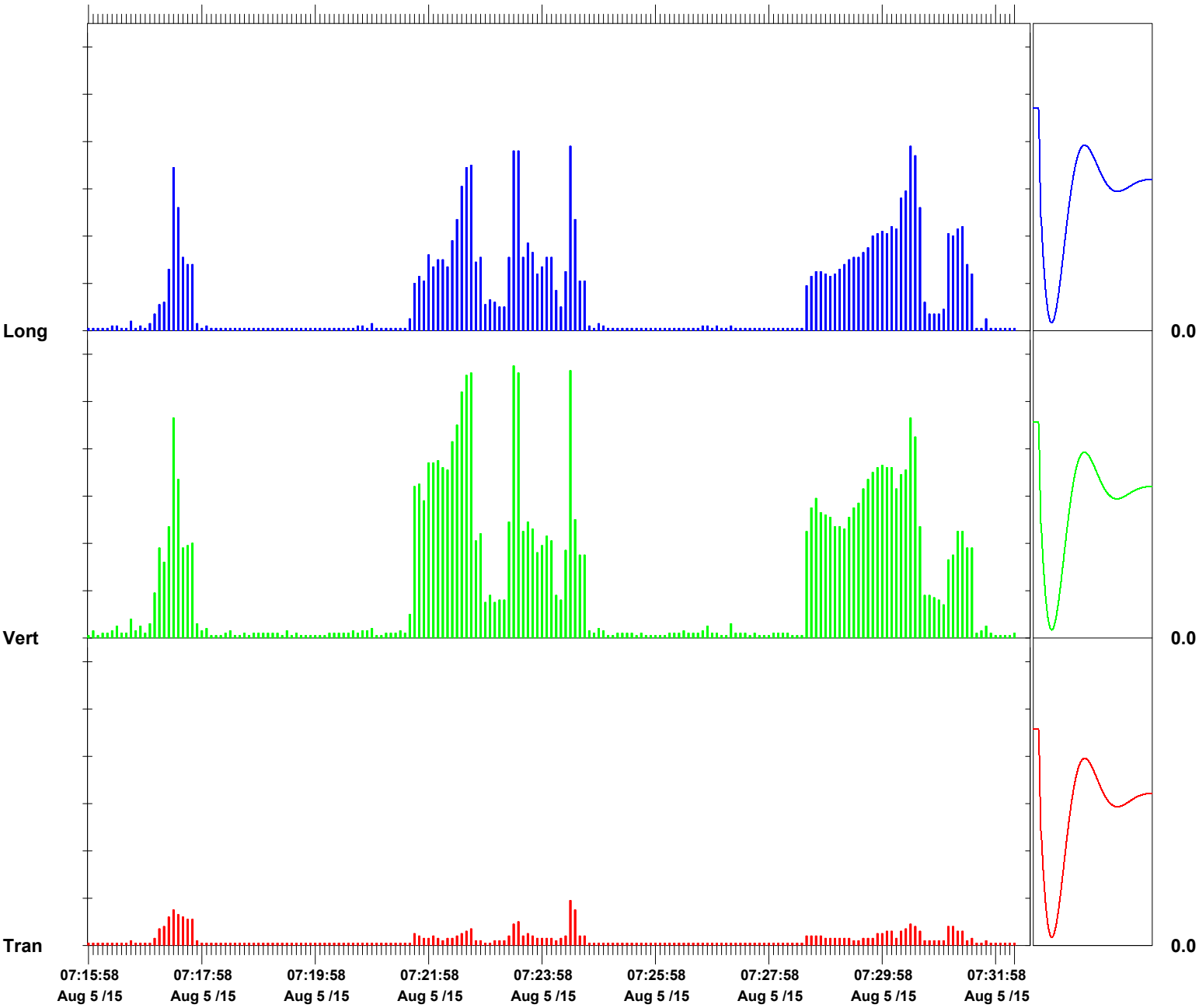
Histogram Start Time 07:15:53 August 5, 2015
Histogram Finish Time 07:32:21 August 5, 2015
Number of Intervals 197.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRA.UH0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0950	0.575	0.390	in/s
ZC Freq	43	32	34	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	07:24:28	07:23:28	07:24:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.5	Hz
Overswing Ratio	3.7	3.9	3.9	

Peak Vector Sum 0.661 in/s on August 5, 2015 at 07:23:28



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

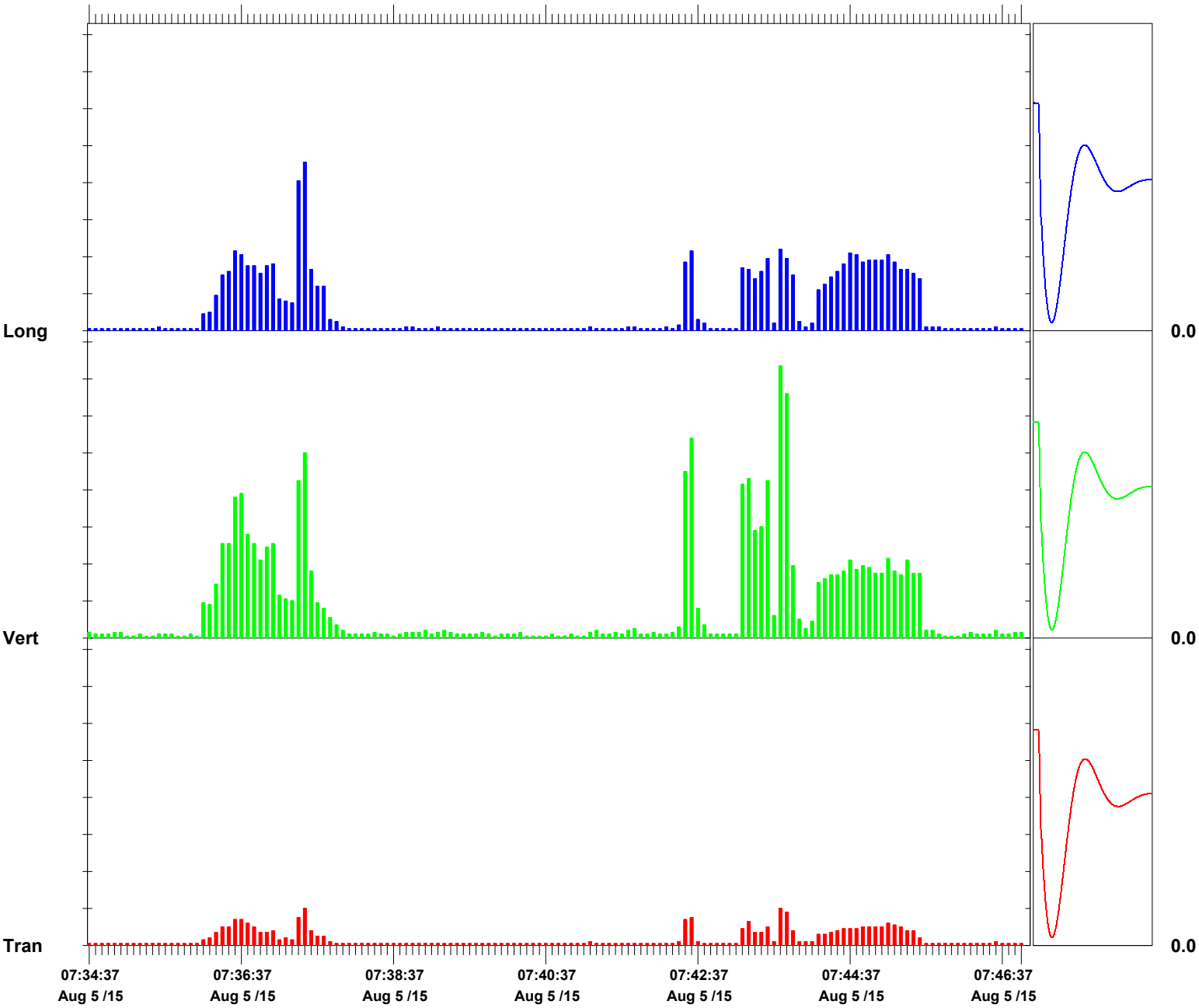
Histogram Start Time 07:34:32 August 5, 2015
Histogram Finish Time 07:46:53 August 5, 2015
Number of Intervals 148.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRB.PK0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.1000	0.735	0.455	in/s
ZC Freq	39	34	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	07:37:27	07:43:42	07:37:27	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.5	Hz
Overswing Ratio	3.8	3.8	3.8	

Peak Vector Sum 0.743 in/s on August 5, 2015 at 07:43:42



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

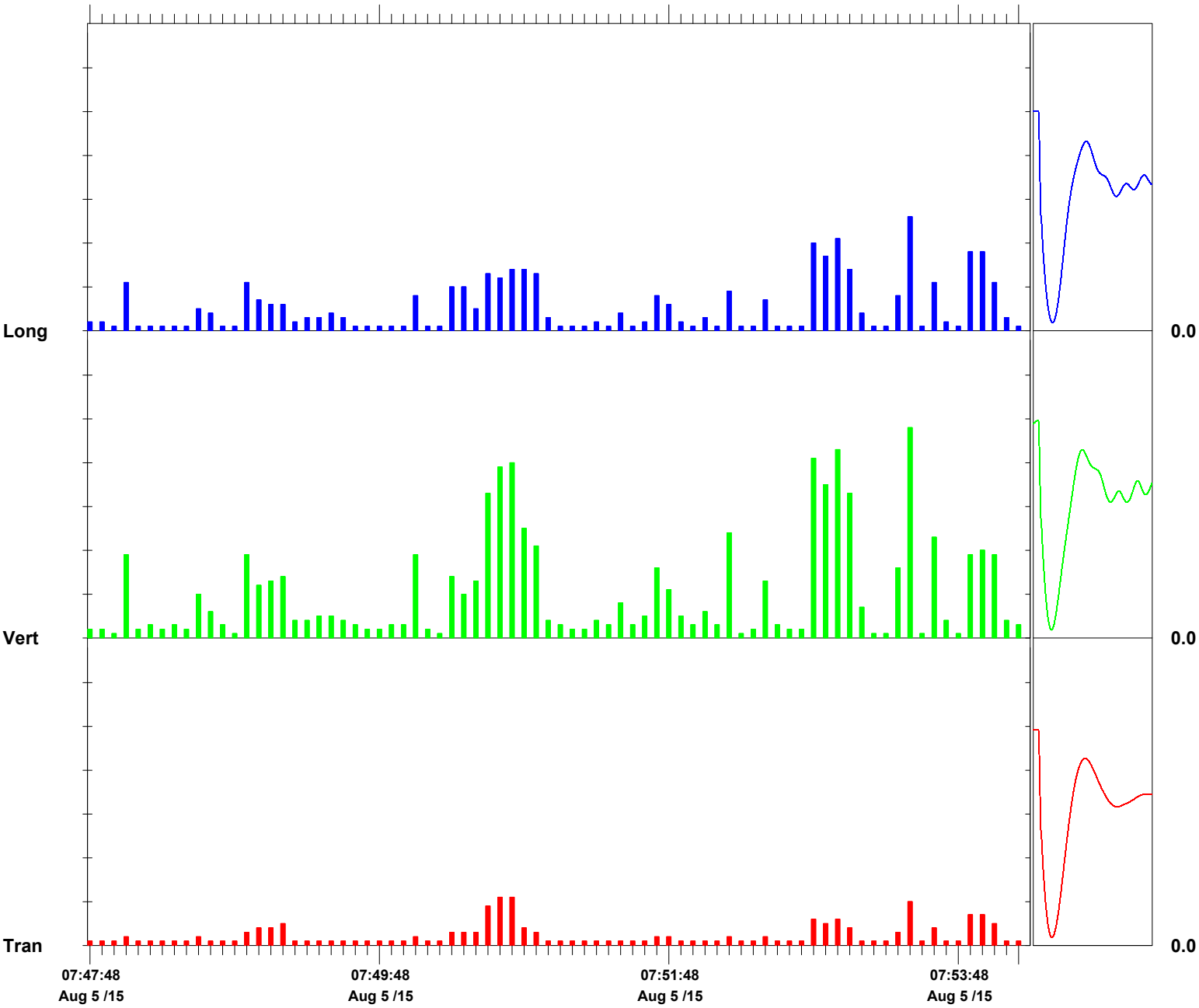
Histogram Start Time 07:47:43 August 5, 2015
Histogram Finish Time 07:54:16 August 5, 2015
Number of Intervals 78.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRC.BJ0

Post Event Notes
VMP 2

	Tran	Vert	Long	
PPV	0.0550	0.240	0.130	in/s
ZC Freq	32	18	18	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	07:50:38	07:53:28	07:53:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.6	3.5	

Peak Vector Sum 0.266 in/s on August 5, 2015 at 07:53:28



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

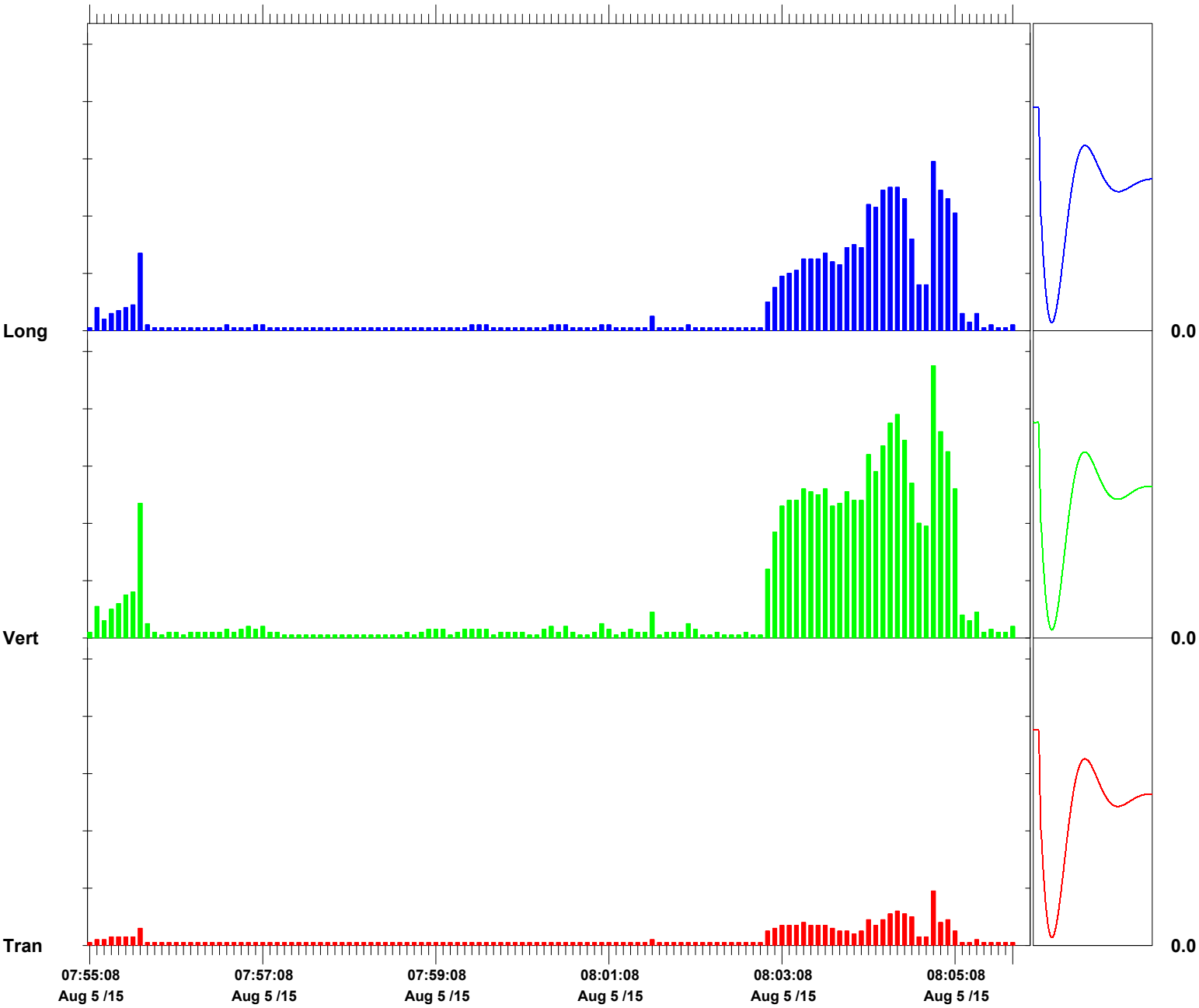
Histogram Start Time 07:55:03 August 5, 2015
Histogram Finish Time 08:05:51 August 5, 2015
Number of Intervals 129.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRC.NR0

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0950	0.475	0.295	in/s
ZC Freq	30	28	30	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	08:04:53	08:04:53	08:04:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.551 in/s on August 5, 2015 at 08:04:53



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

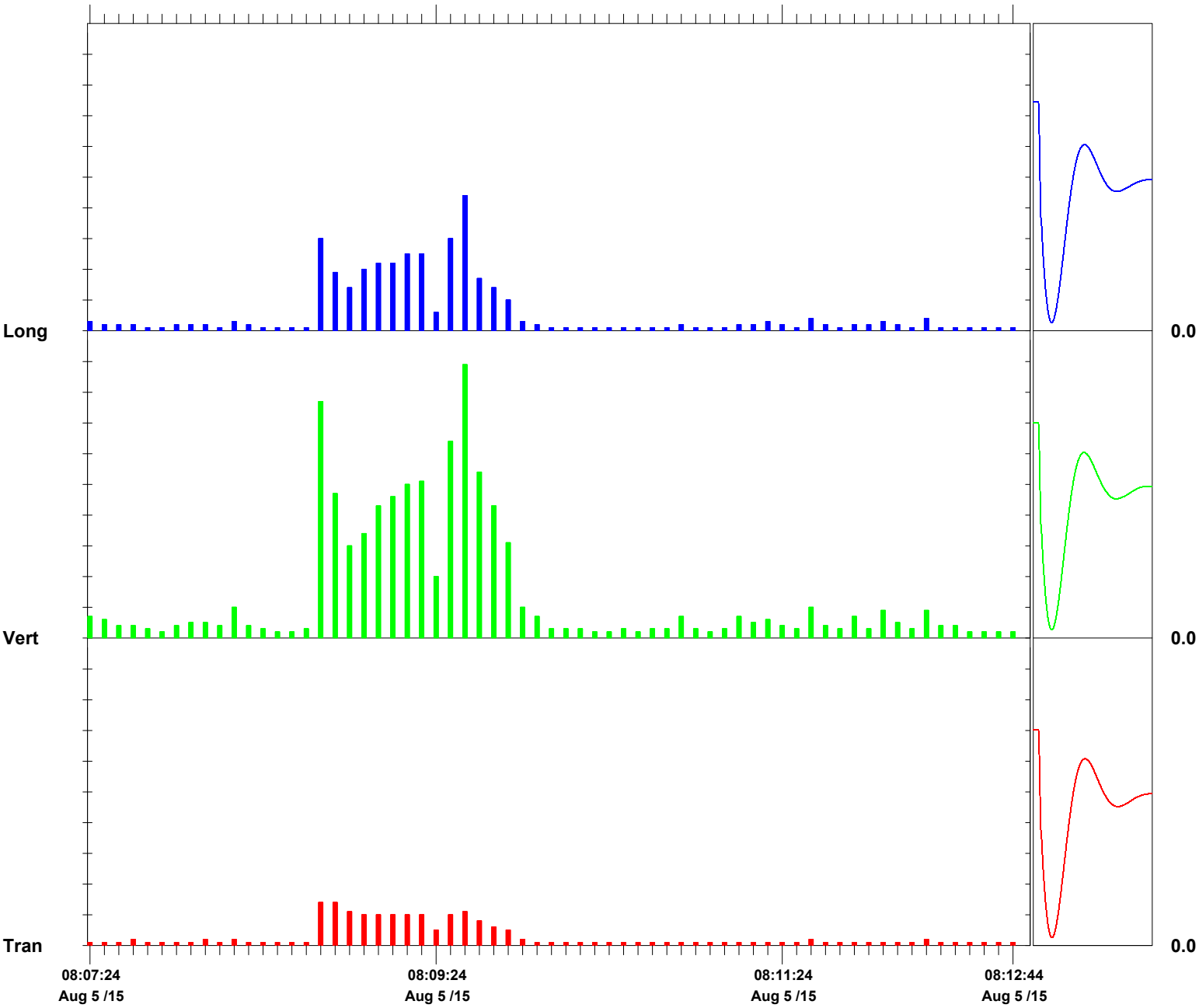
Histogram Start Time 08:07:19 August 5, 2015
Histogram Finish Time 08:12:49 August 5, 2015
Number of Intervals 65.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRD.870

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0700	0.445	0.220	in/s
ZC Freq	30	32	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	08:08:44	08:09:34	08:09:34	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.8	3.9	3.8	

Peak Vector Sum 0.480 in/s on August 5, 2015 at 08:09:34



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

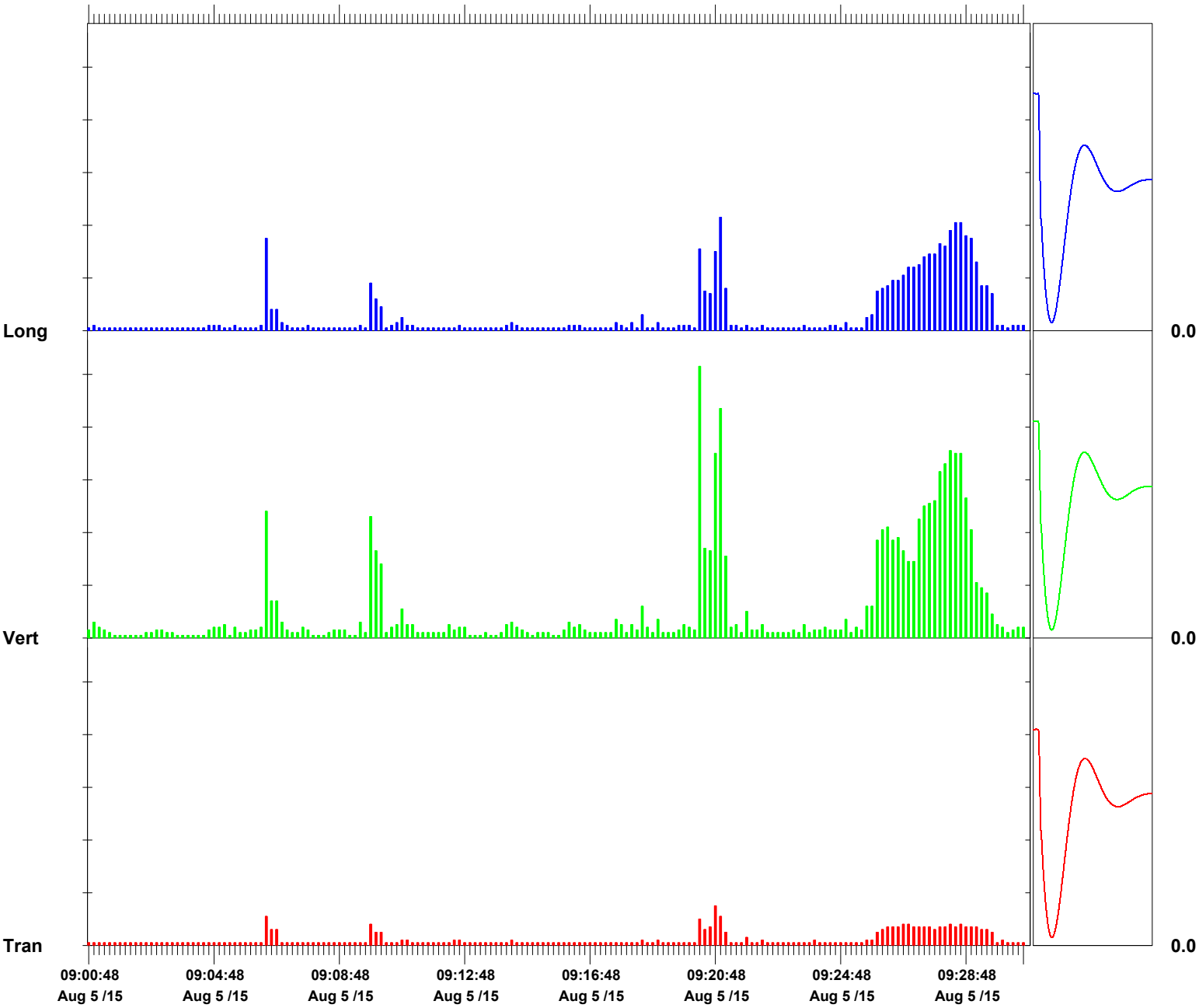
Histogram Start Time 09:00:38 August 5, 2015
Histogram Finish Time 09:30:39 August 5, 2015
Number of Intervals 360.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRF.P20

Post Event Notes
VMP 4

	Tran	Vert	Long	
PPV	0.0750	0.515	0.215	in/s
ZC Freq	43	20	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	09:20:48	09:20:13	09:20:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.527 in/s on August 5, 2015 at 09:20:13



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

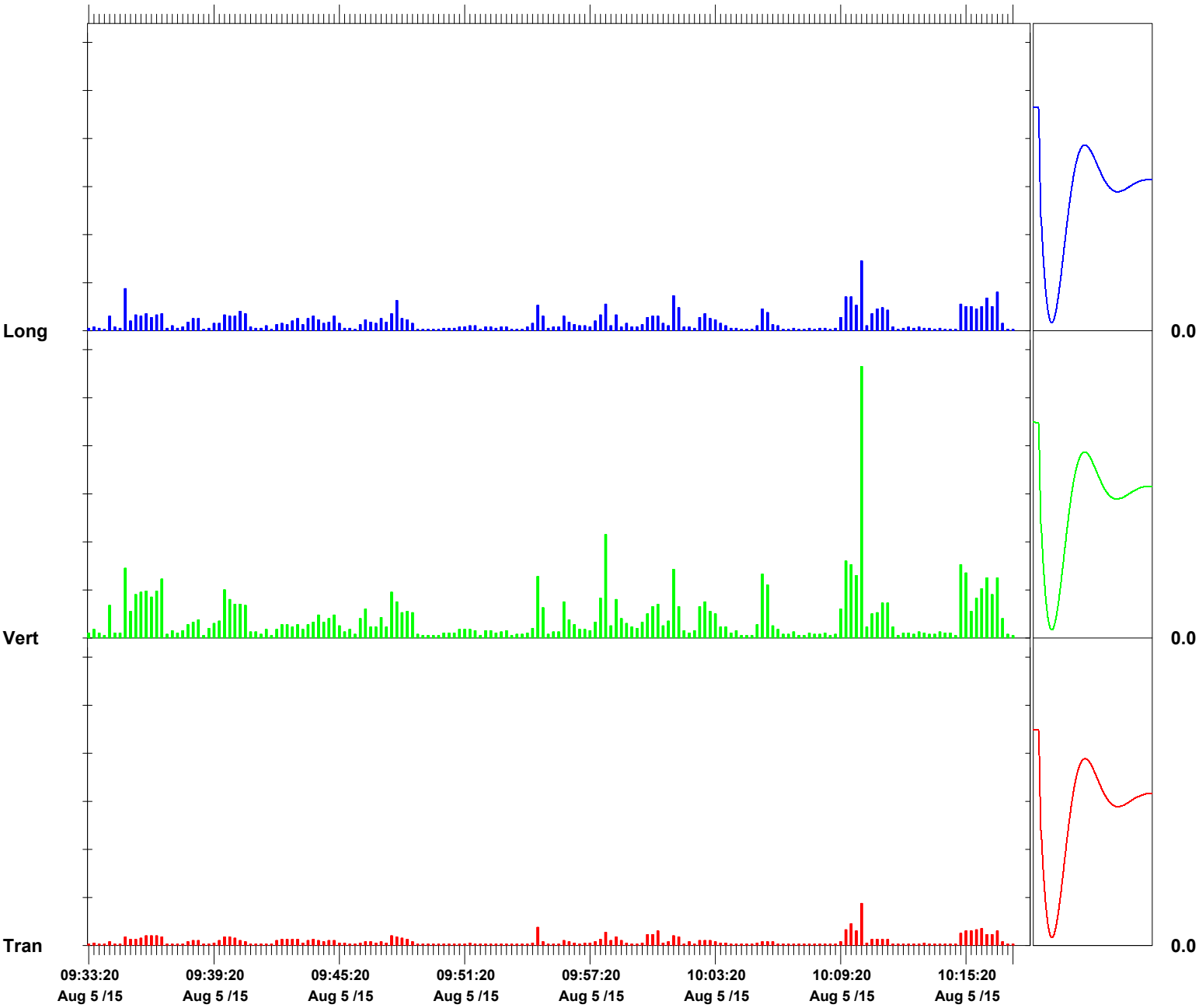
Histogram Start Time 09:33:05 August 5, 2015
Histogram Finish Time 10:17:29 August 5, 2015
Number of Intervals 532.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRH.750

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.175	1.13	0.290	in/s
ZC Freq	28	39	39	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	10:10:15	10:10:15	10:10:15	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.4	Hz
Overswing Ratio	3.7	3.8	3.8	

Peak Vector Sum 1.13 in/s on August 5, 2015 at 10:10:15



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.200 in/s/div Sensor Check

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Event Report

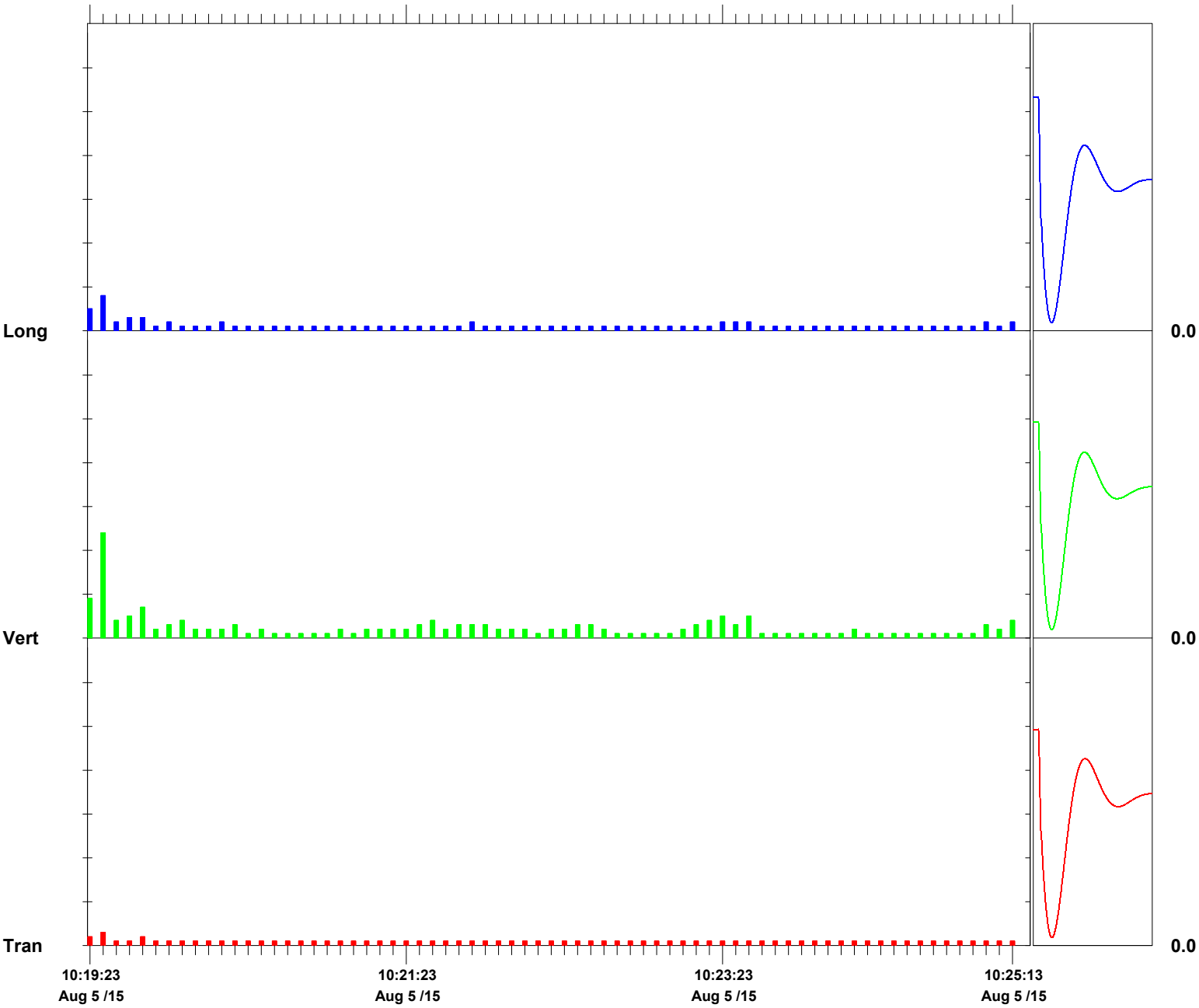
Histogram Start Time 10:19:18 August 5, 2015
Histogram Finish Time 10:25:16 August 5, 2015
Number of Intervals 71.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRJ.C60

Post Event Notes
VMP 3

	Tran	Vert	Long	
PPV	0.0150	0.120	0.0400	in/s
ZC Freq	57	37	43	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	10:19:28	10:19:28	10:19:28	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.124 in/s on August 5, 2015 at 10:19:28



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

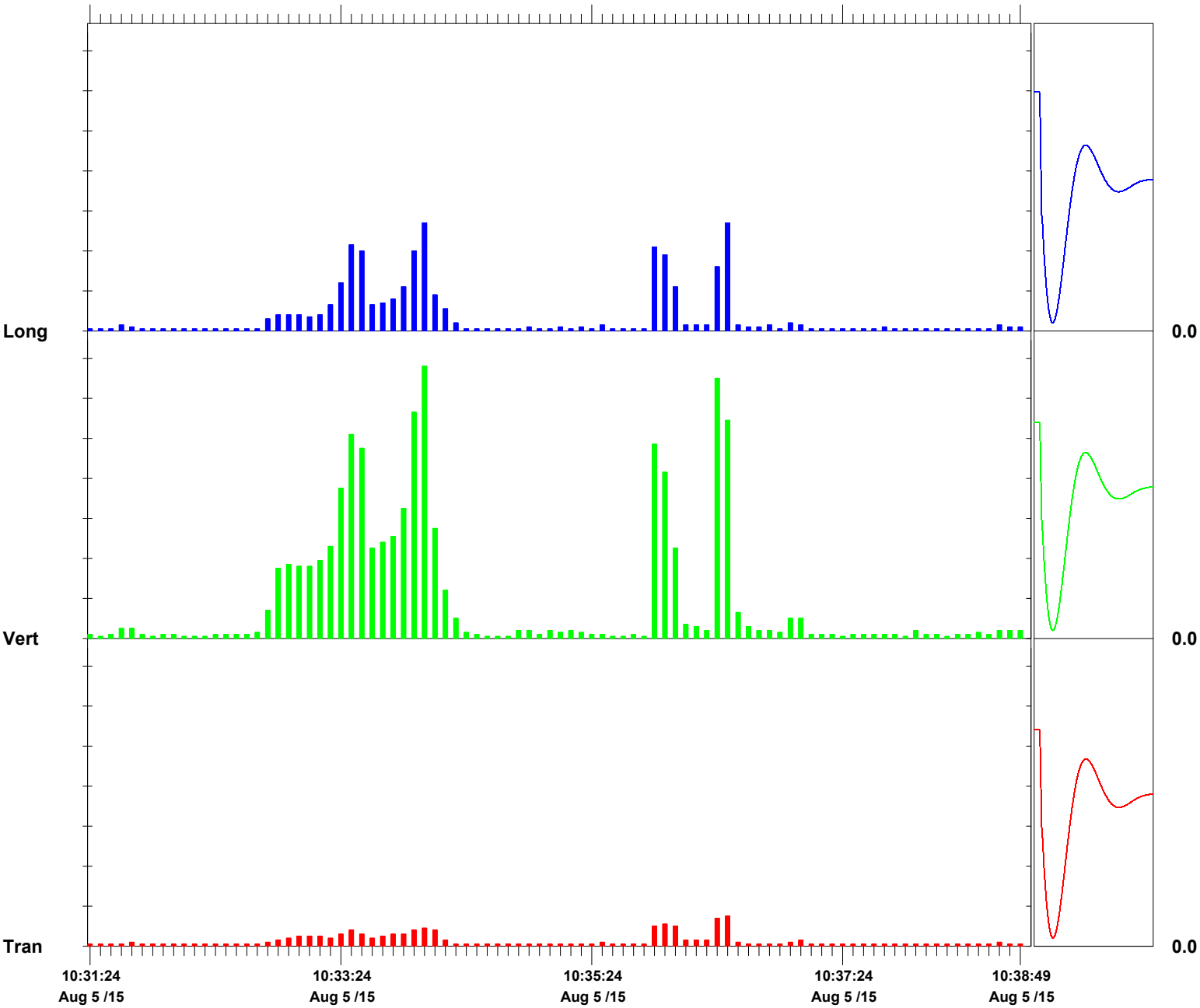
Histogram Start Time 10:31:19 August 5, 2015
Histogram Finish Time 10:38:51 August 5, 2015
Number of Intervals 90.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.2 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRJ.W70

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.0750	0.680	0.270	in/s
ZC Freq	28	34	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	10:36:29	10:34:04	10:34:04	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.4	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.730 in/s on August 5, 2015 at 10:34:04



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

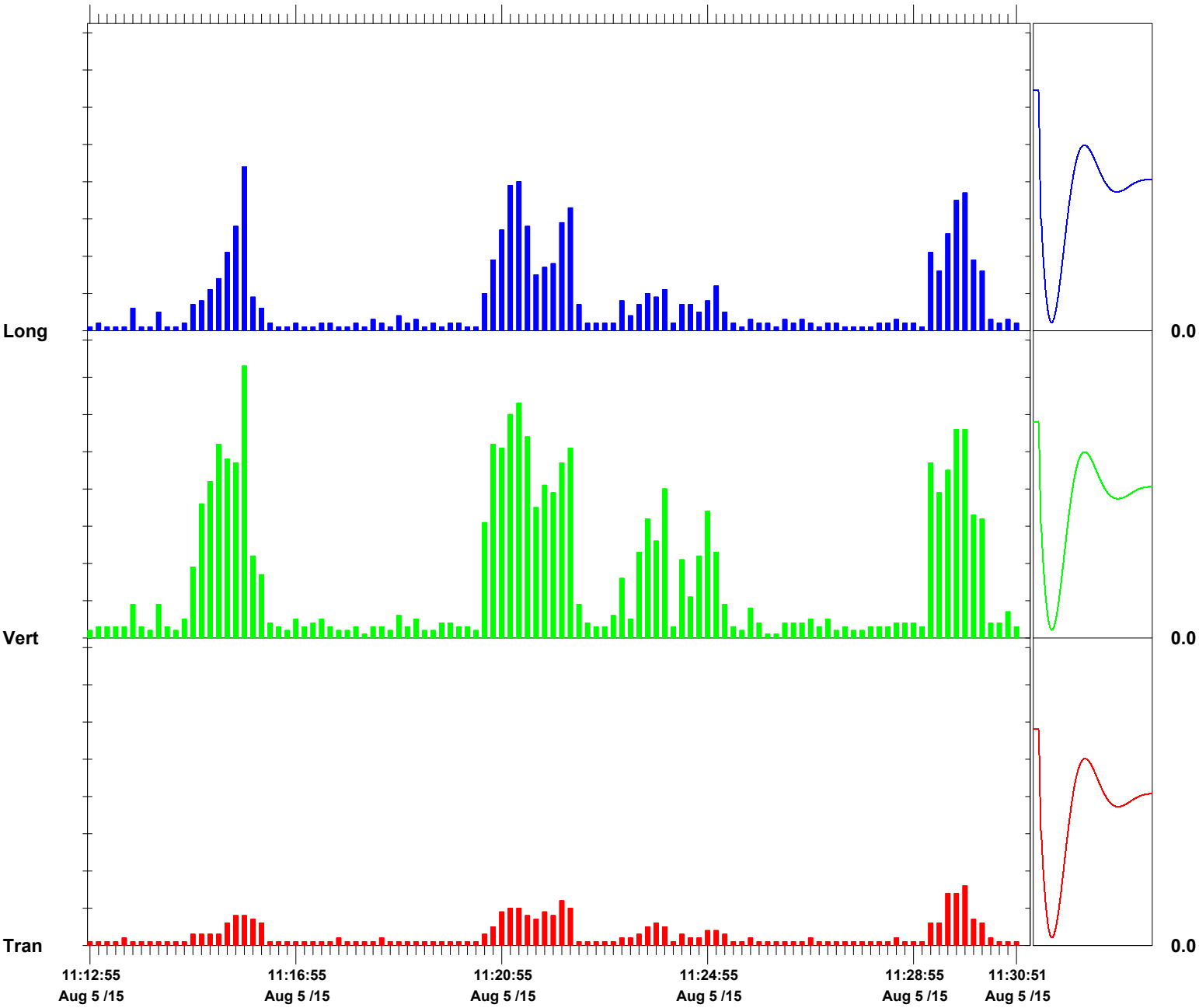
Histogram Start Time 11:12:45 August 5, 2015
Histogram Finish Time 11:30:51 August 5, 2015
Number of Intervals 217.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.2 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRL.T90

Post Event Notes
VMP 6

	Tran	Vert	Long	
PPV	0.0800	0.365	0.220	in/s
ZC Freq	32	30	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	11:29:50	11:15:50	11:15:50	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.7	3.8	3.9	

Peak Vector Sum 0.418 in/s on August 5, 2015 at 11:15:50



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

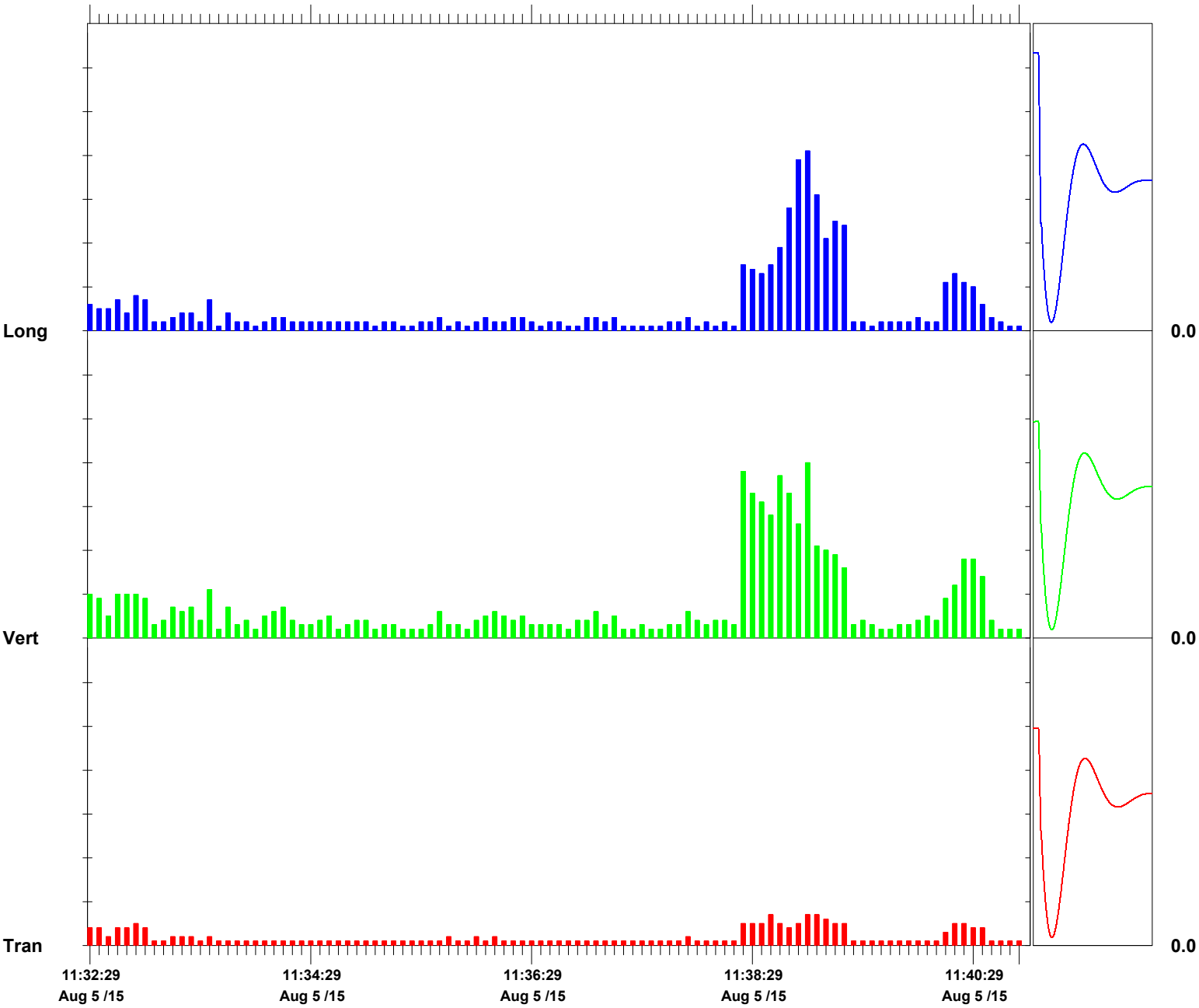
Histogram Start Time	11:32:24 August 5, 2015
Histogram Finish Time	11:40:56 August 5, 2015
Number of Intervals	102.00 at 5 seconds
Range	Geo:10.00 in/s
Sample Rate	1024sps
Notes	
Location:	SA 6 South Water Main
Client:	Entact
User Name:	Geocomp
General:	Kellogg Street and Route 440

Serial Number	BE17741 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	July 9, 2015 by Instantel
File Name	S741FYRM.Q00

Post Event Notes
VMP 5

	Tran	Vert	Long	
PPV	0.0350	0.200	0.205	in/s
ZC Freq	34	32	34	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	11:38:39	11:38:59	11:38:59	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.7	Hz
Overswing Ratio	3.7	3.9	3.7	

Peak Vector Sum 0.287 in/s on August 5, 2015 at 11:38:59



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

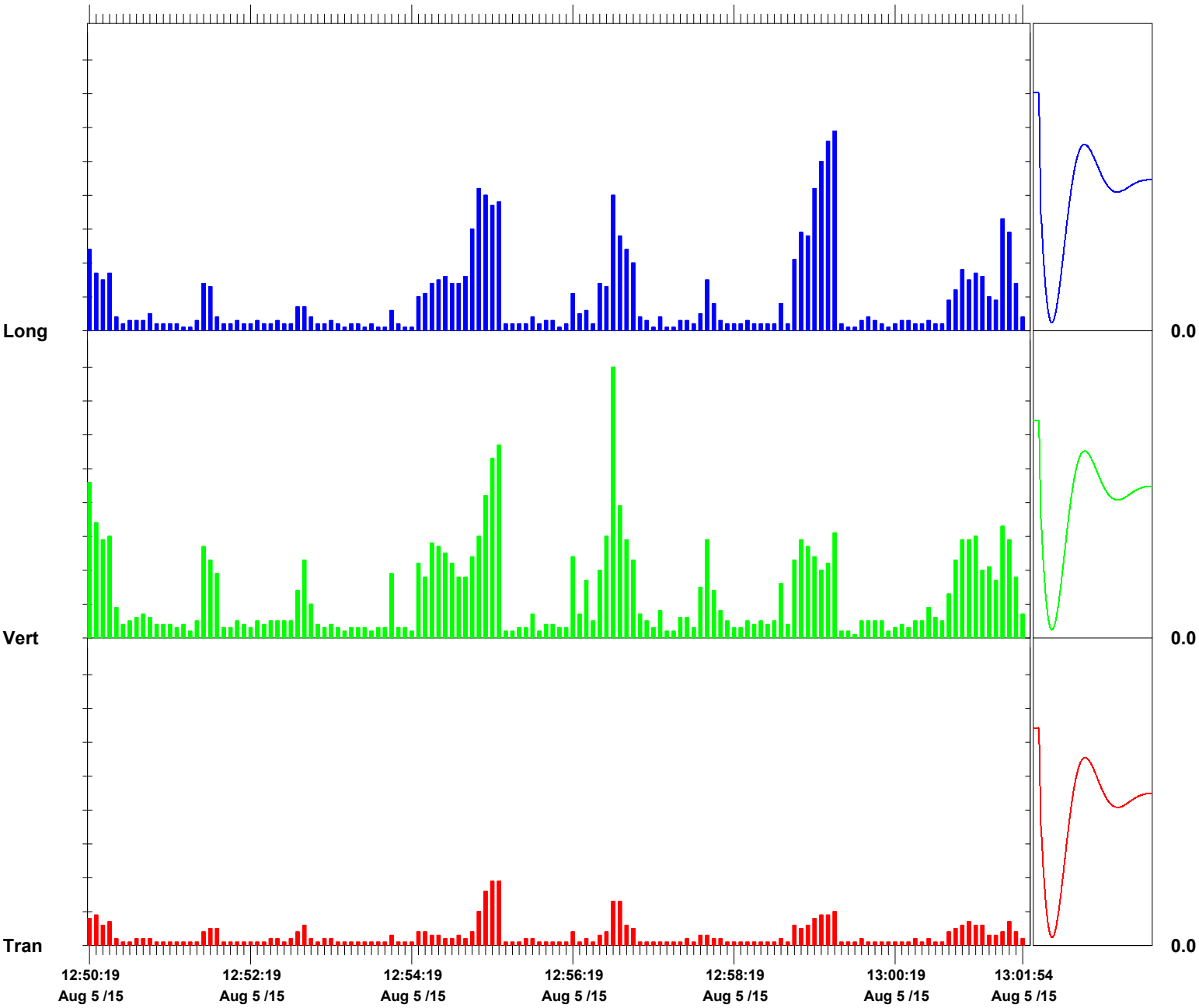
Histogram Start Time 12:50:14 August 5, 2015
Histogram Finish Time 13:01:58 August 5, 2015
Number of Intervals 140.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRQ.BQ0

Post Event Notes
VMP 7

	Tran	Vert	Long	
PPV	0.0950	0.400	0.295	in/s
ZC Freq	30	32	39	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	12:55:19	12:56:49	12:59:34	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.6	3.7	3.8	

Peak Vector Sum 0.401 in/s on August 5, 2015 at 12:56:49



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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Event Report

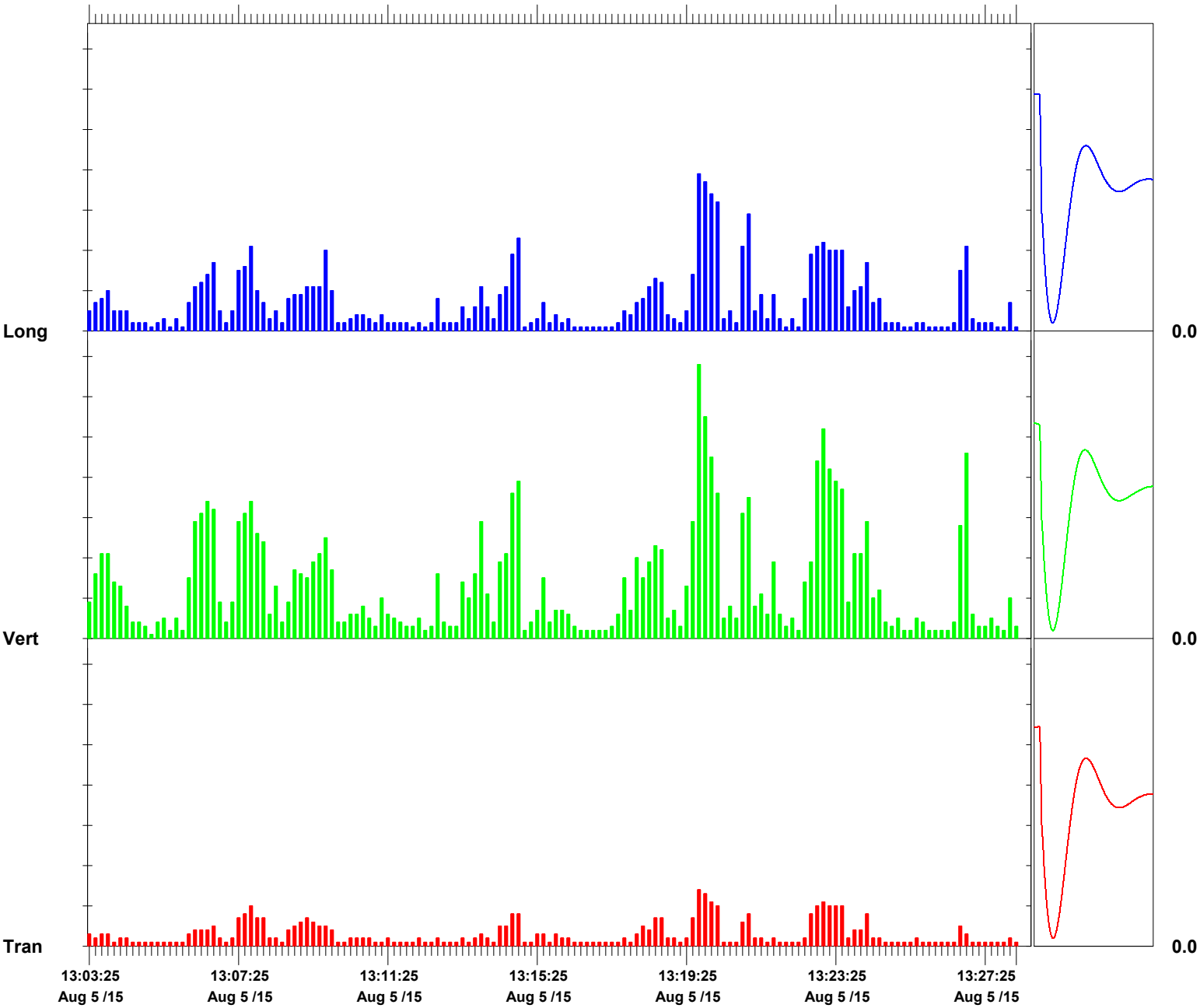
Histogram Start Time 13:03:15 August 5, 2015
Histogram Finish Time 13:28:16 August 5, 2015
Number of Intervals 300.00 at 5 seconds
Range Geo:10.00 in/s
Sample Rate 1024sps
Notes
Location: SA 6 South Water Main
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Serial Number BE17741 V 10.72-8.17 MiniMate Plus
Battery Level 6.3 Volts
Unit Calibration July 9, 2015 by Instantel
File Name S741FYRQ.XF0

Post Event Notes
VMP 8

	Tran	Vert	Long	
PPV	0.0700	0.340	0.195	in/s
ZC Freq	32	28	32	Hz
Date	Aug 5 /15	Aug 5 /15	Aug 5 /15	
Time	13:19:45	13:19:45	13:19:45	
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.4	Hz
Overswing Ratio	3.6	3.6	3.9	

Peak Vector Sum 0.390 in/s on August 5, 2015 at 13:19:45



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.0500 in/s/div Sensor Check

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New York
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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

October 19th, 2015
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

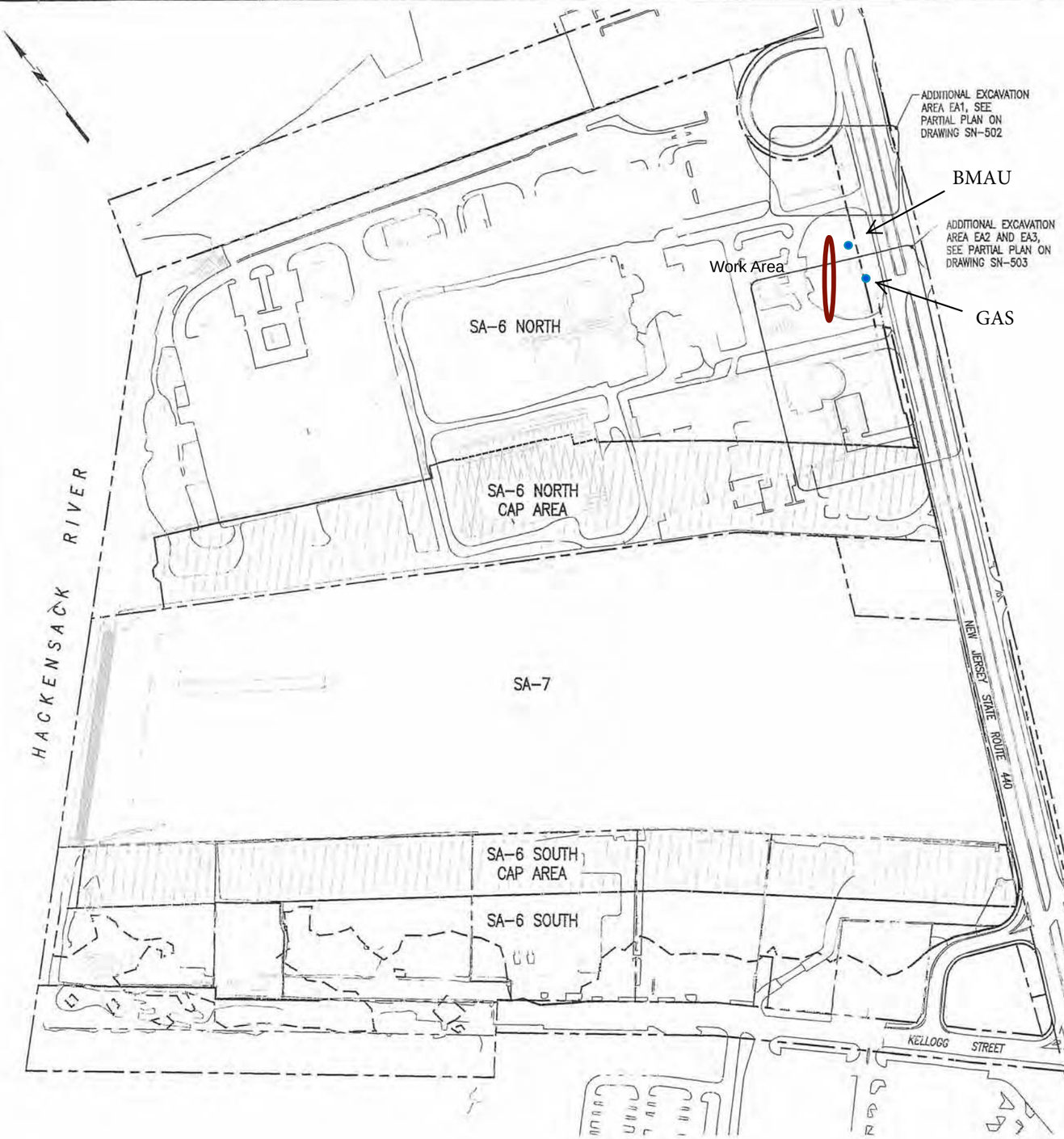
NOTES:

Summary of Work:
Sheet pile driving commenced at 11:10 AM and ended at 11:30 AM. Two Instantel Minimates were used to record vibrations via a geophone placed on the ground over the gas and BMAU main.

3 sheets were driven, and no exceedances were recorded. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Gas Main:
Trigger Level: 0.5 in/sec
Alert Level: 2.0 in/sec

BMAU Main:
Trigger Level: 0.25 in/s
Alert level: 0.5 in/s



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. (1)
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading). (1)
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522

NO.	DATE	DSGN	DR	CHK	APVD
		G.S.	B.B.	G.P.	APVD
1	10/31/14				
0	06/17/13				

ISSUED FOR NJDOT REVIEW — F.W.D. — GP
ISSUED FOR CONSTRUCTION — F.W.D. — APVD
REVISION — BY

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CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

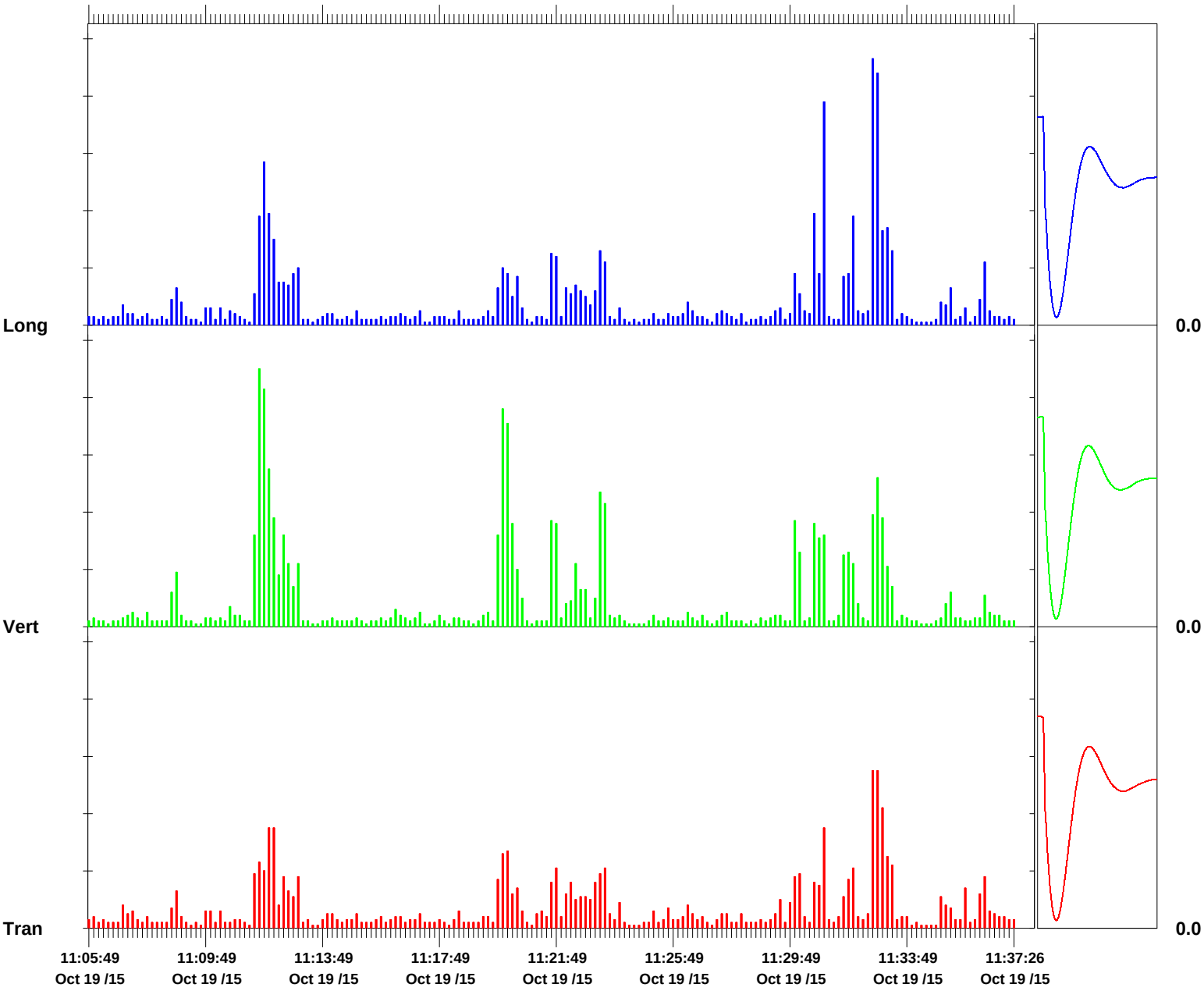
Histogram Start Time	11:05:39 October 19, 2015	**Serial Number**	BE11655 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:37:26 October 19, 2015	**Battery Level**	6.3 Volts
Number of Intervals	381.00 at 5 seconds	**Unit Calibration**	September 4, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	M655G2MH.HF0
Sample Rate	1024sps		

Notes

Location: SA-6 BMAU
Cleint: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

	Tran	Vert	Long	
PPV	0.275	0.450	0.465	in/s
ZC Freq	39	30	39	Hz
Date	Oct 19 /15	Oct 19 /15	Oct 19 /15	
Time	11:32:39	11:11:39	11:32:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.3	Hz
Overswing Ratio	3.9	4.0	4.2	

Peak Vector Sum 0.505 in/s on October 19, 2015 at 11:32:39



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Event Report

Histogram Start Time	11:07:12 October 19, 2015	**Serial Number**	BE19225 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:37:13 October 19, 2015	**Battery Level**	6.2 Volts
Number of Intervals	360.00 at 5 seconds	**Unit Calibration**	September 21, 2015 by Instantel
Range	Geo:1.250 in/s	**File Name**	U225G2MH.K00
Sample Rate	1024sps		
Job Number:	1		

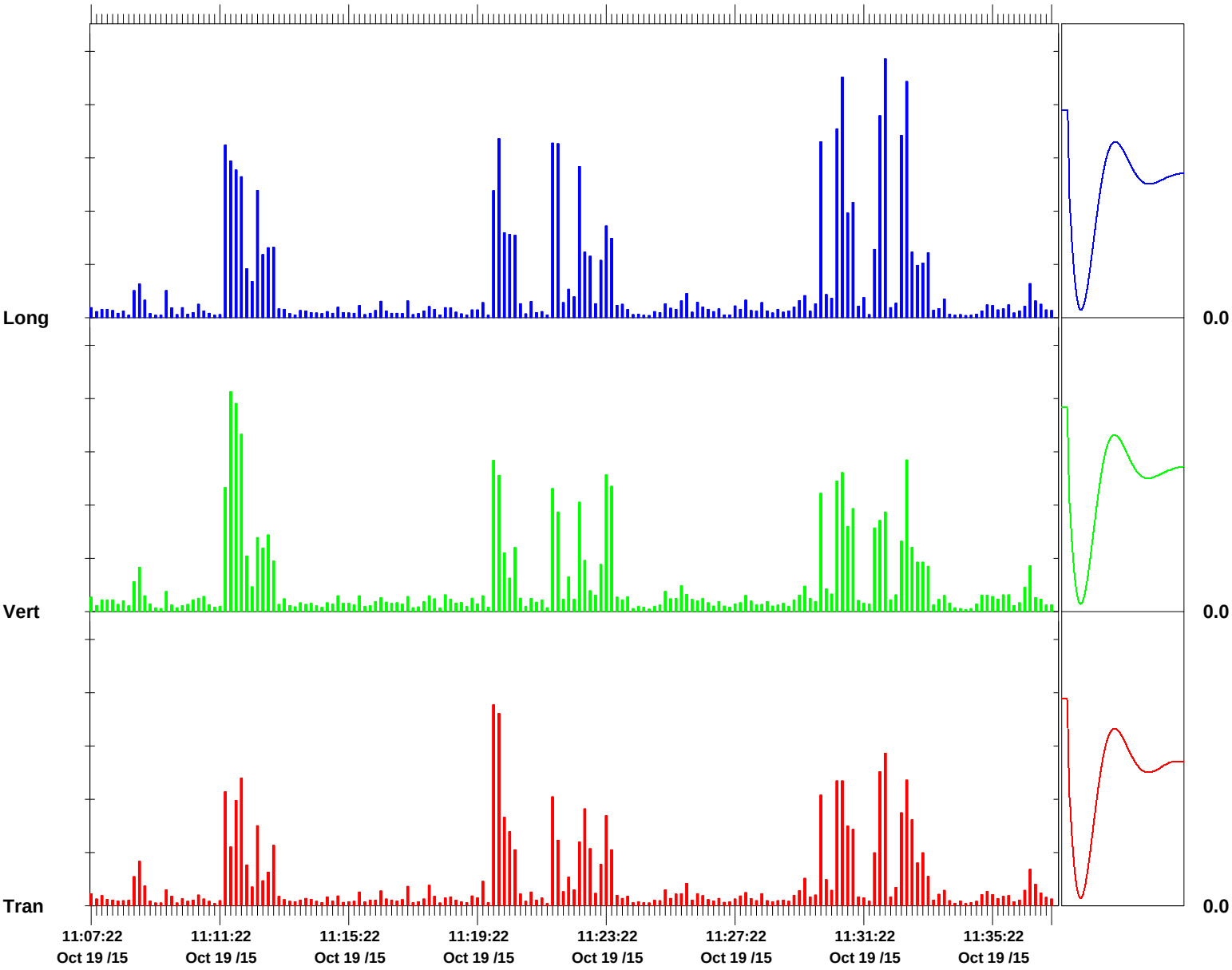
Notes

Location: SA-6 North Gas
Client: Entact
User Name: Geocomp
General: Kellogg Street and Route 440

Extended Notes

	Tran	Vert	Long	
PPV	0.377	0.412	0.486	in/s
ZC Freq	30	32	30	Hz
Date	Oct 19 /15	Oct 19 /15	Oct 19 /15	
Time	11:19:52	11:11:42	11:31:57	
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.4	Hz
Overswing Ratio	3.9	3.9	4.0	

Peak Vector Sum 0.520 in/s on October 19, 2015 at 11:30:37



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Sensor Check

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Atlanta
Chicago
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New York
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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

January 12, 2016
For ENTACT, LLC

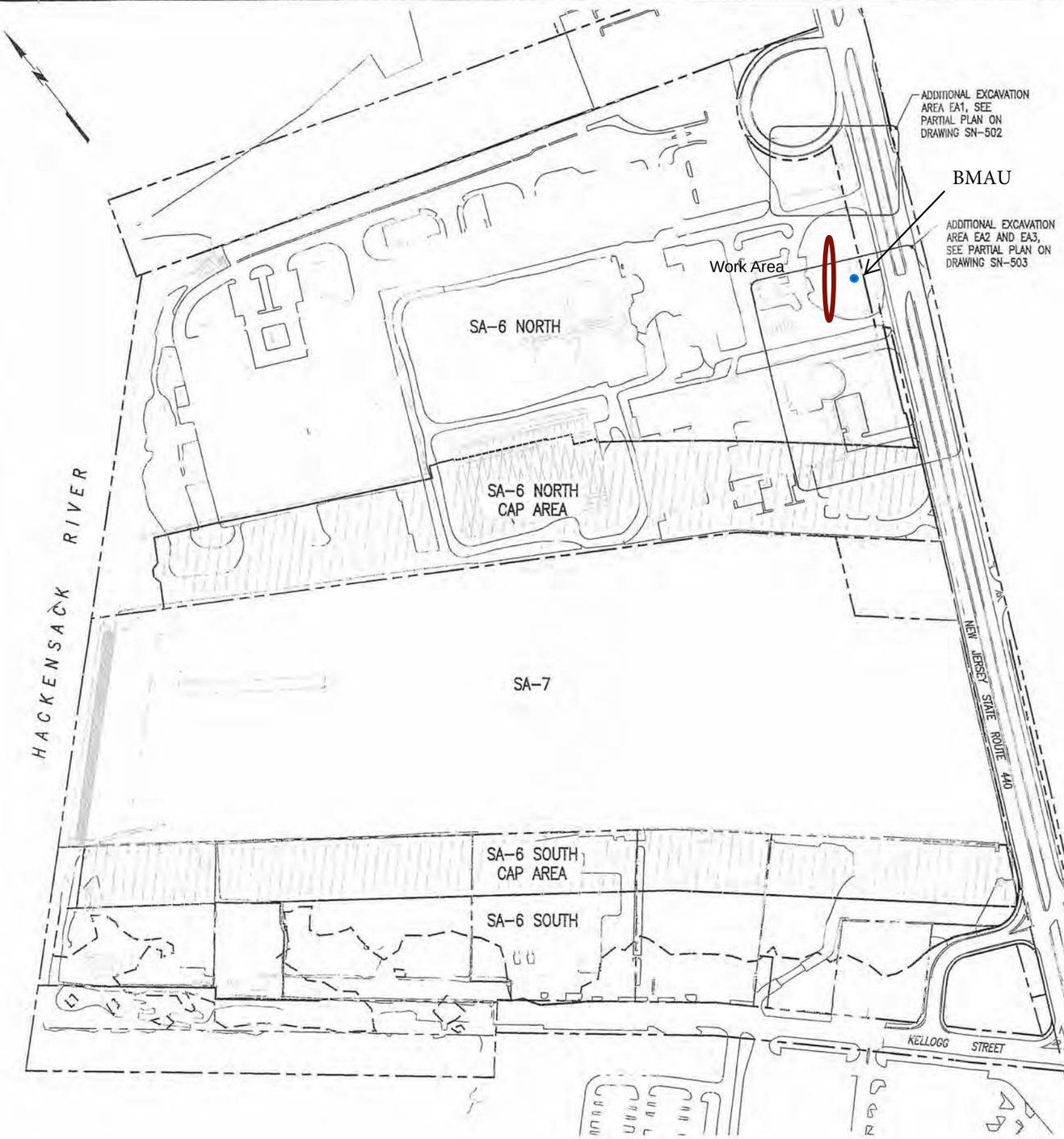
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Sheet pile driving commenced at 10:53 AM and ended at 11:30 AM. One Instantel Minimate was used to record vibrations via a geophone placed on the ground over the Water/Sewer main.

2 sheets were driven, and a 0.54 in/sec alert level was recorded on the first 2 feet of the 2nd sheet. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water/Sewer
Alert Level: 0.5 in/sec
Limit Level: 1.0 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. (1) Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level.
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. (1) Survey location of monitoring point. (X, Y, Z) (baseline reading).
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

NO.	DATE	DSGN	DR	CHK	APVD
1	10/31/14	G.S.	B.B.	G.P.	APVD
0	06/17/13				

1 ISSUED FOR NJDOT REVIEW GP
0 ISSUED FOR CONSTRUCTION F.W.D. BY APVD

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE 45522

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JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE
PROJ 3480-12-0317
DWG SN-501
SHEET 62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

Histogram Start Time	10:53:22 January 12, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:41:11 January 12, 2016	**Battery Level**	6.2 Volts
Number of Intervals	573.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G6ZV.KY0
Sample Rate	1024sps		
Job Number:	1		

Notes

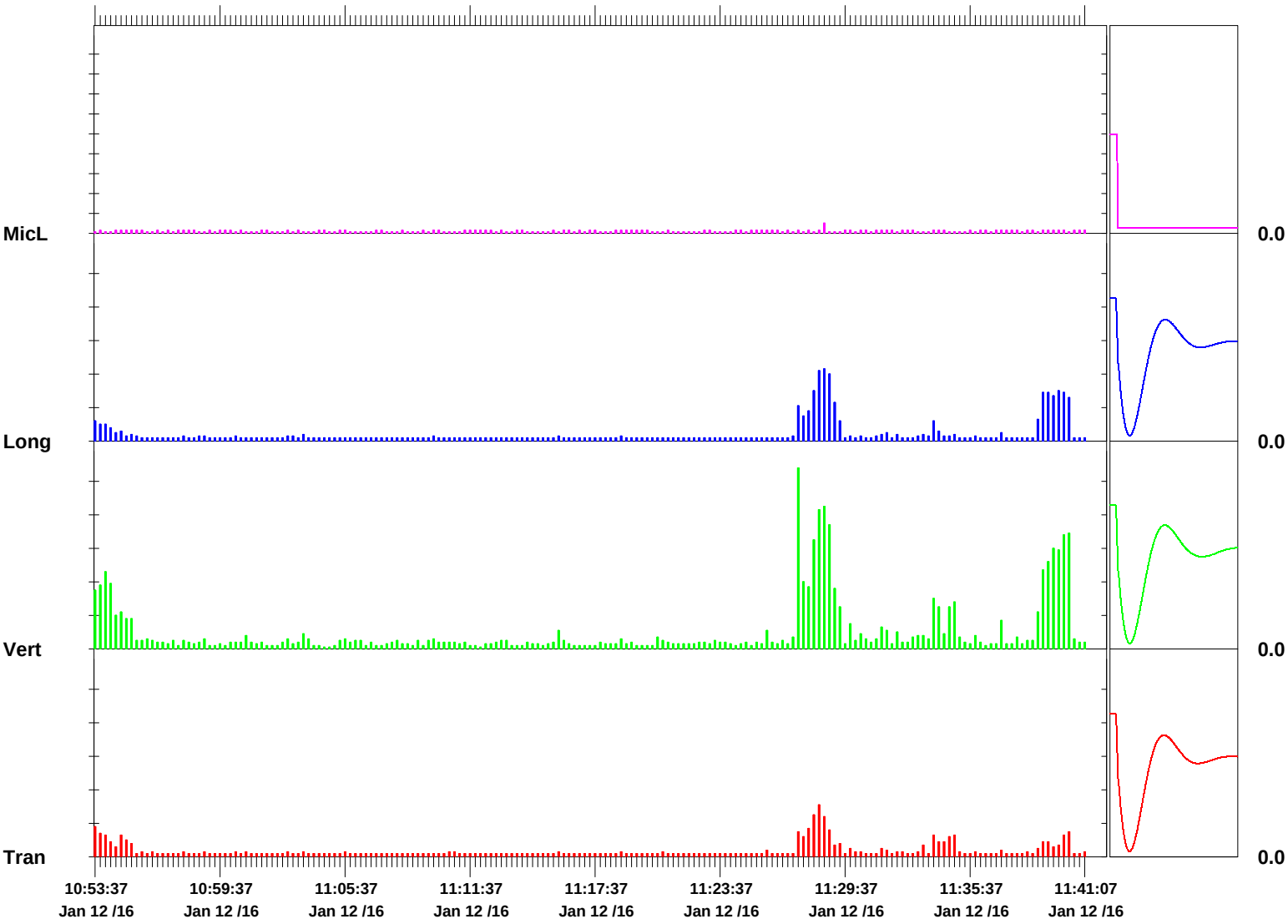
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 12, 2016 at 11:28:27
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.155	0.540	0.215	in/s
ZC Freq	30	15	30	Hz
Date	Jan 12 /16	Jan 12 /16	Jan 12 /16	
Time	11:28:17	11:27:12	11:28:32	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	4.1	3.8	4.2	

Peak Vector Sum 0.543 in/s on January 12, 2016 at 11:27:12



Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Date/Time	Vert at 11:27:08 January 12, 2016
Trigger Source	Geo: 0.250 in/s, Mic: 0.004 psi(L)
Range	Geo: 10.000 in/s
Record Time	7.0 sec at 1024 sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G6ZX.580

Notes

Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

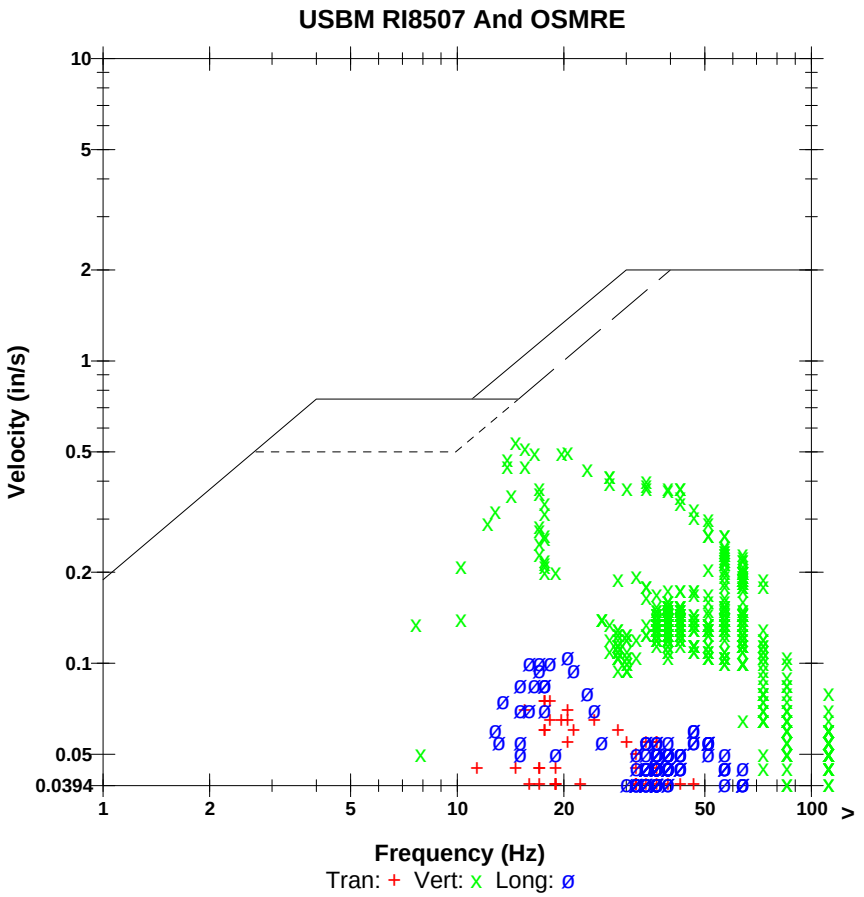
Combo Mode January 12, 2016 10:53:21

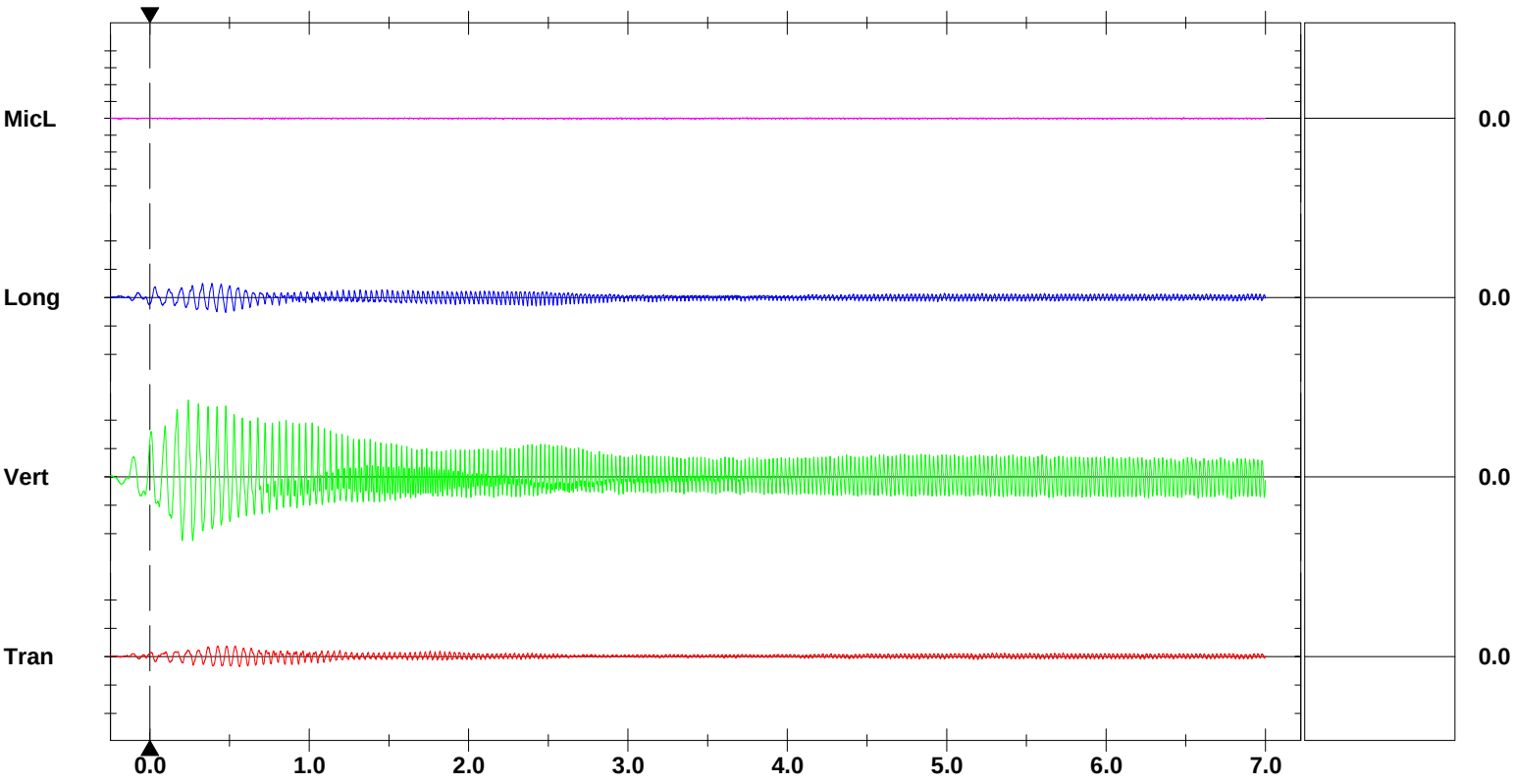
Microphone	Linear Weighting
PSPL	<.0000725 psi(L)
ZC Freq	>100 Hz
Channel Test	Disabled

	Tran	Vert	Long	
PPV	0.075	0.540	0.105	in/s
ZC Freq	18	15	20	Hz
Time (Rel. to Trig)	0.424	0.240	0.475	sec
Peak Acceleration	0.040	0.225	0.066	g
Peak Displacement	0.001	0.005	0.001	in
Sensor Check	Disabled	Disabled	Disabled	
Frequency	***	***	***	Hz
Overswing Ratio	***	***	***	

Peak Vector Sum 0.543 in/s at 0.241 sec

N/A: Not Applicable





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 0.200 in/s/div Mic: 0.001 psi(L)/div Sensor Check

Trigger =

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New York
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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

January 26, 2016
For ENTACT, LLC

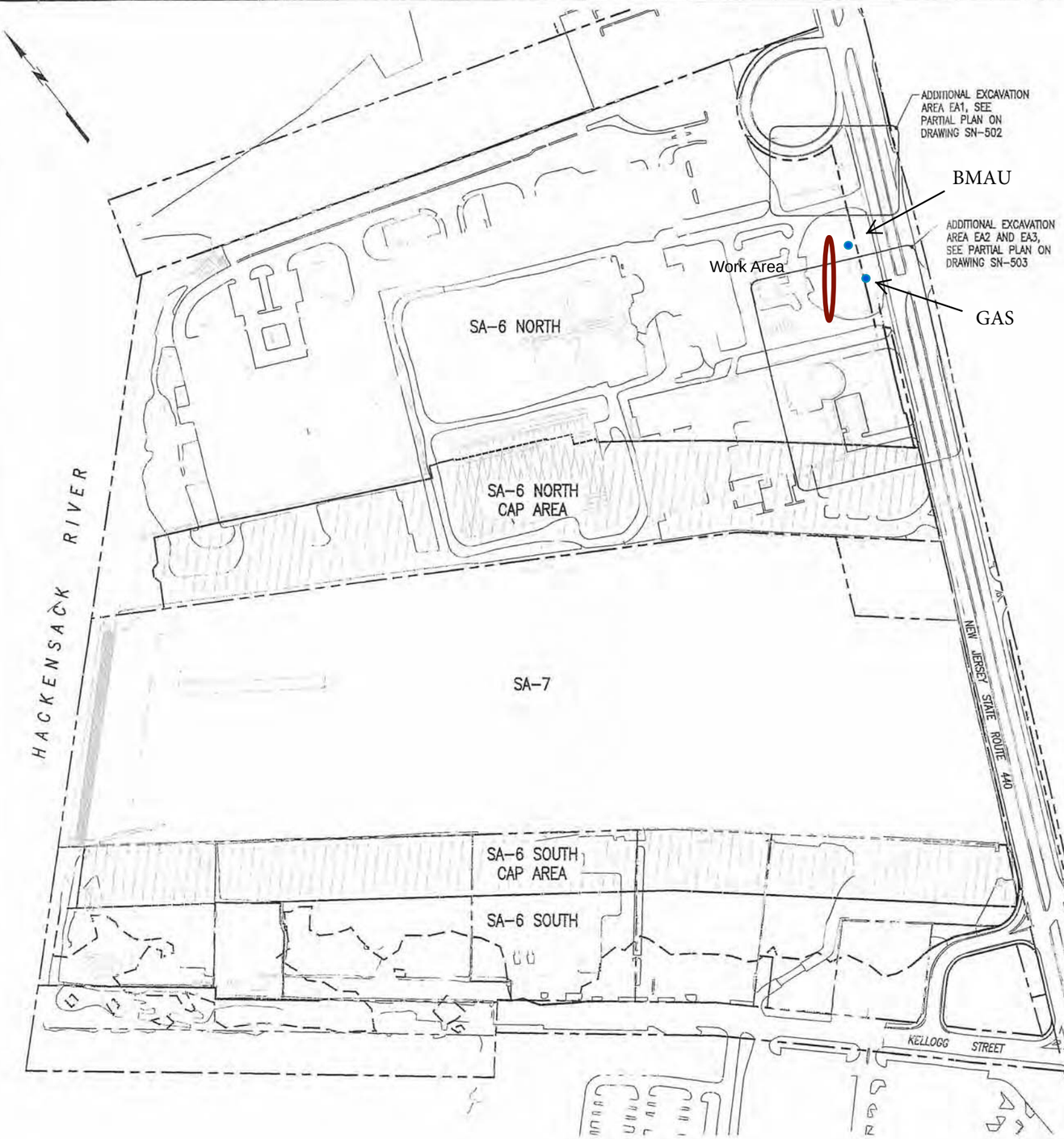
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Removing of sheet pile commenced at 1:30 PM and ended at 3:30 PM. One Instantel Minimate were used to record vibrations via a geophone placed on the ground over the Water/Sewer main.

Total of 9 sheets pile were removed, and no exceedances were recorded. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water/Sewer
Alert Level: 0.5 in/sec
Limit Level: 1.0 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. (1)
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading). (1)
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522

NO.	DATE	DSGN	DR	CHK	APVD
		G.S.	B.B.	G.P.	APVD
1	10/31/14				
0	06/17/13				

ISSUED FOR NJDOT REVIEW — F.W.D. — GP
ISSUED FOR CONSTRUCTION — F.W.D. — APVD
REVISION — BY

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CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

Histogram Start Time	13:31:45 January 26, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	13:40:28 January 26, 2016	**Battery Level**	6.2 Volts
Number of Intervals	104.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7Q0.8X0
Sample Rate	1024sps		
Job Number:	1		

Notes

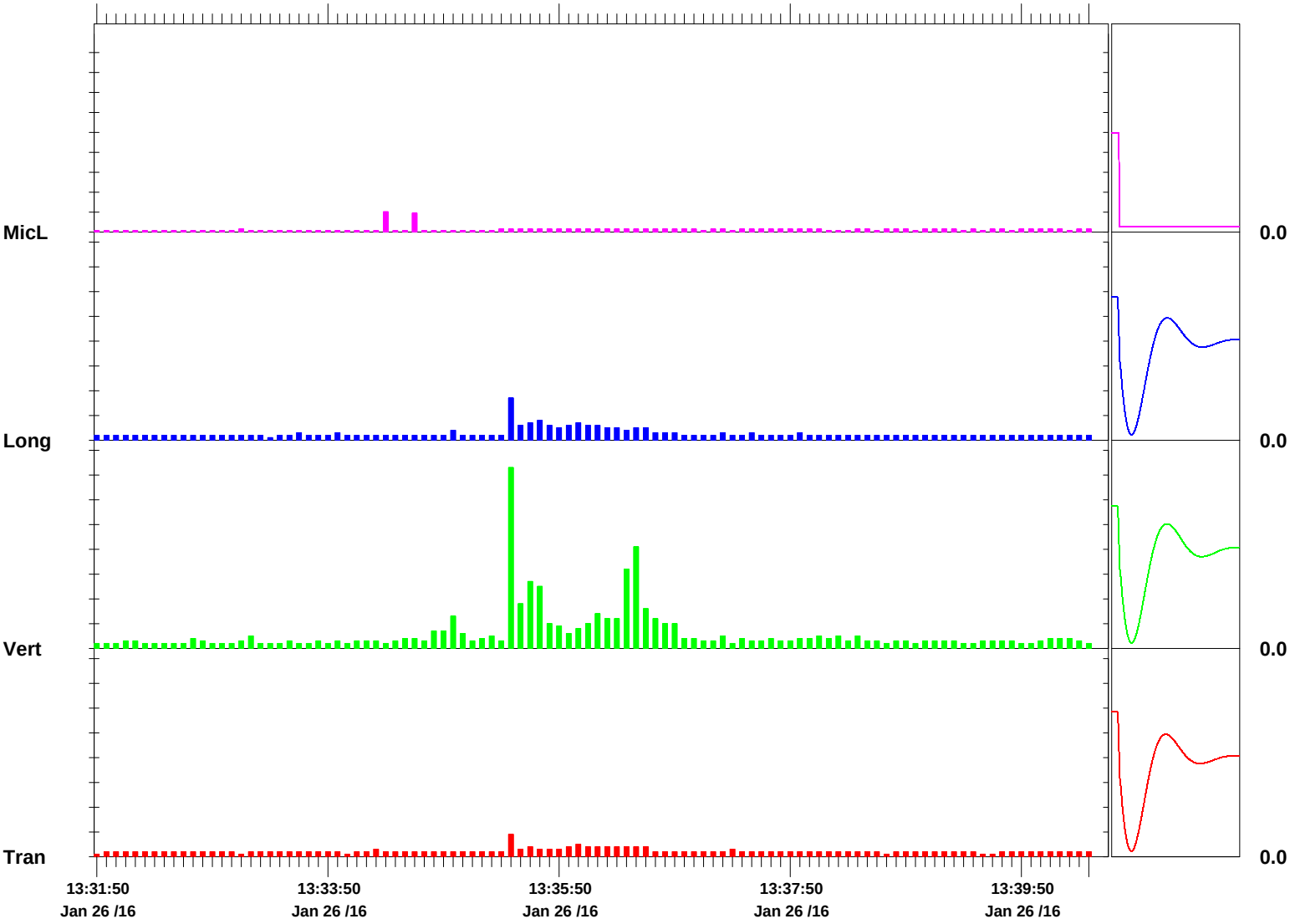
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.001 psi(L) on January 26, 2016 at 13:34:20
ZC Freq	11 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.045	0.365	0.085	in/s
ZC Freq	20	24	22	Hz
Date	Jan 26 /16	Jan 26 /16	Jan 26 /16	
Time	13:35:25	13:35:25	13:35:25	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.369 in/s on January 26, 2016 at 13:35:25



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	14:05:30 January 26, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	14:22:41 January 26, 2016	**Battery Level**	6.2 Volts
Number of Intervals	206.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7Q1.T60
Sample Rate	1024sps		
Job Number:	1		

Notes

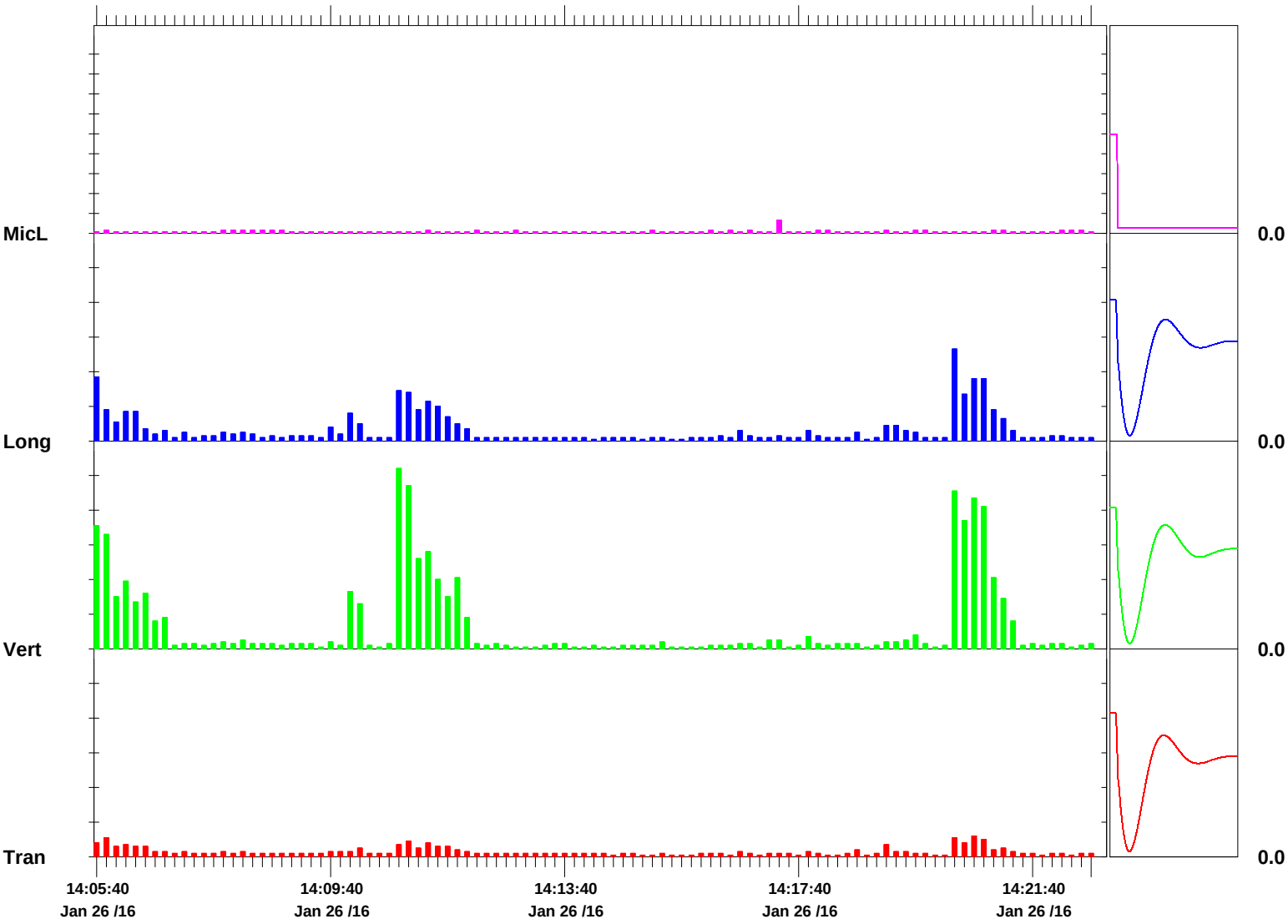
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 26, 2016 at 14:17:15
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.060	0.520	0.265	in/s
ZC Freq	37	28	27	Hz
Date	Jan 26 /16	Jan 26 /16	Jan 26 /16	
Time	14:20:35	14:10:50	14:20:15	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	4.1	3.8	4.2	

Peak Vector Sum 0.521 in/s on January 26, 2016 at 14:10:50



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	14:49:44 January 26, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	15:02:31 January 26, 2016	**Battery Level**	6.1 Volts
Number of Intervals	153.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7Q3.UW0
Sample Rate	1024sps		
Job Number:	1		

Notes

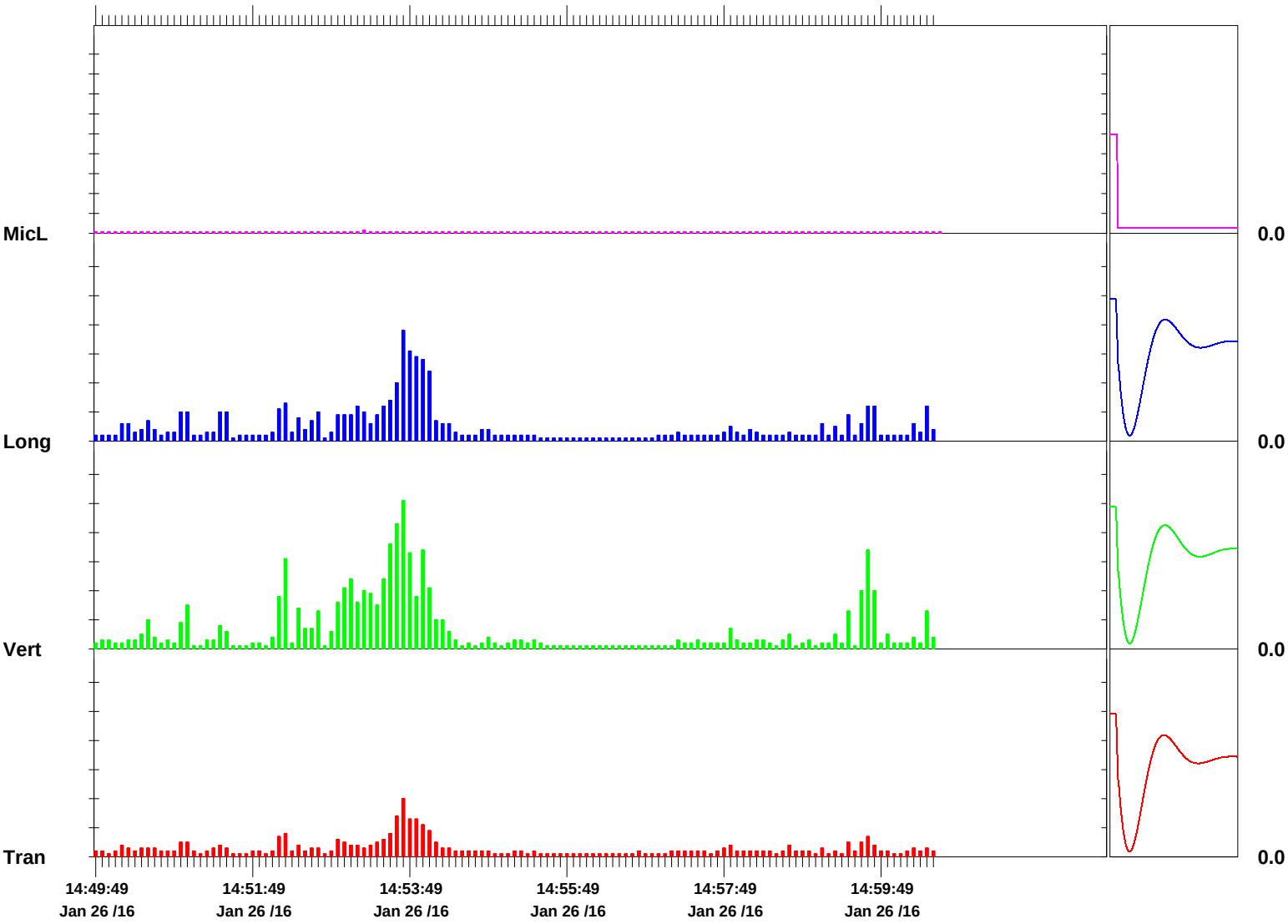
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 26, 2016 at 14:53:14
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.100	0.255	0.190	in/s
ZC Freq	39	30	34	Hz
Date	Jan 26 /16	Jan 26 /16	Jan 26 /16	
Time	14:53:44	14:53:44	14:53:44	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.5	7.4	Hz
Overswing Ratio	4.1	3.8	4.1	

Peak Vector Sum 0.262 in/s on January 26, 2016 at 14:53:44



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Event Report

Date/Time	Vert at 14:10:48 January 26, 2016
Trigger Source	Geo: 0.500 in/s, Mic: 0.004 psi(L)
Range	Geo: 10.000 in/s
Record Time	7.0 sec at 1024 sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7Q2.200

Notes

Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Combo Mode January 26, 2016 14:05:30

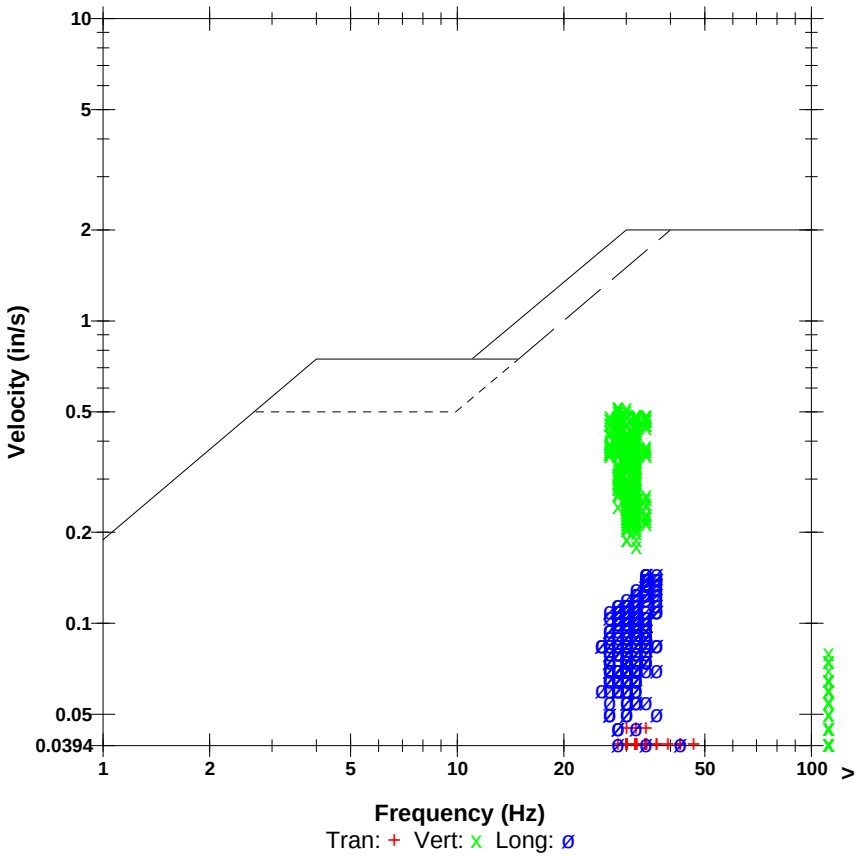
Microphone	Linear Weighting
PSPL	<.0000725 psi(L)
ZC Freq	>100 Hz
Channel Test	Disabled

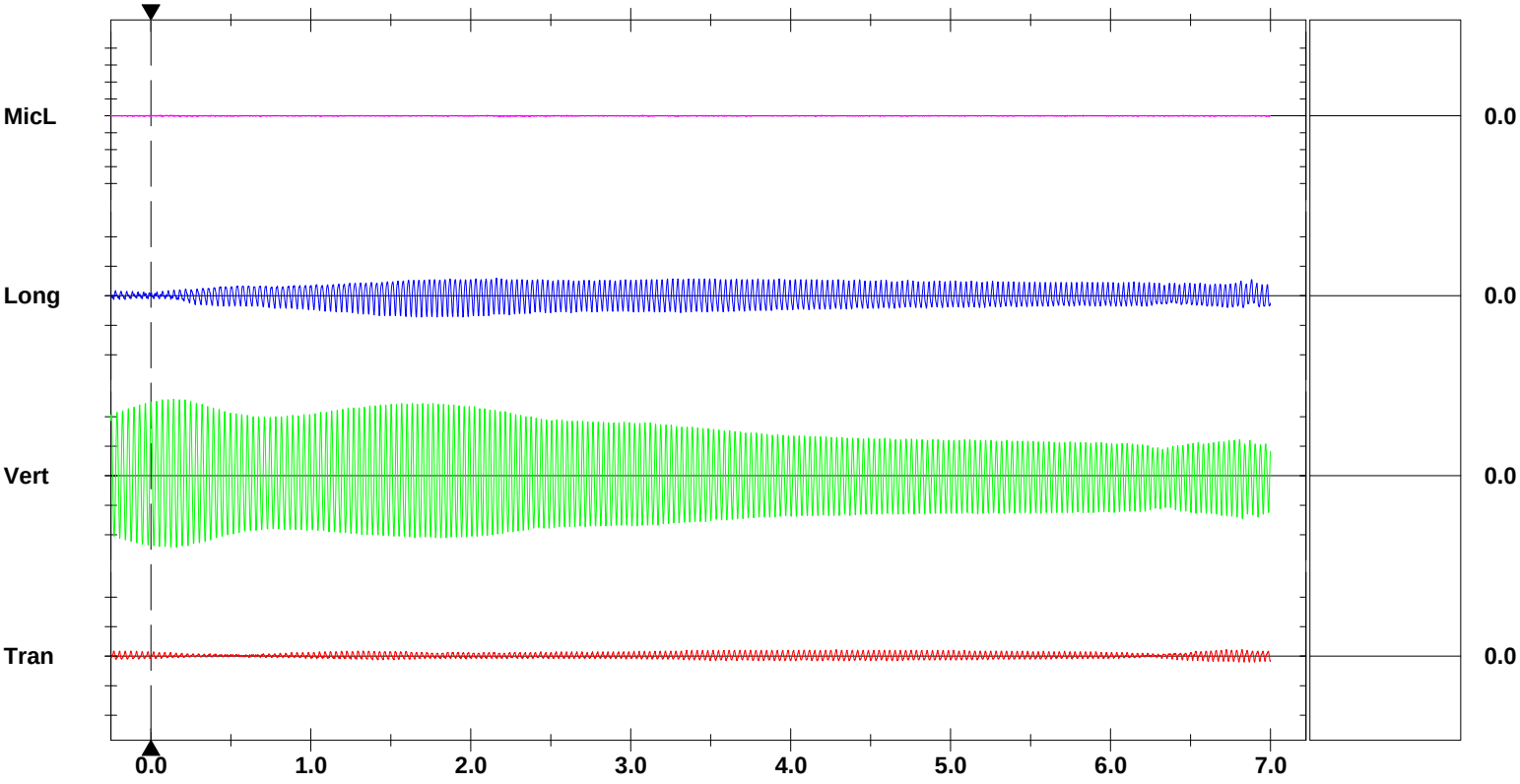
	Tran	Vert	Long	
PPV	0.045	0.520	0.145	in/s
ZC Freq	32	28	37	Hz
Time (Rel. to Trig)	4.285	0.143	1.660	sec
Peak Acceleration	0.040	0.252	0.093	g
Peak Displacement	0.000	0.003	0.001	in
Sensor Check	Disabled	Disabled	Disabled	
Frequency	***	***	***	Hz
Overswing Ratio	***	***	***	

Peak Vector Sum 0.521 in/s at 0.143 sec

N/A: Not Applicable

USBM RI8507 And OSMRE





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 0.200 in/s/div Mic: 0.001 psi(L)/div Sensor Check

Trigger = ▶——— ———◀

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Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

January 27, 2016
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

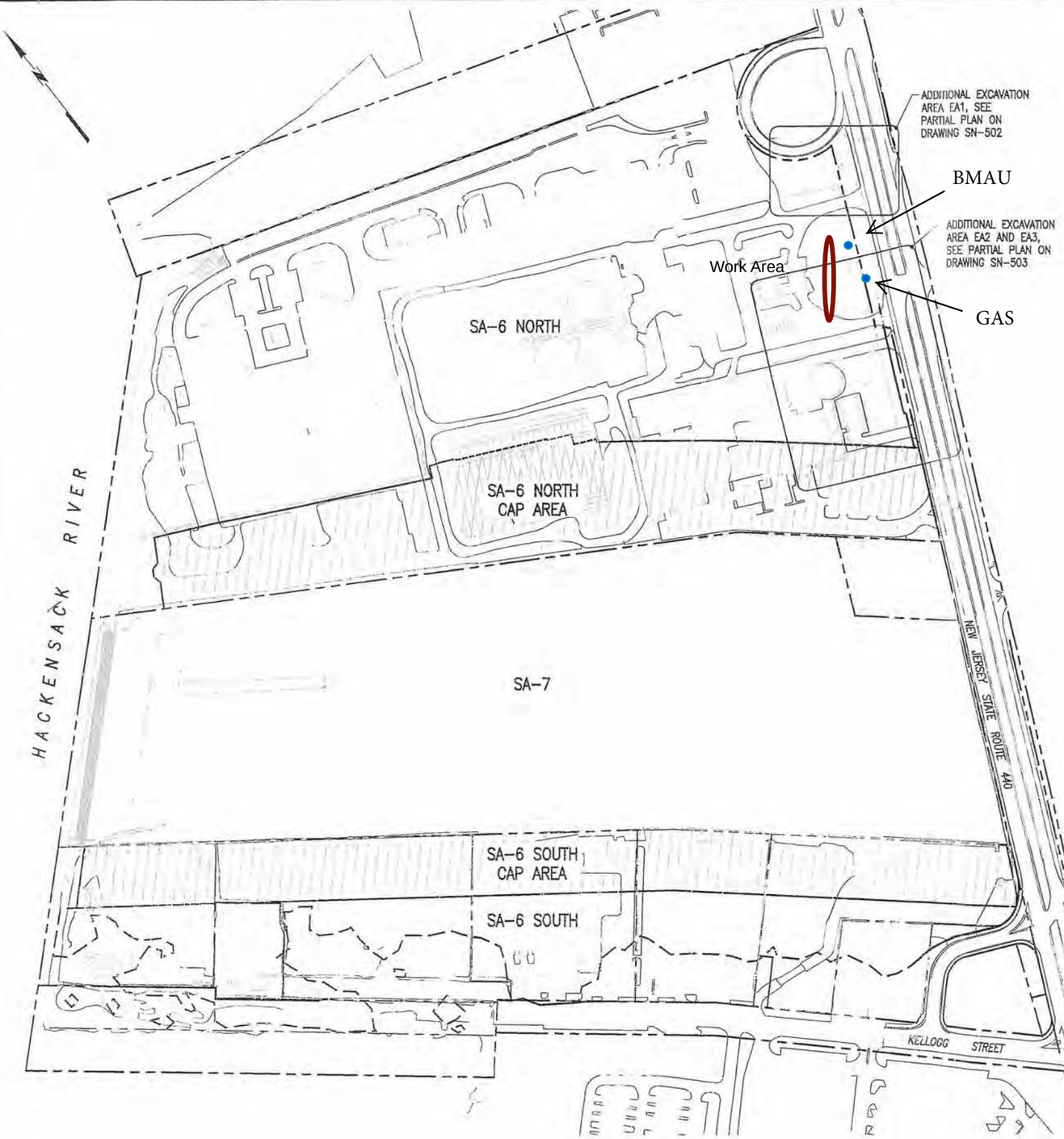
NOTES:

Summary of Work:
Removing of sheet pile commenced at 8:30 AM and ended at 3:00 PM. Two Instantel Minimate were used to record vibrations via a geophone placed on the ground over the Water/Sewer main and North Gas.

Total of 23 sheets pile were removed, and no exceedances were recorded. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water/Sewer
Alert Level: 0.5 in/sec
Limit Level: 1.0 in/sec

North Gas
Alert Level 1.0 in/sec
Limit Level 2.0 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. (1)
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading). (1)
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522

NO.	DATE	DSGN	DR	CHK	APVD
		G.S.	B.B.	G.P.	APVD
1	10/31/14				
0	06/17/13				

ISSUED FOR NJDOT REVIEW — F.W.D. — GP
ISSUED FOR CONSTRUCTION — F.W.D. — APVD
REVISION — BY

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CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

Histogram Start Time	10:05:17 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	10:26:45 January 27, 2016	**Battery Level**	6.3 Volts
Number of Intervals	257.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RL.CT0
Sample Rate	1024sps		
Job Number:	1		

Notes

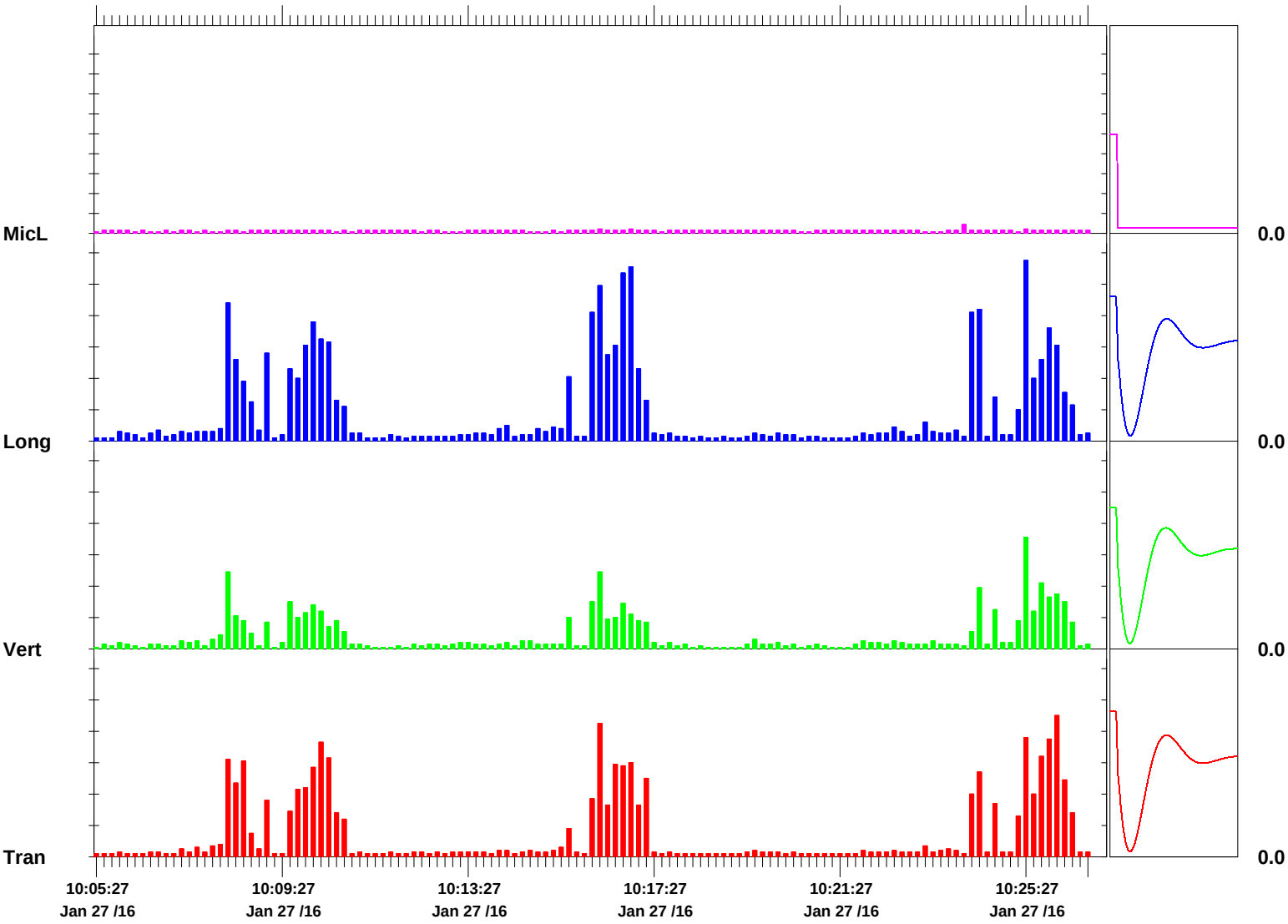
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 10:24:07
ZC Freq	28 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.450	0.355	0.575	in/s
ZC Freq	28	30	28	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	10:26:07	10:25:22	10:25:22	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.3	7.2	Hz
Overswing Ratio	4.1	4.2	4.0	

Peak Vector Sum 0.596 in/s on January 27, 2016 at 10:25:22



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	10:29:44 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	10:51:24 January 27, 2016	**Battery Level**	6.2 Volts
Number of Intervals	260.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RM.HK0
Sample Rate	1024sps		
Job Number:	1		

Notes

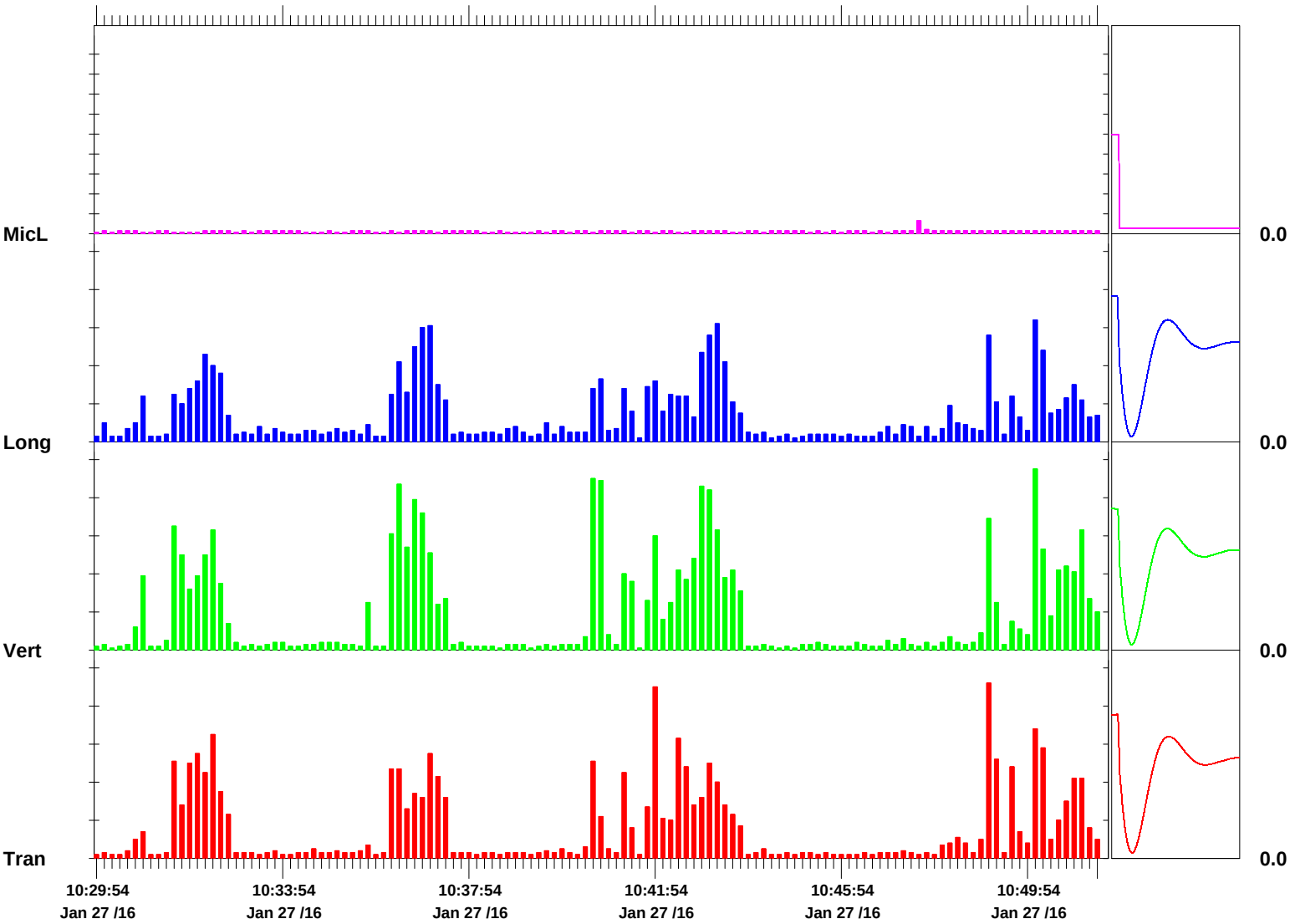
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 10:47:29
ZC Freq	73 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.460	0.475	0.320	in/s
ZC Freq	30	27	32	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	10:49:04	10:50:04	10:50:04	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.4	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.523 in/s on January 27, 2016 at 10:50:04



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	10:53:30 January 27, 2016
Histogram Finish Time	11:12:40 January 27, 2016
Number of Intervals	230.00 at 5 seconds
Range	Geo:10.000 in/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.2 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7RN.L60

Notes

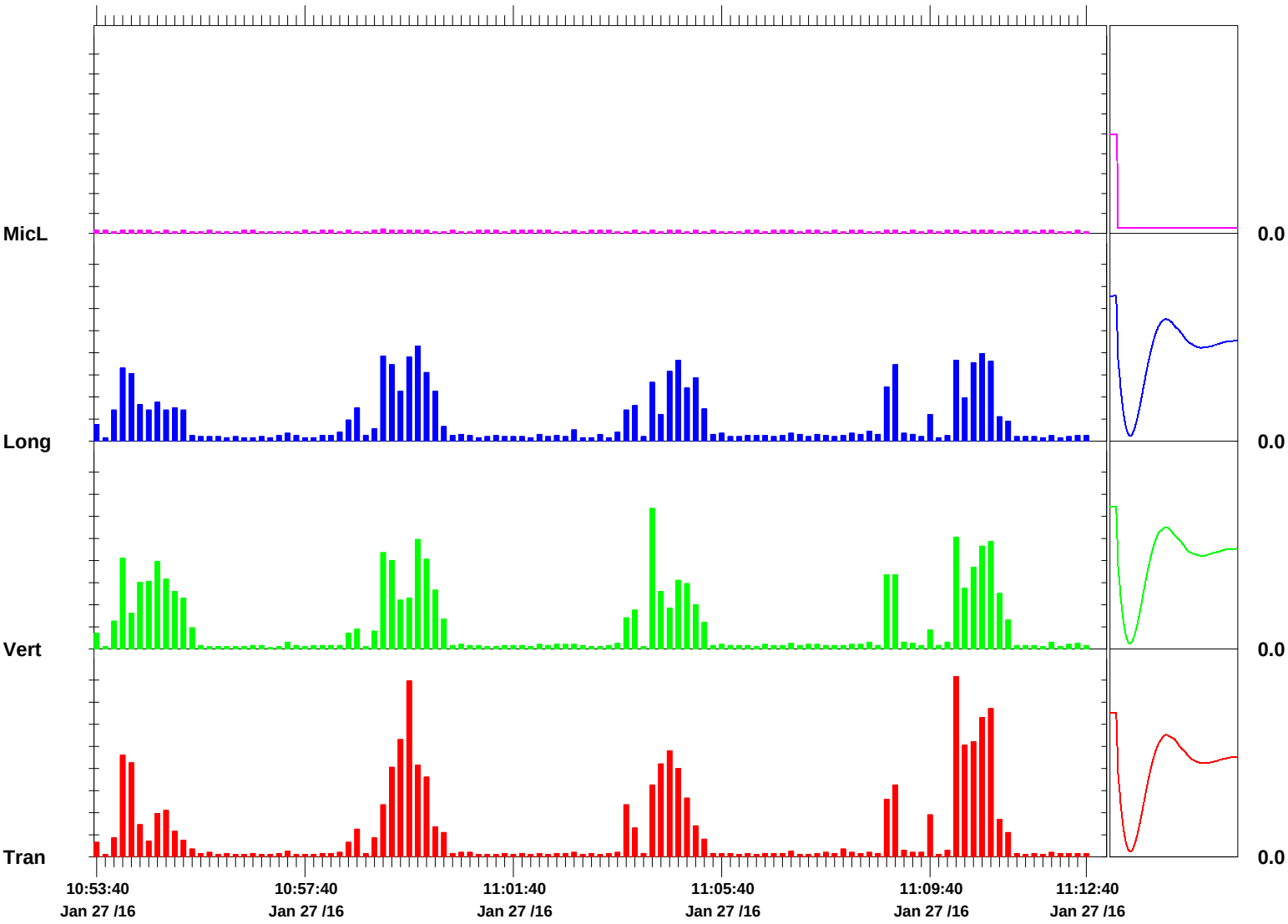
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 10:59:10
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.815	0.635	0.430	in/s
ZC Freq	30	30	30	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	11:10:10	11:04:20	10:59:50	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.3	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.958 in/s on January 27, 2016 at 11:10:10



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	11:14:40 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:37:07 January 27, 2016	**Battery Level**	6.2 Volts
Number of Intervals	269.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RO.KG0
Sample Rate	1024sps		
Job Number:	1		

Notes

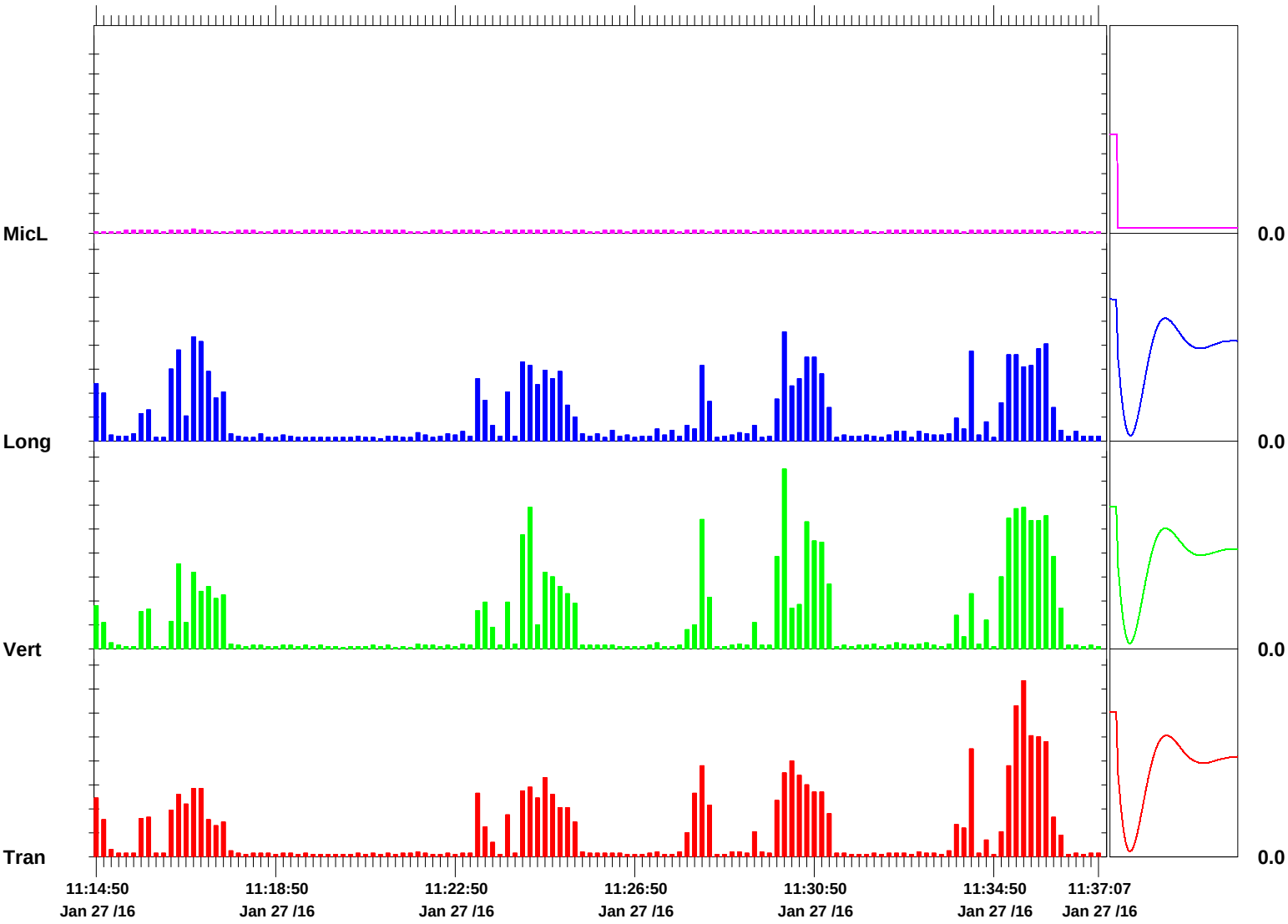
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 11:17:00
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.735	0.750	0.455	in/s
ZC Freq	37	32	30	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	11:35:25	11:30:05	11:30:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.4	Hz
Overswing Ratio	4.2	4.3	3.9	

Peak Vector Sum 0.851 in/s on January 27, 2016 at 11:30:05



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	11:39:05 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	12:51:17 January 27, 2016	**Battery Level**	6.2 Volts
Number of Intervals	866.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RP.P50
Sample Rate	1024sps		
Job Number:	1		

Notes

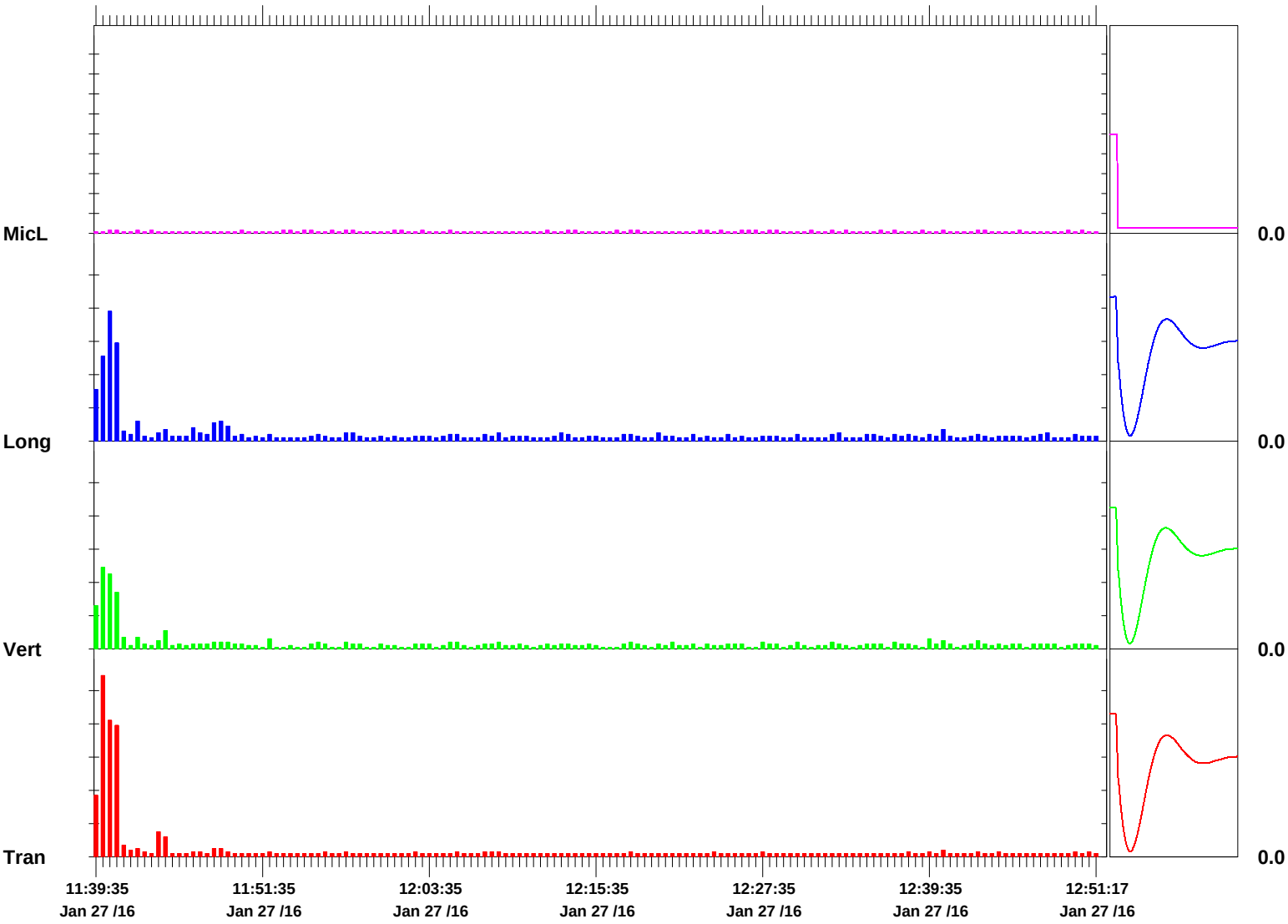
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 11:40:10
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.545	0.245	0.390	in/s
ZC Freq	30	39	28	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	11:40:05	11:40:05	11:40:10	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.3	7.2	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.563 in/s on January 27, 2016 at 11:40:05



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	12:51:43 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	14:15:28 January 27, 2016	**Battery Level**	6.1 Volts
Number of Intervals	1005.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RT.270
Sample Rate	1024sps		
Job Number:	1		

Notes

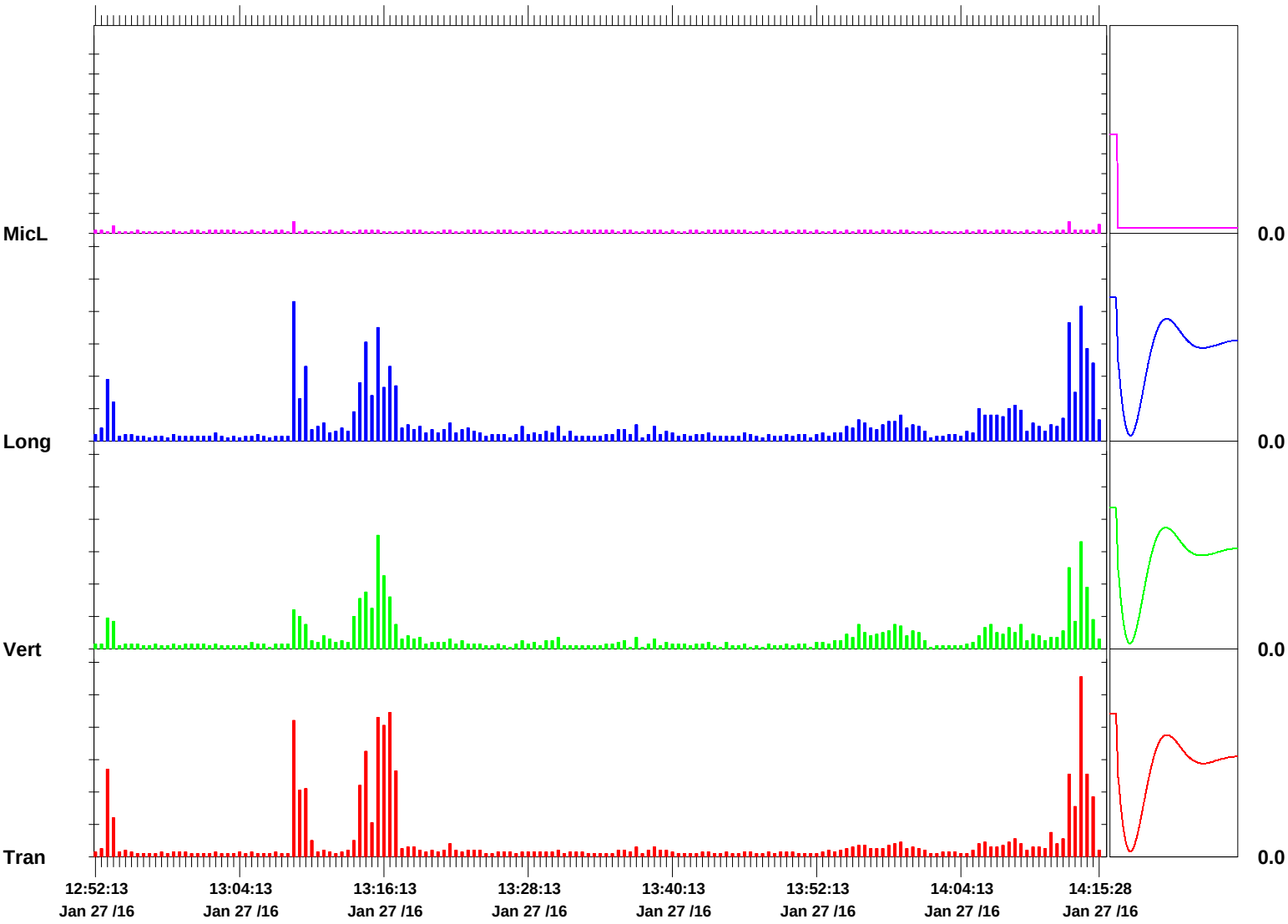
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 13:08:38
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.555	0.350	0.430	in/s
ZC Freq	30	28	28	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	14:13:53	13:15:23	13:08:43	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.2	Hz
Overswing Ratio	4.1	4.2	4.0	

Peak Vector Sum 0.683 in/s on January 27, 2016 at 14:13:53



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	14:17:40 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	14:31:30 January 27, 2016	**Battery Level**	6.1 Volts
Number of Intervals	165.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RX.1G0
Sample Rate	1024sps		
Job Number:	1		

Notes

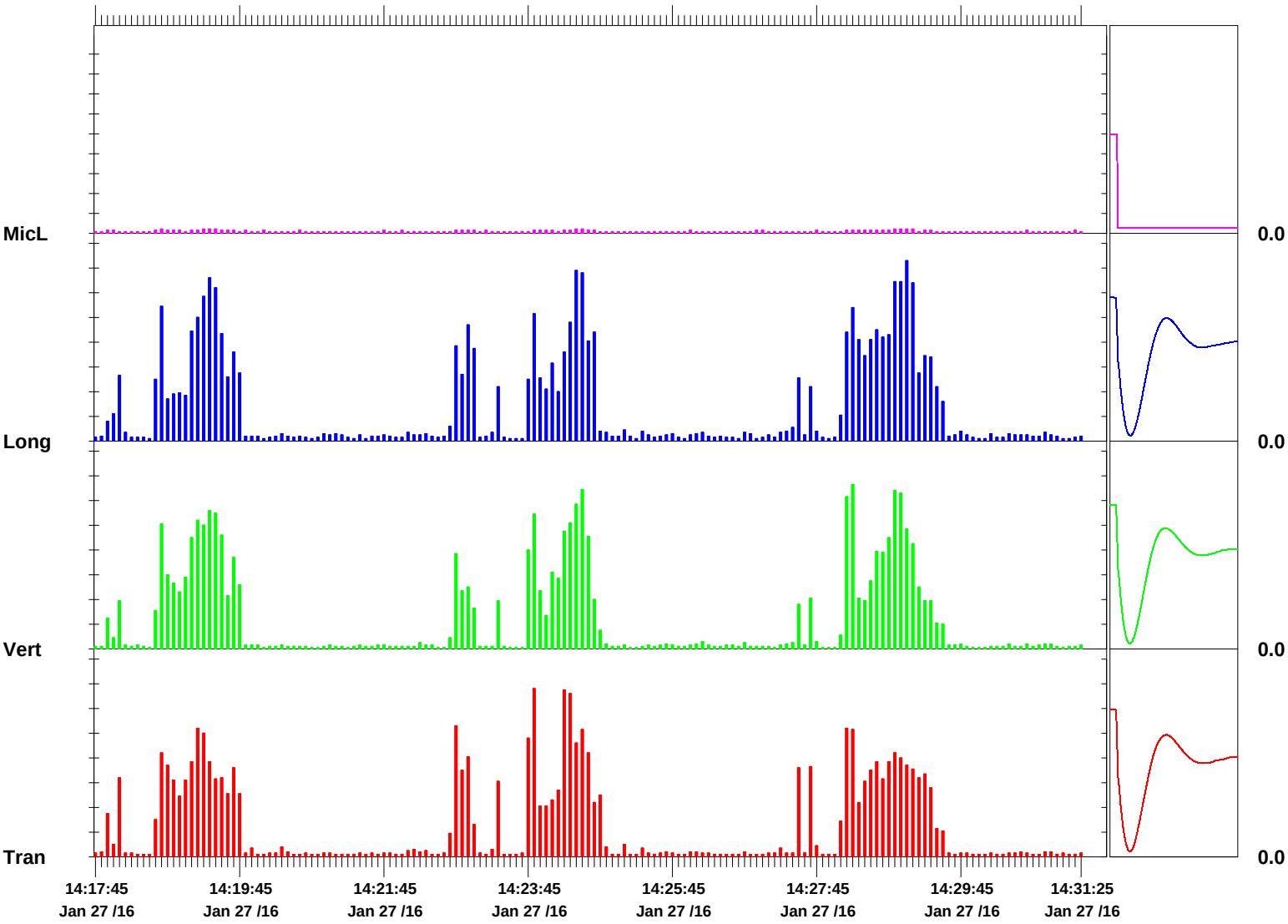
Location: SA-6 North Gas
Client: ENTACT
User Name: GEOCOMP
General: KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone Linear Weighting
PSPL 0.000 psi(L) on January 27, 2016 at 14:18:40
ZC Freq 64 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.680	0.665	0.730	in/s
ZC Freq	30	30	30	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	14:23:50	14:28:15	14:29:00	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.2	Hz
Overswing Ratio	4.1	4.3	3.9	

Peak Vector Sum 0.970 in/s on January 27, 2016 at 14:24:30



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	15:08:51 January 27, 2016
Histogram Finish Time	15:09:30 January 27, 2016
Number of Intervals	7.00 at 5 seconds
Range	Geo:10.000 in/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.1 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7RZ.ER0

Notes

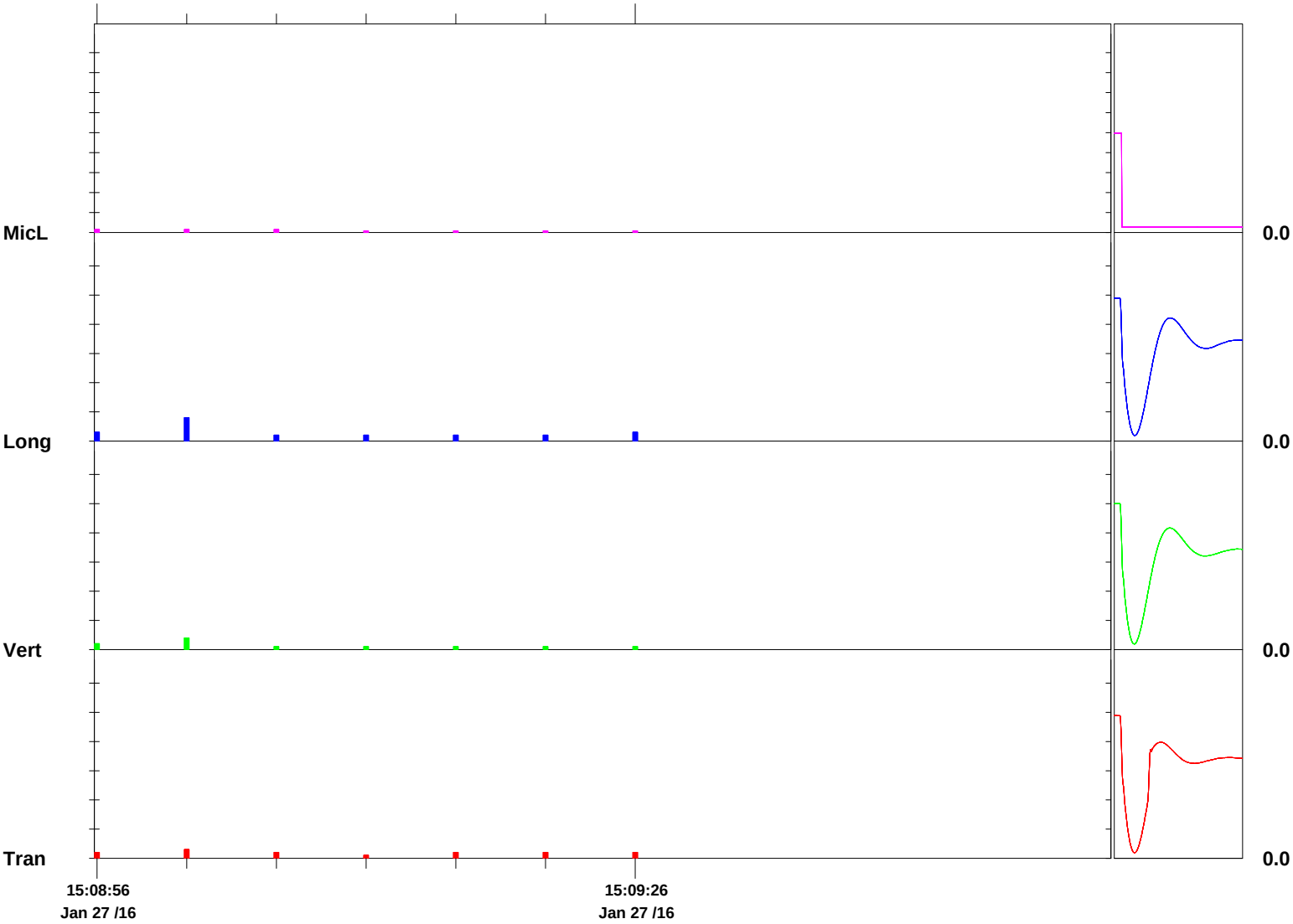
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 15:08:56
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.015	0.020	0.040	in/s
ZC Freq	9.3	12	6.0	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	15:09:01	15:09:01	15:09:01	
Sensor Check	Passed	Passed	Passed	
Frequency	9.2	7.4	7.3	Hz
Overswing Ratio	5.6	4.2	4.0	

Peak Vector Sum 0.041 in/s on January 27, 2016 at 15:09:01



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	08:48:03 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	09:21:52 January 27, 2016	**Battery Level**	6.3 Volts
Number of Intervals	405.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RH.S30
Sample Rate	1024sps		
Job Number:	1		

Notes

Location: SA-6 Water/Sewer
Client: ENTACT
User Name: GEOCOMP
General: KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone Linear Weighting
PSPL 0.000 psi(L) on January 27, 2016 at 09:04:13
ZC Freq >100 Hz
Channel Test Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.070	0.465	0.160	in/s
ZC Freq	18	28	16	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	08:52:33	08:52:33	08:52:33	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.2	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.466 in/s on January 27, 2016 at 08:52:33

Time Scale: 15 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	09:23:13 January 27, 2016
Histogram Finish Time	09:30:10 January 27, 2016
Number of Intervals	83.00 at 5 seconds
Range	Geo:10.000 in/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7RJ.EP0

Notes

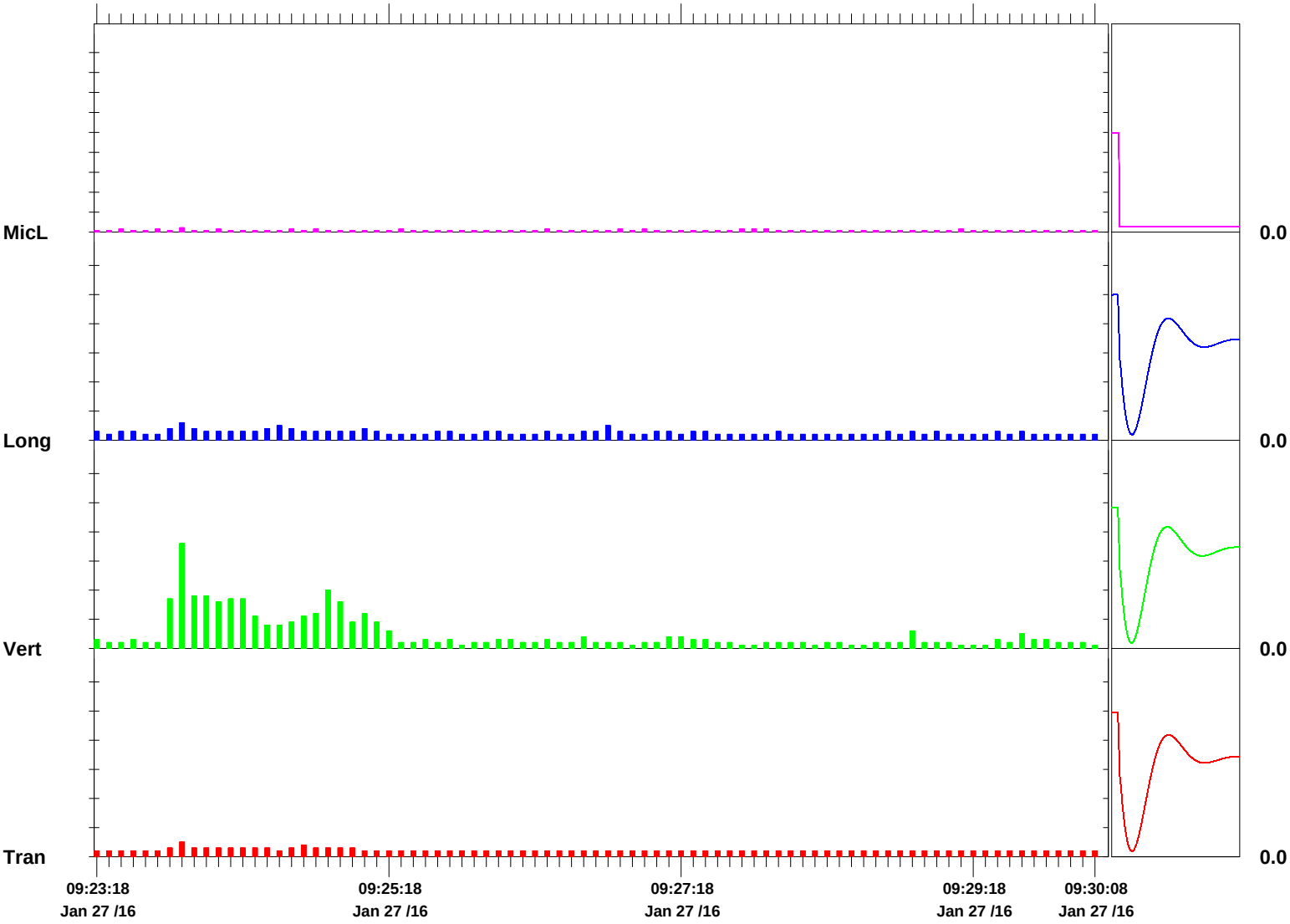
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 09:23:53
ZC Freq	18 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.025	0.180	0.030	in/s
ZC Freq	30	28	34	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	09:23:53	09:23:53	09:23:53	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.2	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.181 in/s on January 27, 2016 at 09:23:53



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	09:43:23 January 27, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	09:45:21 January 27, 2016	**Battery Level**	6.3 Volts
Number of Intervals	23.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7RK.CB0
Sample Rate	1024sps		
Job Number:	1		

Notes

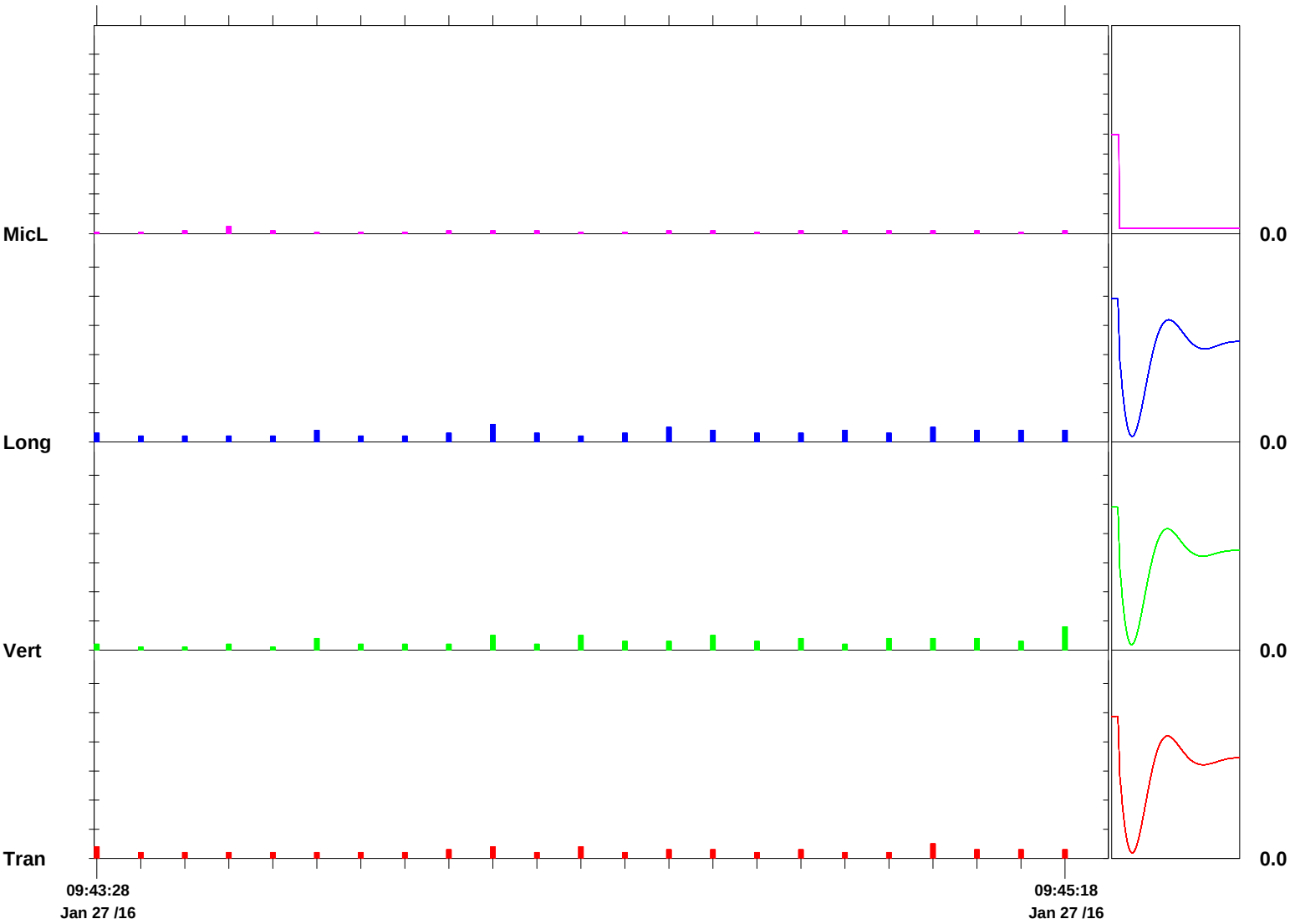
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 27, 2016 at 09:43:43
ZC Freq	18 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.025	0.040	0.030	in/s
ZC Freq	6.4	51	5.3	Hz
Date	Jan 27 /16	Jan 27 /16	Jan 27 /16	
Time	09:45:03	09:45:18	09:44:13	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.2	Hz
Overswing Ratio	4.0	4.2	4.1	

Peak Vector Sum 0.041 in/s on January 27, 2016 at 09:45:18



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Geocomp
Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

January 28, 2016
For ENTACT, LLC

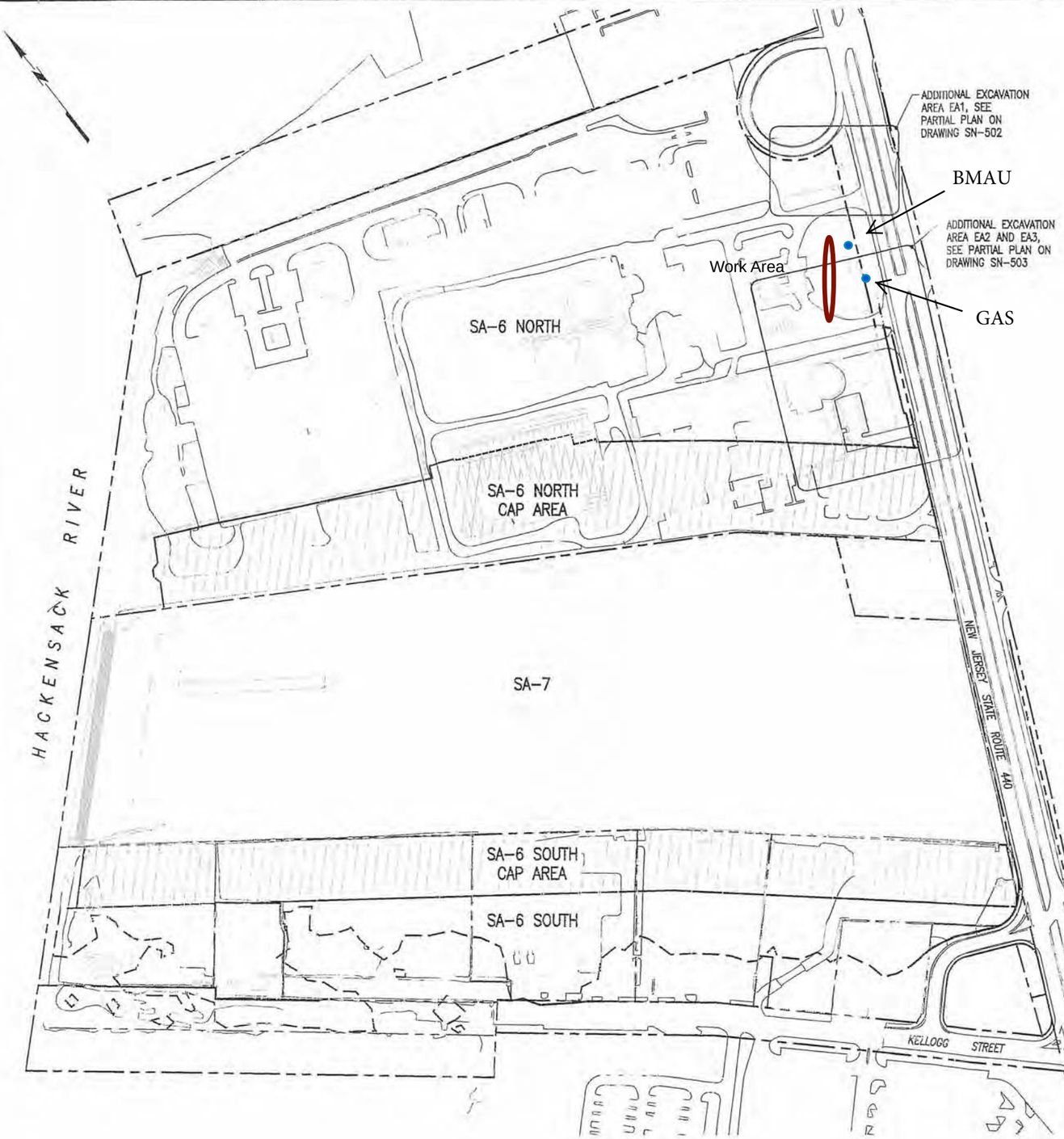
111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

NOTES:

Summary of Work:
Removing of sheet pile commenced at 10:40 AM and ended at 3:00 PM. One Instantel Minimate were used to record vibrations via a geophone placed on the ground over the Water/Sewer main.

Total of 21 sheets pile were removed, and no exceedances were recorded. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

North Gas
Alert Level: 0.5 in/sec
Limit Level: 1.0 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. (1)
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading). (1)
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522

NO.	DATE	DSGN	DR	CHK	APVD
		G.S.	B.B.	G.P.	APVD
1	10/31/14				
0	06/17/13				

ISSUED FOR NJDOT REVIEW — F.W.D. — GP
ISSUED FOR CONSTRUCTION — F.W.D. — APVD
REVISION — BY

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Honeywell
101 COLUMBIA RD, BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

Histogram Start Time	10:40:10 January 28, 2016
Histogram Finish Time	10:42:33 January 28, 2016
Number of Intervals	28.00 at 5 seconds
Range	Geo:10.000 in/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7TH.MY0

Notes

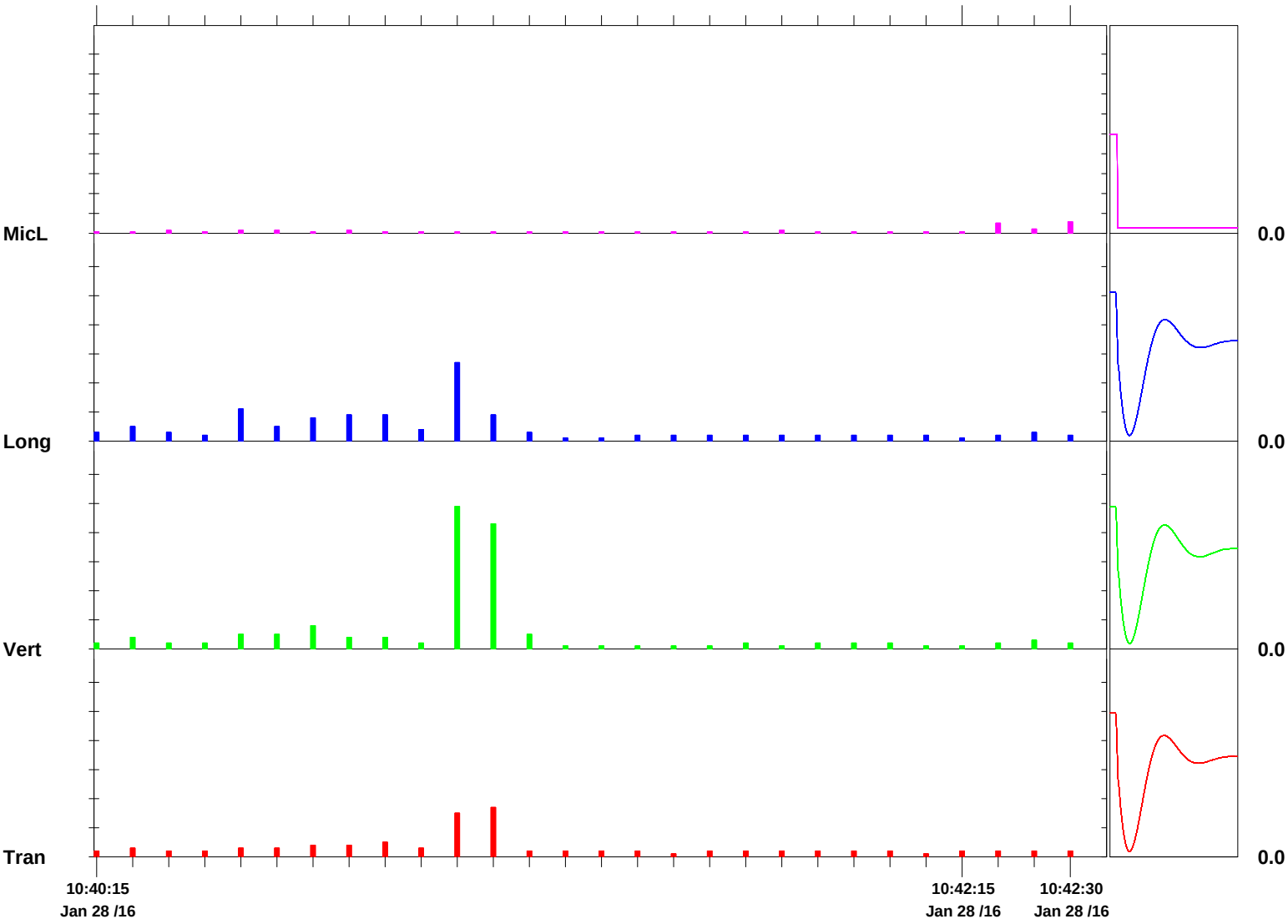
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 10:42:30
ZC Freq	11 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.085	0.245	0.135	in/s
ZC Freq	37	27	17	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	10:41:10	10:41:05	10:41:05	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.5	Hz
Overswing Ratio	4.2	3.8	4.2	

Peak Vector Sum 0.260 in/s on January 28, 2016 at 10:41:05



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	11:08:17 January 28, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:30:18 January 28, 2016	**Battery Level**	6.3 Volts
Number of Intervals	264.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7TI.XT0
Sample Rate	1024sps		
Job Number:	1		

Notes

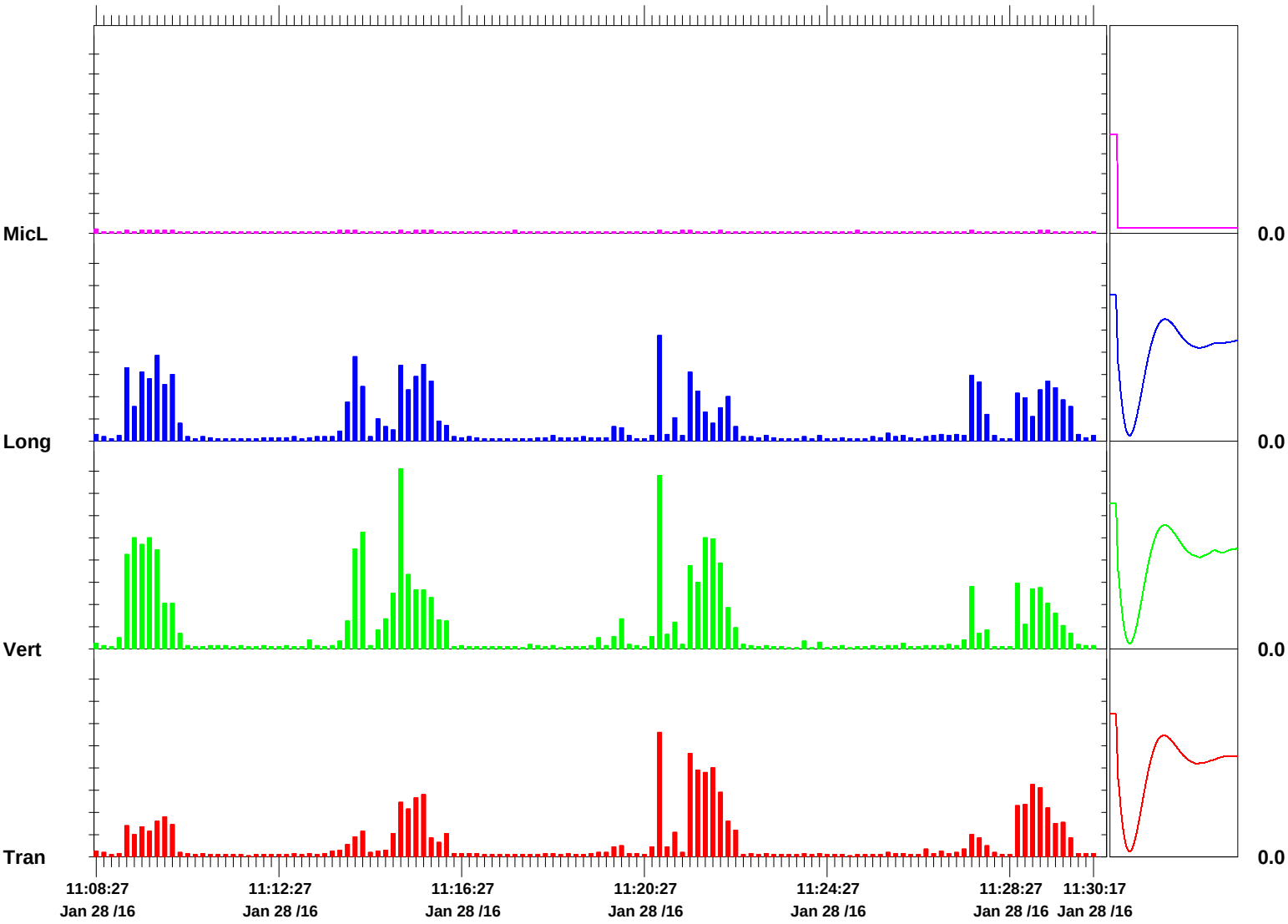
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 11:08:22
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.560	0.810	0.475	in/s
ZC Freq	30	32	28	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	11:20:47	11:15:02	11:20:47	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.5	Hz
Overswing Ratio	4.2	3.7	4.1	

Peak Vector Sum 0.849 in/s on January 28, 2016 at 11:20:47



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	11:31:42 January 28, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:48:44 January 28, 2016	**Battery Level**	6.3 Volts
Number of Intervals	204.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7TK.0U0
Sample Rate	1024sps		
Job Number:	1		

Notes

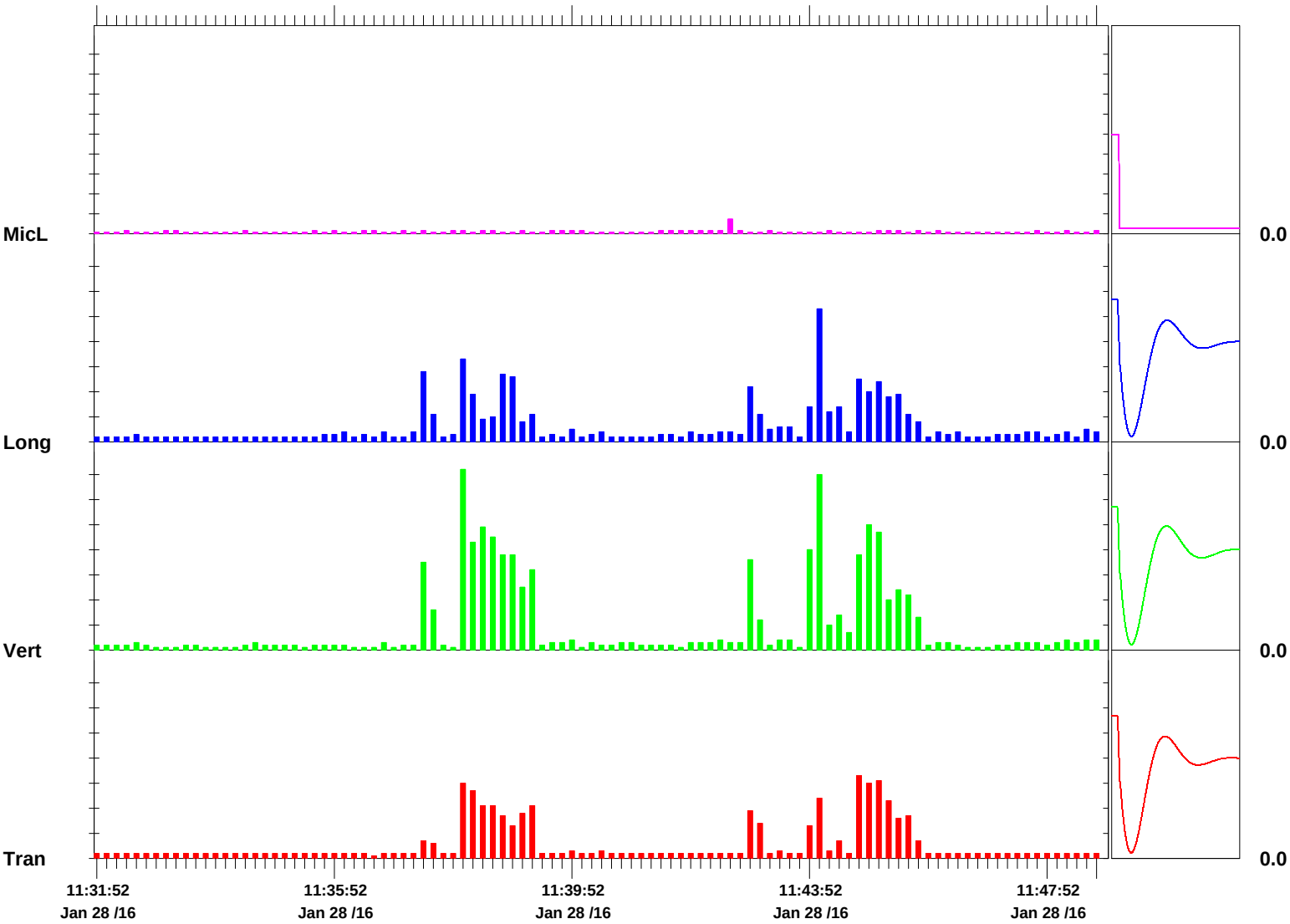
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 11:42:32
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.165	0.360	0.265	in/s
ZC Freq	30	28	19	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	11:44:42	11:38:02	11:43:57	
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.6	7.4	Hz
Overswing Ratio	4.1	3.7	4.2	

Peak Vector Sum 0.386 in/s on January 28, 2016 at 11:38:02



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

Format © 1995-2014 Xmark Corporation

Event Report

Histogram Start Time	13:08:49 January 28, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	14:16:08 January 28, 2016	**Battery Level**	6.3 Volts
Number of Intervals	807.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7TO.IP0
Sample Rate	1024sps		
Job Number:	1		

Notes

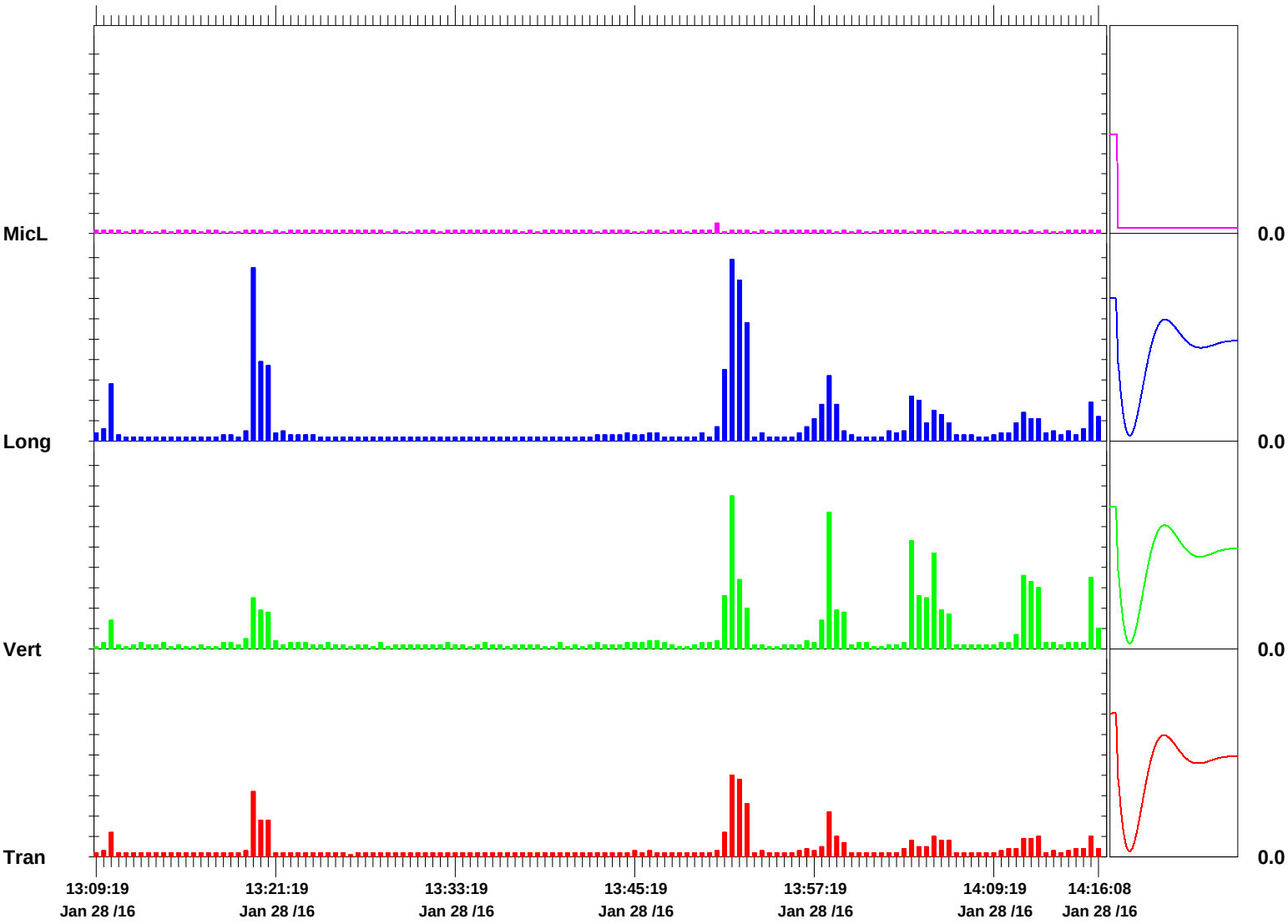
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 13:50:49
ZC Freq	28 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.200	0.375	0.445	in/s
ZC Freq	30	32	30	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	13:51:39	13:51:44	13:51:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.4	Hz
Overswing Ratio	4.1	3.8	4.1	

Peak Vector Sum 0.484 in/s on January 28, 2016 at 13:51:39



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	14:26:48 January 28, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	14:49:12 January 28, 2016	**Battery Level**	6.3 Volts
Number of Intervals	268.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	V564G7TS.4O0
Sample Rate	1024sps		
Job Number:	1		

Notes

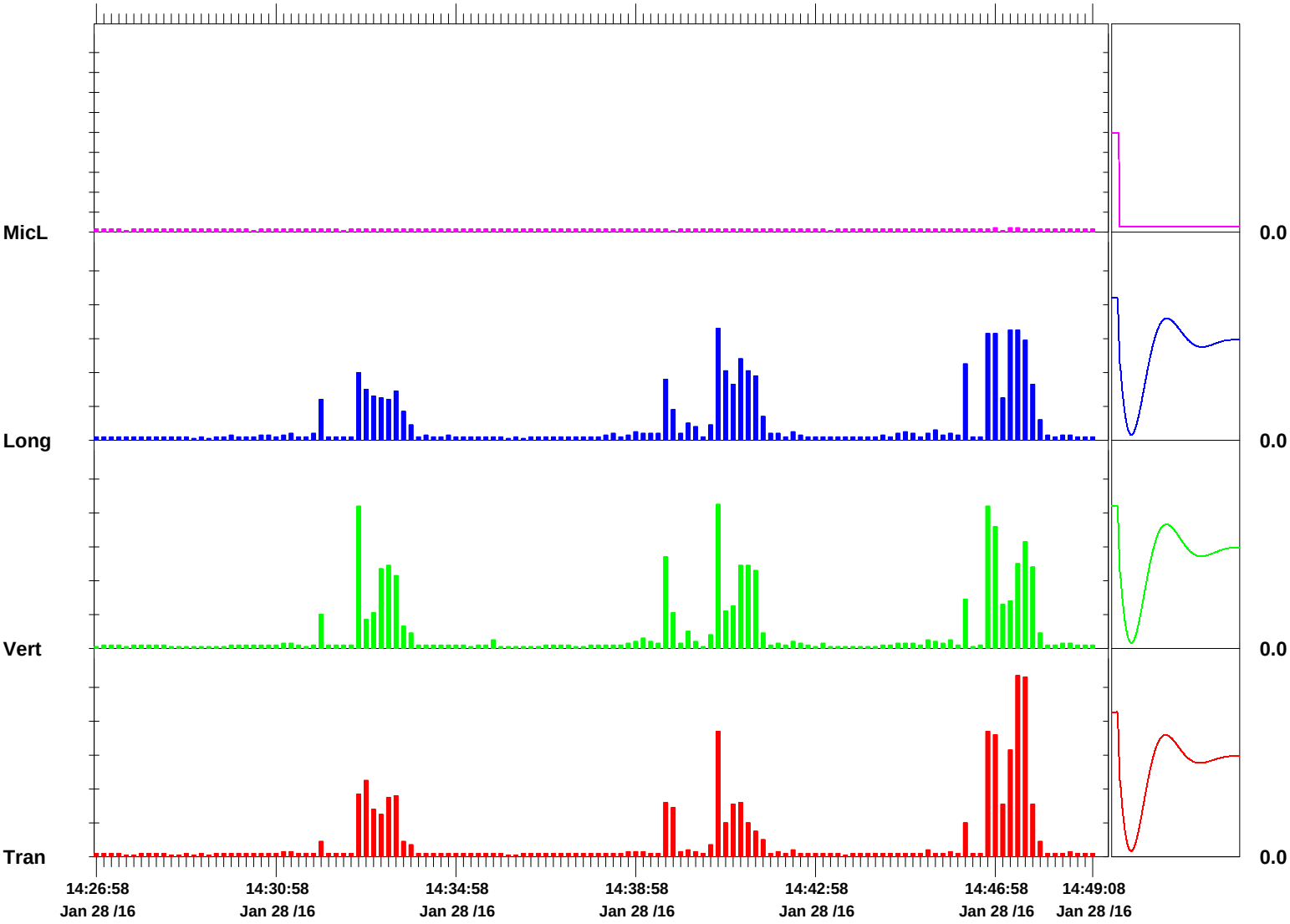
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 14:46:53
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.535	0.425	0.330	in/s
ZC Freq	37	28	32	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	14:47:28	14:40:43	14:40:48	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.4	Hz
Overswing Ratio	4.1	3.8	4.1	

Peak Vector Sum 0.609 in/s on January 28, 2016 at 14:47:33



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	14:51:17 January 28, 2016
Histogram Finish Time	14:56:13 January 28, 2016
Number of Intervals	59.00 at 5 seconds
Range	Geo:10.000 in/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE20564 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	September 22, 2015 by Instantel
File Name	V564G7TT.9H0

Notes

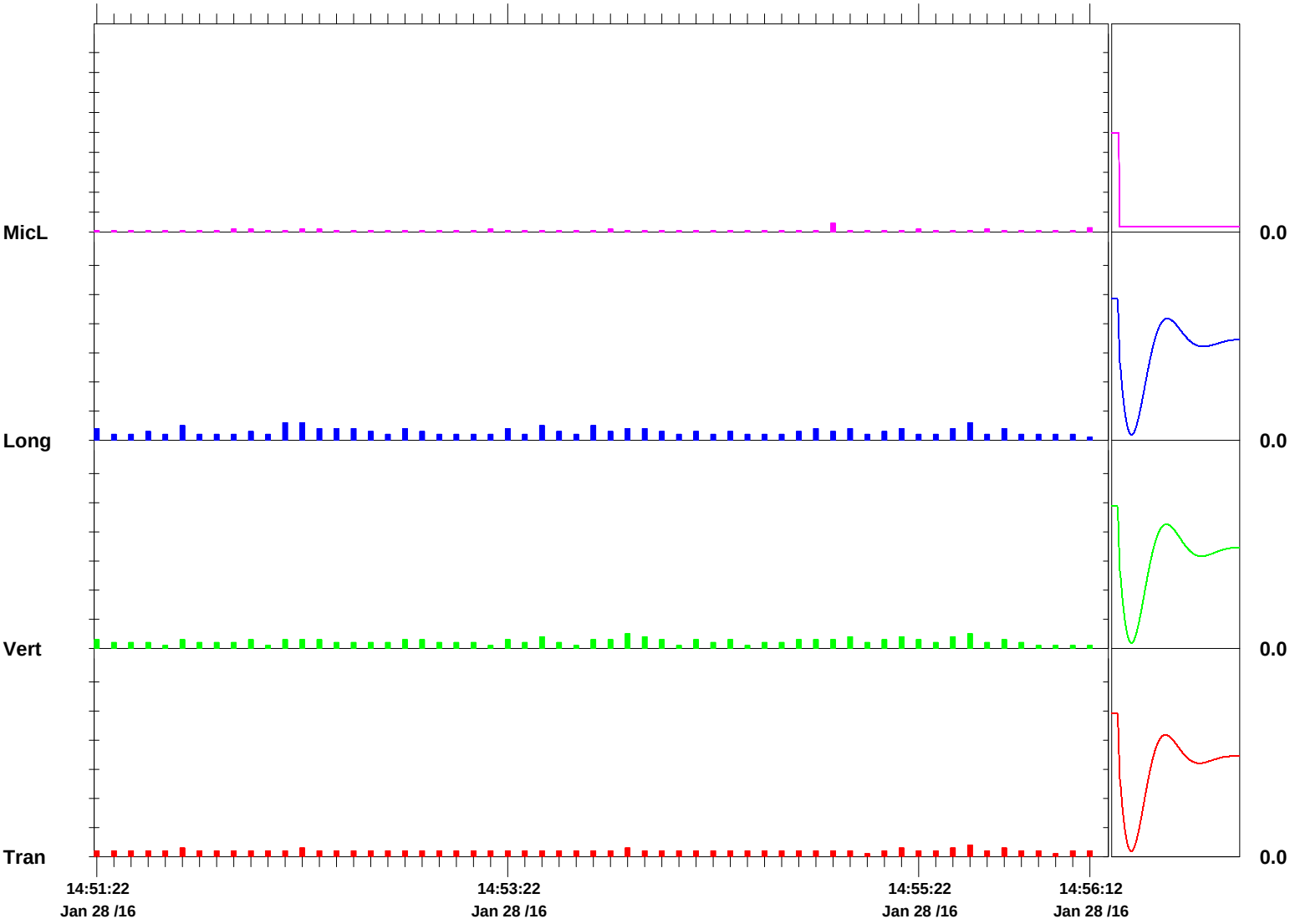
Location:	SA-6 North Gas
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 28, 2016 at 14:54:57
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.020	0.025	0.030	in/s
ZC Freq	15	14	7.3	Hz
Date	Jan 28 /16	Jan 28 /16	Jan 28 /16	
Time	14:55:37	14:53:57	14:52:17	
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.4	Hz
Overswing Ratio	4.1	3.7	4.1	

Peak Vector Sum 0.039 in/s on January 28, 2016 at 14:55:37



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Geocomp
Technologies to manage risk for infrastructure

Boston
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Chicago
Los Angeles
New York
www.geocomp.com

Vibration Monitoring Report

Study Area 6 North

Prepared by
Geocomp Engineering

January 29, 2016
For ENTACT, LLC

111 John Street, Suite 650 | New York, NY 10038 | Tel 212 566 6630 | Fax 212 566 6631

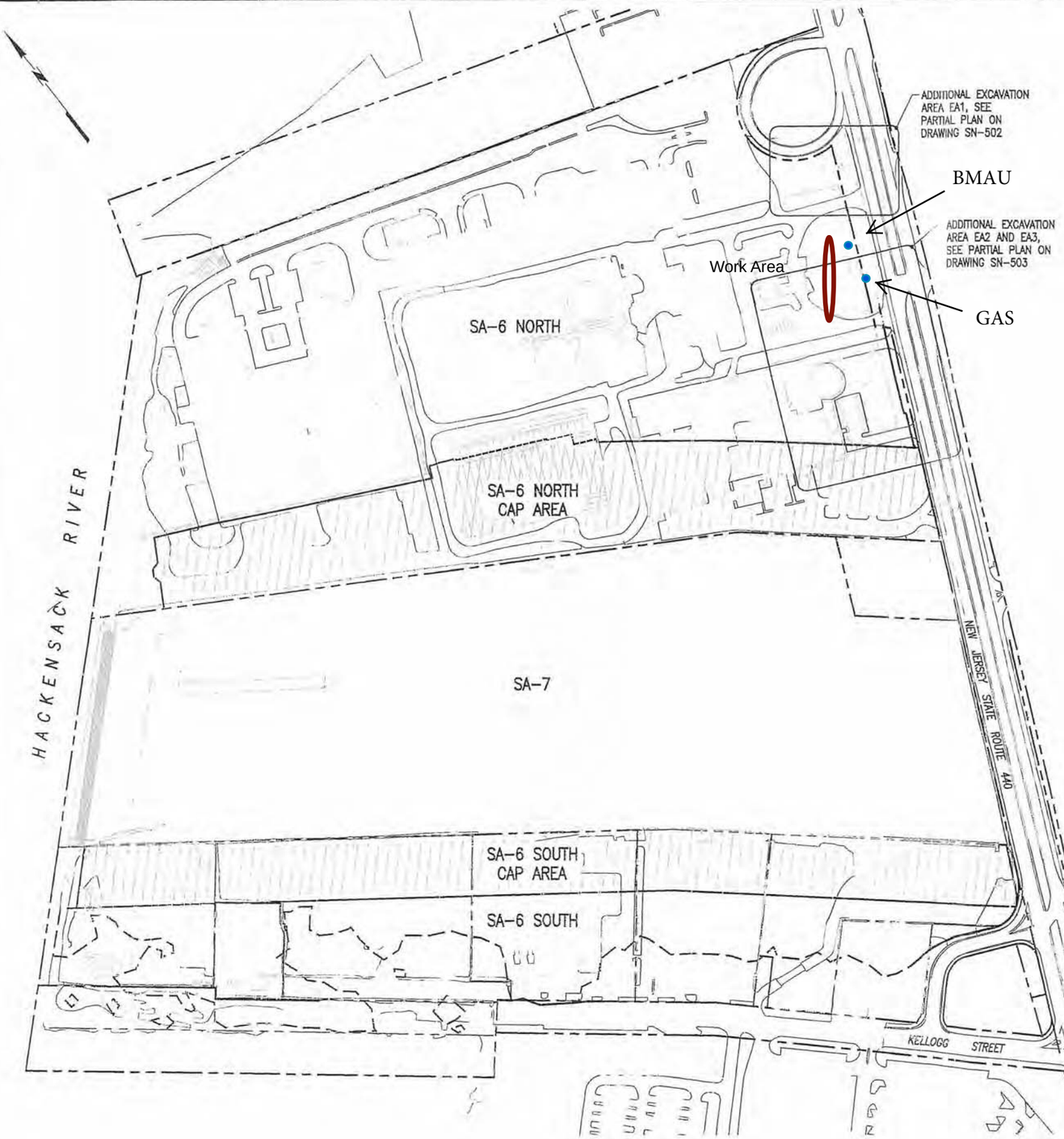
NOTES:

Summary of Work:
Removing of sheet pile commenced at 8:00 AM and ended at 12:00 PM. Two Instantel Minimate were used to record vibrations via a geophone placed on the ground over the Water/Sewer main and North Gas.

Total of 10 1/2 sheets pile were removed, and no exceedances were recorded. See attached plan for area of work and location of the seismographs. See attached Blastware reports for PPV at these locations.

Water/Sewer
Alert Level: 0.5 in/sec
Limit Level: 1.0 in/sec

North Gas
Alert Level 1.0 in/sec
Limit Level 2.0 in/sec



PLAN
SCALE: 1"=150'-0"
150' 75' 0 150' 300'

Notes:

1. The work requires installation of sheet piles, drilling, and excavation in close proximity to overhead power lines and underground utilities. Coordinate access and controls with utility companies having jurisdiction over buried and overhead utilities.
2. Re-mark utility control markings daily if removed by excavation.
3. Steel sheet piling shall be uncoated, new or used in good condition, and of the sizes shown on the drawings or structural equivalent.
4. See AMEC Environment and Infrastructure, Inc. drawings for excavation subgrade elevations.
5. The angle of repose shown on the drawings is based on the definition and requirements provided by PSE&G.
6. Final wall locations subject to location of gas main, determined by test pits.
7. Pre-excavate as required to remove obstructions within the fill prior to driving sheet piling.
8. Handle sheet piling in a manner which prevents damage to the sheet piling. Use standard safety lifting devices, use lifting holes or provide secondary support during lifting.
9. Discontinue spudding more than 5 ft. above the minimum tip elevations indicated herein.
10. Stage pile driving and step sheet piling tips as necessary to maintain interlocks. Remove and replace steel sheet piling found to be out of interlock, out of tolerance, damaged, or otherwise deficient.
11. Use drive templates and guides to maintain pile alignment and install piles plumb.
12. Sheet piling may be welded to adjacent sheets if required to control settlement during driving.
13. Spliced sheet piling shall be free sliding and able to obtain the maximum swing with contiguous piles. Splice welds shall develop the full structural strength of the member.
14. Drive templates: Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining the sheet piling in the correct location and verticality during setting and driving. Fix template in place to prevent movement during sheet pile driving. Provide restraint necessary to prevent the sheets from warping or wandering from the alignment, or from racking along the alignment.
15. Provide continuous inspection of sheet pile driving. Inspect location and verticality when setting sheets, and when sheets are driven half depth.
16. Maintain pile driving inspection record for each pair driven. Indicate pile hammer, rate of operation, energy, use of drive helmet and cap, etc. Provide a unique number for each pair, and indicate location on alignment. Document installation date, set time, drive duration, and time drive completed, initial pile length, re-heading or cutting length(s), and any additional information required for record drawings. Record unusual conditions or problems observed during driving.
17. Soldier piles and wales shown are minimum sizes. Substitution with members of equivalent or higher capacity is allowed.
18. Shop and field welding procedures, electrode classification (E70XX), and preheat temperature shall conform to AWS D1.1. Welders shall be certified in accordance with AWS D1.1 criteria.
19. Drill soldier pile using methods approved by the Engineer.
20. Dewater excavations to provide stable subgrade and to remove all uplift pressure below all sewers, force mains or other active utilities as may be required, as determined by the Engineer. Install piezometer within 10 feet of 48 inch sewer to monitor groundwater level. (1)
21. Survey to establish construction station baseline and establish monitoring points.
22. Set permanent monitoring point on top of sheet piling and soldier piles. Grind smooth surface for point, if required. Mark point ID. At contractor option, DMP points may be reflective targets for total station surveys.
23. Survey location of monitoring point. (X, Y, Z) (baseline reading). (1)
24. Survey location (X, Y, Z) two additional times, on separate days, before performing excavation within 50 ft. of monitoring point.
25. Survey monitoring point (X, Y, Z) daily, or more often at Engineer direction, when excavating within 50 ft. of monitoring point. For each reading event document survey date, time, reading change from previous reading, and reading change from baseline. Provide readings for Construction Manager review during active excavation.
26. Monitor vibrations at the ground surface above the gas main, force main, and sewer under Route 440 adjacent to the excavations within 25 feet.
27. Advise the Construction Manager of vibration monitoring data. Limiting values are:
    Gas Main – 2.0 in/sec
    Sewer & F.M. – 1.0 in/sec

    If limiting values are exceeded, the contractor shall notify the CM and cease work until adequate measures are taken to reduce vibrations. (1)
28. Elevation are based on NGVD 1929 Datum.

PETER W. DEMING
NJ PROFESSIONAL ENGINEER
LICENSE NUMBER GE-45522

NO.	DATE	DSGN	DR	CHK	APVD
		G.S.	B.B.	G.P.	APVD
1	10/31/14				
0	06/17/13				

ISSUED FOR NJDOT REVIEW — F.W.D. — GP
ISSUED FOR CONSTRUCTION — F.W.D. — APVD
REVISION — BY

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Honeywell
101 COLUMBIA RD, BOX 2105, MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NEW JERSEY

DRAWING STATUS
100 PERCENT DESIGN DRAWINGS

CIVIL
TEMPORARY
SUPPORT OF EXCAVATION
KEY PLAN AND NOTES

FILE NUMBER 11173

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

amec
Environment & Infrastructure, Inc.
200 American Metro Blvd, Suite 113
Hamilton, NJ, 08619
(609) 689 - 2829
NJ Certificate of Authorization Number 24GA28010900

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	
PROJ	3480-12-0317
DWG	SN-501
SHEET	62 OF 70

FILE NAME: G:\DWGS\11111\11173\SN-501.dwg PLOT DATE: Wed, 12 Nov 2014 PLOT TIME: 11:11 AM

Event Report

Histogram Start Time	08:04:57 January 29, 2016	**Serial Number**	BE21985 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	08:24:41 January 29, 2016	**Battery Level**	5.7 Volts (Battery Low)
Number of Intervals	236.00 at 5 seconds	**Unit Calibration**	January 26, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	__TEMP.EVT
Sample Rate	1024sps		
Job Number:	1		

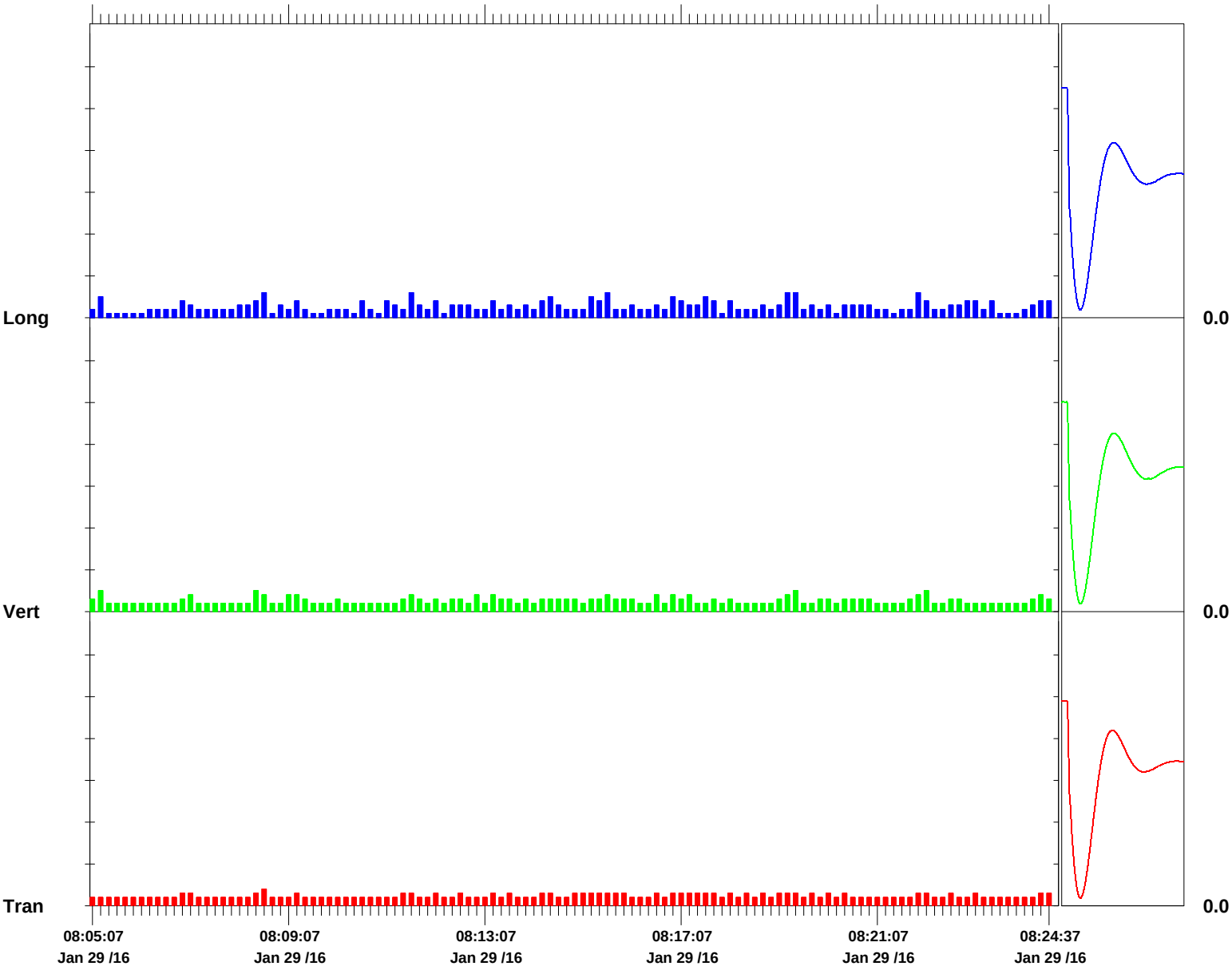
Notes

Location: SA-6 NORTH GAS
Client: ENTACT
User Name: GEOCOMP
General: KELLOGG STREET AND ROUTE 440

Extended Notes

	Tran	Vert	Long	
PPV	0.020	0.025	0.030	in/s
ZC Freq	15	13	14	Hz
Date	Jan 29 /16	Jan 29 /16	Jan 29 /16	
Time	08:08:32	08:05:12	08:08:32	
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.6	7.6	Hz
Overswing Ratio	4.0	3.7	4.1	

Peak Vector Sum 0.036 in/s on January 29, 2016 at 08:19:17



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Sensor Check

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Event Report

Histogram Start Time	08:58:24 January 29, 2016	**Serial Number**	BE21985 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	10:23:52 January 29, 2016	**Battery Level**	5.8 Volts (Battery Low)
Number of Intervals	1025.00 at 5 seconds	**Unit Calibration**	January 26, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	__TEMP.EVT
Sample Rate	1024sps		
Job Number:	1		

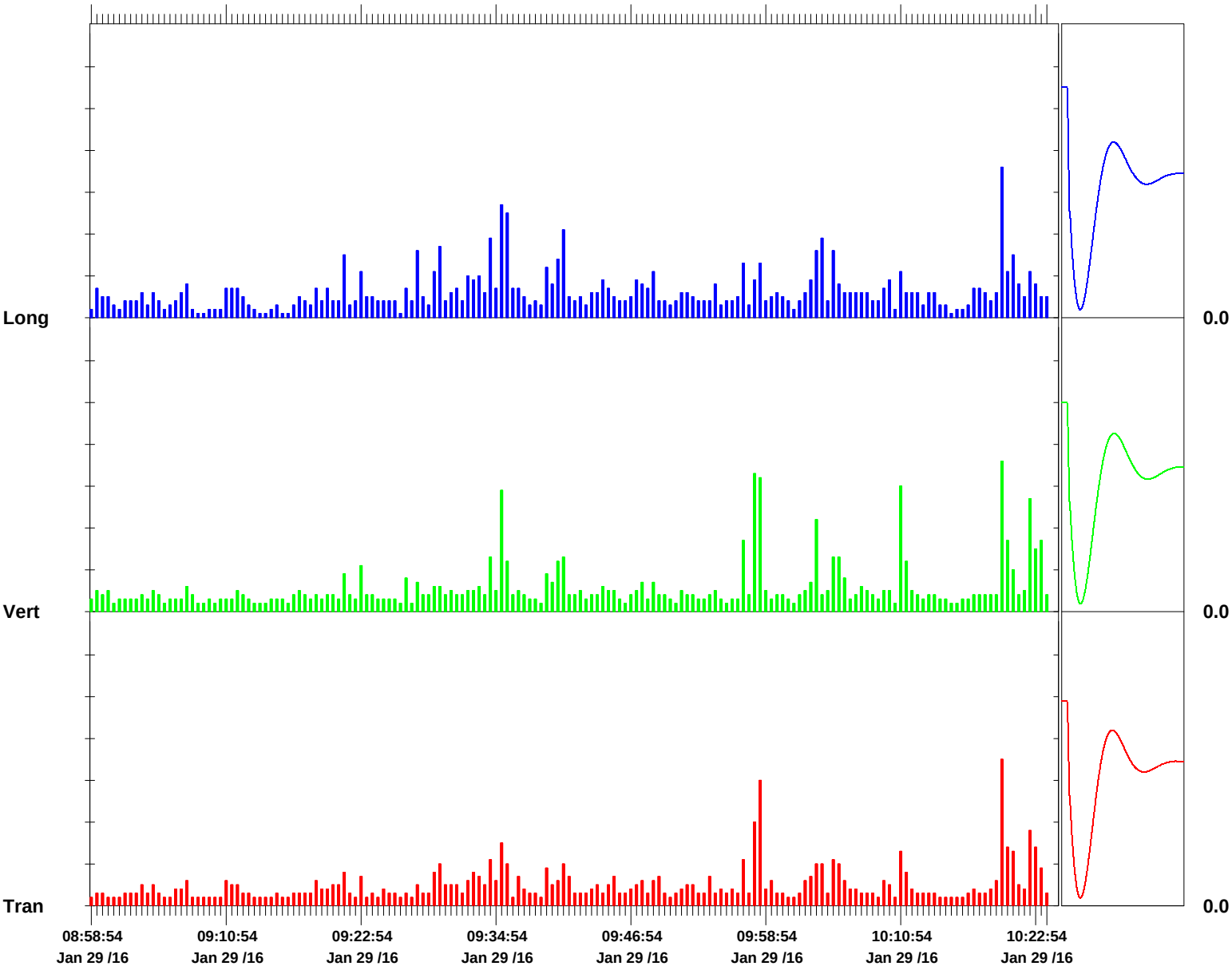
Notes

Location: SA-6 NORTH GAS
Client: ENTACT
User Name: GEOCOMP
General: KELLOGG STREET AND ROUTE 440

Extended Notes

	Tran	Vert	Long	
PPV	0.175	0.180	0.180	in/s
ZC Freq	16	20	17	Hz
Date	Jan 29 /16	Jan 29 /16	Jan 29 /16	
Time	10:19:39	10:19:39	10:19:39	
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.6	7.6	Hz
Overswing Ratio	4.0	3.7	4.0	

Peak Vector Sum 0.248 in/s on January 29, 2016 at 10:19:39



Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Sensor Check

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Event Report

Histogram Start Time	08:06:39 January 29, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	10:25:07 January 29, 2016	**Battery Level**	6.1 Volts
Number of Intervals	1661.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	__TEMP.EVT
Sample Rate	1024sps		
Job Number:	1		

Notes

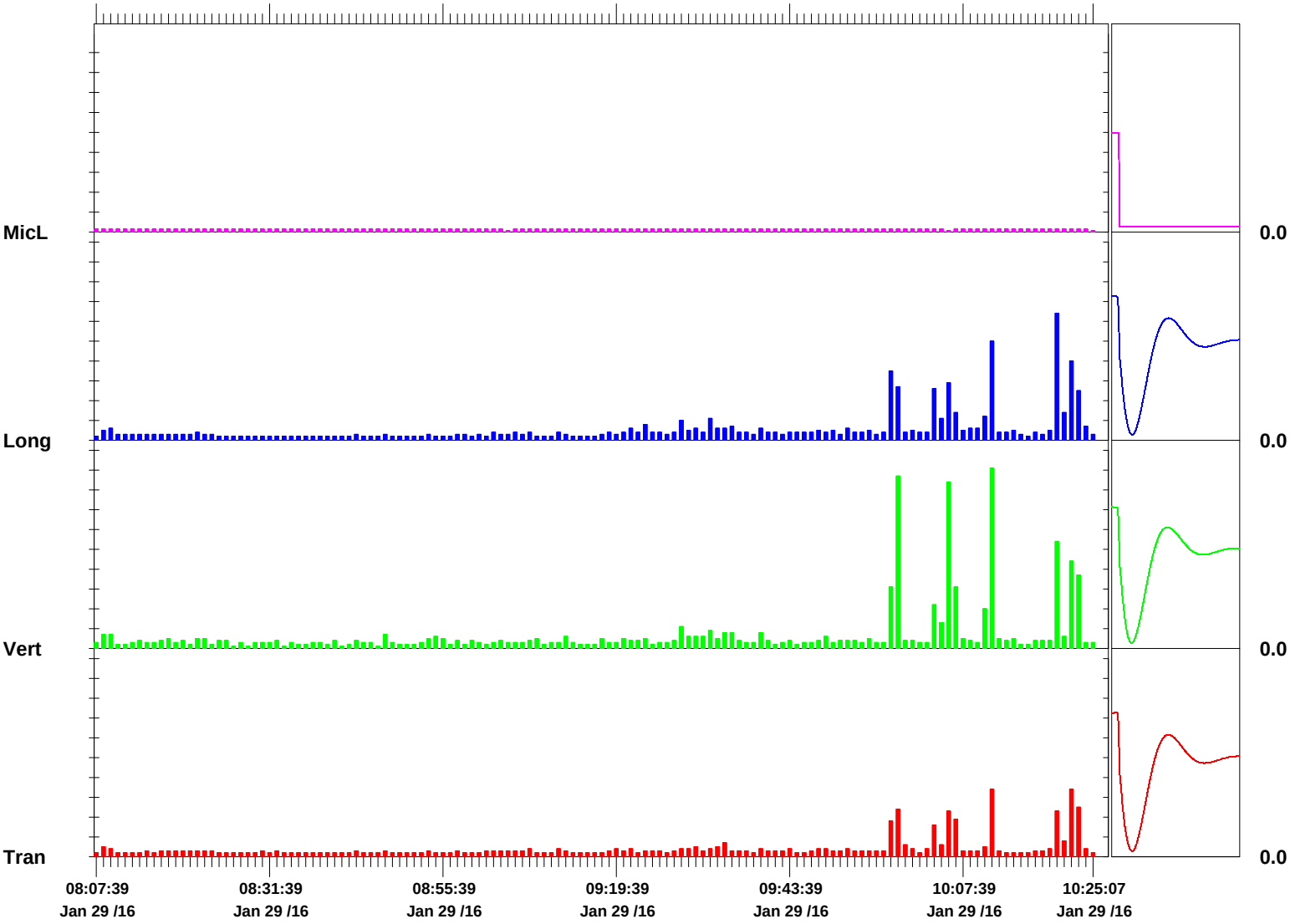
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 29, 2016 at 08:06:54
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.170	0.455	0.320	in/s
ZC Freq	37	39	21	Hz
Date	Jan 29 /16	Jan 29 /16	Jan 29 /16	
Time	10:10:49	10:11:14	10:19:49	
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.3	7.2	Hz
Overswing Ratio	4.1	4.3	4.1	

Peak Vector Sum 0.463 in/s on January 29, 2016 at 10:11:14



Time Scale: 1 minute /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	10:48:48 January 29, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:13:18 January 29, 2016	**Battery Level**	6.2 Volts
Number of Intervals	293.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	__TEMP.EVT
Sample Rate	1024sps		
Job Number:	1		

Notes

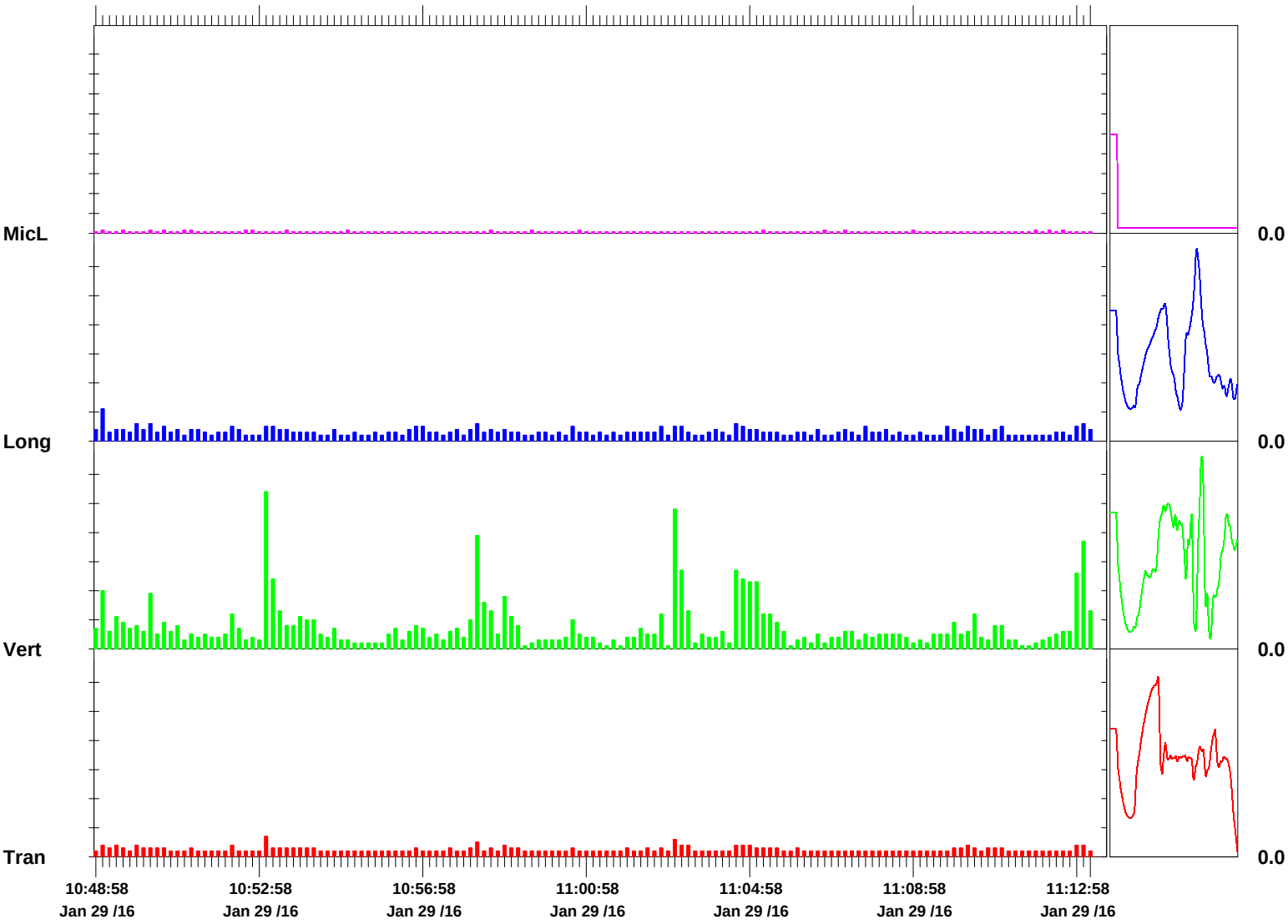
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 29, 2016 at 10:49:08
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.035	0.270	0.055	in/s
ZC Freq	30	30	5.8	Hz
Date	Jan 29 /16	Jan 29 /16	Jan 29 /16	
Time	10:53:08	10:53:08	10:49:03	
Sensor Check	Check	Check	Check	
Frequency	12.0	6.4	7.8	Hz
Overswing Ratio	0.7	1.8	1.7	

Peak Vector Sum 0.272 in/s on January 29, 2016 at 10:53:08



Time Scale: 10 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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Event Report

Histogram Start Time	11:14:16 January 29, 2016	**Serial Number**	BE20564 V 10.72-8.17 MiniMate Plus
Histogram Finish Time	11:30:32 January 29, 2016	**Battery Level**	6.1 Volts
Number of Intervals	195.00 at 5 seconds	**Unit Calibration**	September 22, 2015 by Instantel
Range	Geo:10.000 in/s	**File Name**	__TEMP.EVT
Sample Rate	1024sps		
Job Number:	1		

Notes

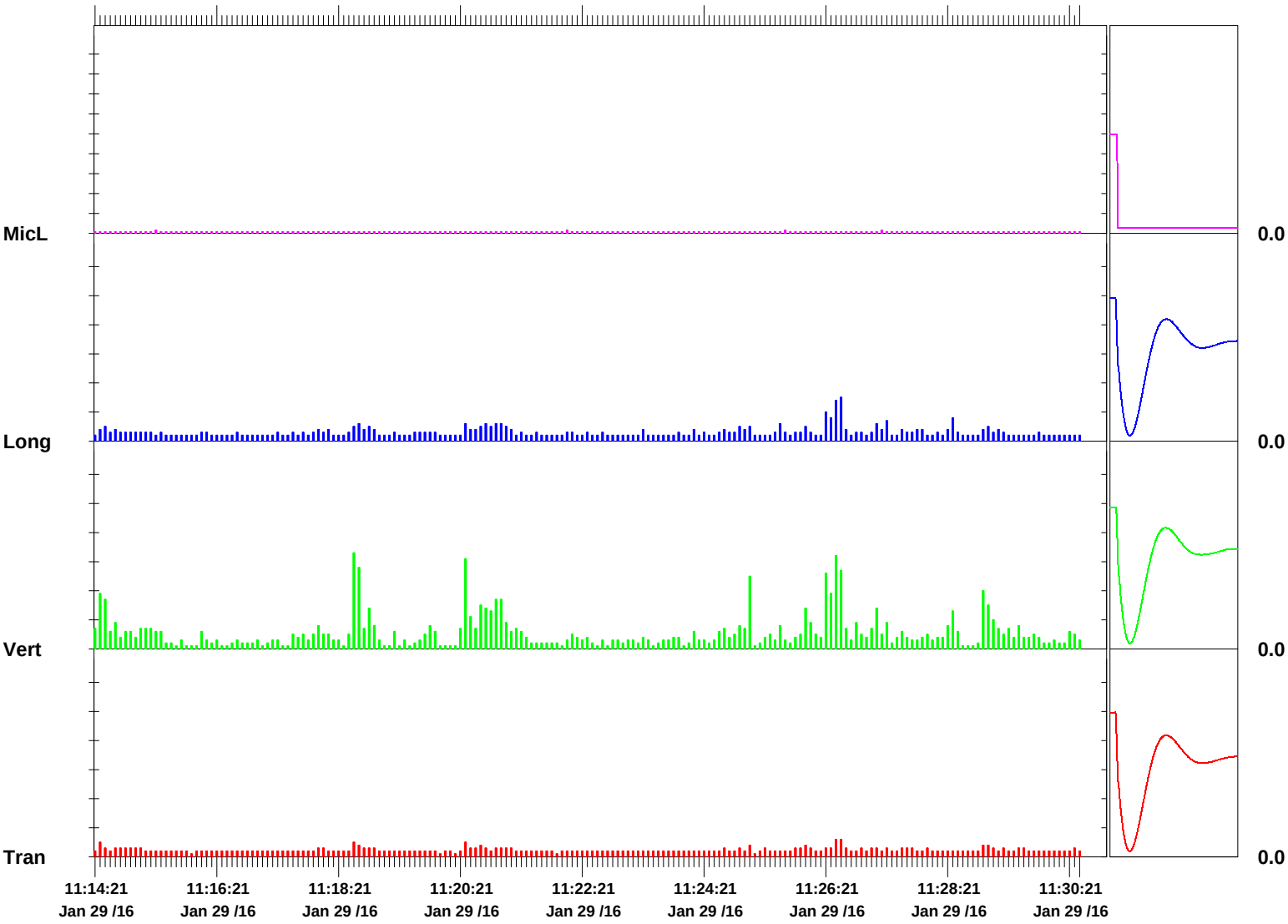
Location:	SA-6 Water/Sewer
Client:	ENTACT
User Name:	GEOCOMP
General:	KELLOGG STREET AND ROUTE 440

Extended Notes

Microphone	Linear Weighting
PSPL	0.000 psi(L) on January 29, 2016 at 11:15:21
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.030	0.165	0.075	in/s
ZC Freq	11	27	6.0	Hz
Date	Jan 29 /16	Jan 29 /16	Jan 29 /16	
Time	11:26:31	11:18:36	11:26:36	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.3	Hz
Overswing Ratio	4.1	4.2	4.1	

Peak Vector Sum 0.169 in/s on January 29, 2016 at 11:26:31



Time Scale: 5 seconds /div **Amplitude Scale:** Geo: 0.050 in/s/div Mic: 0.001 psi(L)/div Sensor Check

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APPENDIX P

SURCHARGE REPORT
(CD ONLY)

STUDY AREA 6 NORTH
&
STUDY AREA 6 SOUTH

SURCHARGE MONITORING PLAN
MONTHLY REPORT NO. 16
MARCH 2016 REPORTING PERIOD

JERSEY CITY, NEW JERSEY

Prepared for

Honeywell

115 Tabor Road
Morris Plains, New Jersey 07950

Prepared by

Amec Foster Wheeler Environment & Infrastructure, Inc.
200 American Metro Boulevard, Suite 113
Hamilton, New Jersey 08619

APRIL 2016

INTRODUCTION

The surcharge monthly reports are generated to indicate the status of progress and/or indicate corrective actions needed as provided for in Appendix N (Surcharge Monitoring Plan, Section 5.0 Reporting). Report No. 13 July 2015 indicated completion of Area 1N, Area 2N, Area 1S, Area 2S and Area 3S.

Surcharge Instrumentation was installed in Area 3N and Area 4N subsequent to March 2015 in preparation for surcharge placement in those areas. Surcharge placement in Area 3N was complete on January 18, 2016. Surcharge placement in Area 4N was complete on January 29, 2016. This report is the third report for Area 3N and Area 4N. MRCE's March 29, 2016 letter confirms completion of Area 3N and Area 4N. This marks the formal end of the Surcharge Monitoring Program for the SA-6S and SA-6N project.

Report No. 16 will be the final report for the Surcharge Program.

The goal of the program was to "remove 100% of the Primary Consolidation that will result from the future development grading prior to cap installation". The reports have documented the successful attainment of that goal for each of the 7 designated areas. In general the magnitude of settlement and time for consolidation were consistent with the predicted settlements.

This report has been prepared consistent with the format and content of the prior reports with two notable exceptions.

1. Over the course of the program Installation Logs and instrument data plots were incorporated in one monthly report then incorporated by reference in subsequent reports. In this report a summary table is provided at the end of the Table of Contents that provides a matrix showing the report location for both monitoring data and installation logs by Area and Report Number.
2. All the MRCE approval letters have been included in the final report.

REPORT CONTENTS

SURCHARGE AREA	INCLUDED HEREIN	REPORT SECTION NO.
AREA 1N	**YES****	**1.0**
AREA 2N	**YES****	**2.0**
AREA 3N	**YES****	**3.0**
AREA 4N	**YES****	**4.0**
AREA 1S	**YES****	**5.0**
AREA 2S	**YES****	**6.0**
AREA 3S	**YES****	**7.0**

* Surcharge placement has not commenced.

** Surcharge is complete.

*** Surcharge Instrumentation Installed.

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Boring Logs, Instrument Installation Diagrams and Monitoring Data Report Location Matrix

Attachment	Surcharge Area	Submitted	
		Reporting Period	Report Number
Boring Logs & Instrument Installation Diagrams	1N	June 2014	03
	2N	July 2014	04
	3N	June 2015	13
	4N	June 2015	13
	1S	June 2014	03
	2S	July 2014	04
	3S	February 2014	01
Monitoring Data	1N	July 2014	04
	2N	October 2014	07
	3N	March 2016	16
	4N	March 2016	16
	1S	October 2014	07
	2S	January 2015	10
	3S	March 2015	12

SURCHARGE AREA 1N: FIGURES/ ATTACHMENTS

Figure 1N-1: Instrumentation Location Plan.

Attachment 1N-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 1N-2: August 8, 2014 Mueser Rutledge Correspondence re: SA-6 North Surcharge Monitoring, Jersey City, NJ (Previously Submitted Report No. 4).

SURCHARGE AREA 2N: FIGURES/ ATTACHMENTS

Figure 2N-1: Instrumentation Location Plan.

Attachment 2N-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 2N-2: November 21, 2014 Mueser Rutledge Correspondence re: SA-6 North Surcharge Monitoring, Jersey City, NJ (Previously Submitted Report No. 8).

SURCHARGE AREA 3N: FIGURES/ ATTACHMENTS

Figure 3N-1: Instrumentation Location Plan.

Attachment 3N-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 3N-2: Surcharge Monitoring Data.

N_FS-08
N_FS-09
N_FS-10
N_FS-11
N_HS-10
N_HS-11
N_HS-12
N_RP-06
N_RP-07
N_SP-15
N_SP-21
N_SP-14
N_HS-13

Attachment 3N-3: March 29, 2016 Mueser Rutledge Correspondence re: Updated Area 3N and 4N Surcharge Review, SA-6 North, Jersey City, NJ.

SURCHARGE AREA 4N: FIGURES/ ATTACHMENTS

Figure 4N-1: Instrumentation Location Plan.

Attachment 4N-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 4N-2: Surcharge Monitoring Data.
N_FS-12
N_FS-13
N_SP-22
N_SP-23
N_SP-24
N_SP-25

Attachment 4N-3: March 29, 2016 Mueser Rutledge Correspondence re: Updated Area 3N and 4N Surcharge Review, SA-6 North, Jersey City, NJ.

SURCHARGE AREA 1S: FIGURES/ ATTACHMENTS

Figure 1S-1: Instrumentation Location Plan.

Attachment 1S-1: Baseline Surcharge Analysis for Monitoring Points

Attachment 1S-2: October 27, 2014 Mueser Rutledge Correspondence re: SA-6 South Surcharge Monitoring, Jersey City, NJ (Previously Submitted Report No. 7) .

SURCHARGE AREA 2S: FIGURES/ ATTACHMENTS

Figure 2S-1: Instrumentation Location Plan.

Attachment 2S-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 2S-2 February 6, 2015 Mueser Rutledge Correspondence re: SA-6 South Surcharge Monitoring, Jersey City, NJ. (Previously submitted Report No. 10).

SURCHARGE AREA 3S: FIGURES/ ATTACHMENTS

Figure 3S-1: Instrumentation Location Plan.

Attachment 3S-1: Baseline Surcharge Analysis for Monitoring Points.

Attachment 3S-2 April 24, 2015 Mueser Rutledge Correspondence re: SA-6 South Surcharge Monitoring, Jersey City, NJ.

1.0 AREA 1N SUMMARY

Surcharging was initiated in Area 1N on April 8, 2014. Final surcharge placement was completed on July 31, 2014.

1.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Table 1N-1 below summarizes the status of the surcharge. Surcharging is complete at all 11 monitoring stations.

1.2 SURCHARGE PROGRESS

As noted in Section 1.1 and as summarized in **Table 1N-1** the surcharge objective has been met in the Stratum D at all 11 monitoring locations. Surcharge removal was initiated adjacent to the 72 in. force main on August 29, 2014 and continued through October.

Tasks requiring acoustical monitoring (Barrier Wall installation and Surcharge placement and removal) were completed by the end of October. Acoustical monitoring has been discontinued by PVSC.

TABLE 1N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-01	2308	2605	**113%**	Data as of August 2014
N_FS-02	2414	3186	**132%**	Data as of August 2014
N_FS-03	2529	2810	**111%**	Data as of August 2014
N_FS-04	2764	3076	**111%**	Data as of August 2014
N_HS-01	2287	2772	**121%**	Data as of August 2014
N_HS-02	2324	2824	**122%**	Data as of August 2014
N_HS-03	2427	3161	**130%**	Data as of August 2014
N_HS-04	2303	2522	**109%**	Data as of August 2014
N_HS-05	2562	3911	**153%**	Data as of August 2014
N_HS-07	2668	3577	**134%**	Data as of August 2014
N_HS-09	2748	3521	**128%**	Data as of August 2014

2.0 AREA 2N SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 2N consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 2N-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 2N were previously provided in Report No. 4.

The Baseline Surcharge Settlement Analysis for 2N is shown in **Attachment 2N-1.**

Surcharge placement continued in Area 2N throughout October. The surcharge Placement was completed on November 3, 2014.

2.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Monitoring is no longer being performed.

2.2 SURCHARGE PROGRESS

As of October 28, 2014 Amec Foster Wheeler Environment and Infrastructure's (Amec Foster Wheeler's) evaluation concluded that the surcharge objective has been met at all three locations. **Table 2N-1** below summarizes the status of the surcharge.

TABLE 2N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-05	2766	2970	**107%**	Data as of November 2014; Pore pressure elevated 9.2 ft. (Stratum D).
N_FS-06	2833	3497	**123%**	Data as of November 2014
N_FS-07	2588	3389	**131%**	Data as of November 2014

3.0 AREA 3N SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 3N consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 3N-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 3N were previously provided in Report No. 13.

The Baseline Surcharge Settlement Analysis for 3N is shown in **Attachment 3N-1.**

Surcharge placement commenced in November 2015 in Area 3N and was completed on January 18, 2016.

3.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Copies of the data plots are provided in **Attachment 3N-2.** Final Surcharge Grades in Area 3N were 1-2 ft. above the Design Surcharge Grades. All instruments performed as expected. Pumping of the contingent groundwater collection system has allowed for the desired pore pressure dissipation to take place at all monitoring locations.

3.2 SURCHARGE PROGRESS

All eight monitoring stations have met the 100% primary consolidation goal and the areas where fill was last placed have also met the required surcharge completion criteria. The surcharge completion summary for Area 3N is included in **Table 3N-1**.

TABLE 3N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-08	2401	2832	**118%**	SP and VWP data through 3/9/16.
N_FS-09	2218	2909	**131%**	SP and VWP data through 3/9/16.
N_FS-10	2619	2964	**113%**	SP data through 3/9/16. VWP data through 3/15/16.
N_FS-11	1920	2273	**118%**	SP and VWP data through 3/9/16.
N_HS-10	2216	2313	**104%**	SP and VWP data through 3/9/16.
N_HS-11	2280	2335	**102%**	SP data through 3/9/16. VWP data through 3/24/16.
N_HS-12	1932	2198	**114%**	SP and VWP data through 3/9/16.
N_HS-13	2050	2214	**108%**	SP and VWP data through 3/9/16.

4.0 AREA 4N SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 4N consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 4N-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 4N were previously provided in Report No. 13.

The Baseline Surcharge Settlement Analysis for 4N is shown in **Attachment 4N-1.**

Surcharge placement was completed in Area 4N on January 29, 2016.

4.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Data plots for Area 4N are included in **Attachment 4N-2.** All instrumentation performed as intended.

4.2 SURCHARGE PROGRESS

There are only two Full Stations in Area 4N. Both locations now have met the surcharge goal and are therefore considered complete. The areas that were loaded last have also been loaded for an adequate duration. The surcharge completion summary for Area 4N is included in **Table 4N-1**.

TABLE 4N-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
N_FS-12	1869	1897	**101%**	SP data through 3/9/16. VWP data through 3/24/16.
N_FS-13	2064	2433	**118%**	SP and VWP data through 3/9/16.

5.0 AREA 1S SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 1S consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 1S-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 1S were included in Attachment 1S-3 Report No. 3.

The Baseline Surcharge Settlement Analysis for 1S is shown in **Attachment 1S-1.**

Surcharging was initiated in Area 1S on June 16, 2014 and continued through the week of September 26, 2014. Surcharging was noted as complete in Report No. 6, September 2014.

5.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Monitoring is no longer being performed.

5.2 SURCHARGE PROGRESS

The Surcharge was considered complete (see **Table 1S-1**) at all locations as indicated in Report No. 6.

5.3 PROPOSED MODIFICATIONS

The grading of the surcharge pile has been modified at the Hackensack River to reduce load on the bulkhead and minimize the amount of rework in the deferred area. This information was issued in a Design Change Bulletin. The change moves the crest of the surcharge back approximately 16 ft. to the east.

TABLE 1S-1
SURCHARGE COMPLETION EVALUATION
SUMMARY OF EFFECTIVE STRESS

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D	
			Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
S_FS-01	2616	3236	**124%**	Data as of November 2014. Pore pressure elevated 5 ft. in Stratum D and 3 ft. in Stratum RC.
S_FS-02	2627	3201	**122%**	Data as of November 2014. Pore pressure elevated 4.5 ft. in Stratum D.
S_HS-01	3064	3292	**107%**	Data as of November 2014.
S_HS-02	2571	2962	**115%**	Data as of November 2014. Pore pressure elevated 3 ft. in Stratum D.
S_HS-03	2400	2541	**106%**	Data as of November 2014. Pore pressure elevated 11 ft. in Stratum D and 5.5 ft. in Stratum RC.
S_HS-04	2548	3053	**120%**	Data as of November 2014. Pore pressure elevated 5 ft. in Stratum D.
S_HS-05	2583	2919	**113%**	Data as of November 2014.
S_HS-06	2881	3205	**111%**	Data as of November 2014. Pore pressure elevated 1.5 ft. in Stratum D and 7 ft. in Stratum RC.

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D	
			Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
S_HS-07	2494	3130	**126%**	Data as of November 2014.
S_HS-08	2595	2880	**111%**	Data as of November 2014. Pore pressure elevated 5 ft. in Stratum D.

6.0 AREA 2S SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 2S consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 2S-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 2S were previously provided in Attachment 2S-2 of Report No. 4.

The Baseline Surcharge Settlement Analysis for 2S is shown in **Attachment 2S-1.**

Surcharging was initiated in Area 2S in July 2014 as subgrade fill placement progressing from Area 1S into Area 2S. Placement of subgrade fill was completed during the December reporting period. The placement of "Celgene and Novartis" imported fill was completed in the January reporting period.

Surcharging for Area 2S was noted as complete in Report No. 10.

6.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Surcharge monitoring is no longer being conducted in Area 2S.

6.2 SURCHARGE PROGRESS

As of January 26, 2015 the reduced data at all 10 monitoring stations indicated that the completion criteria has been met. **Table 2S-1** below summarizes the status of the surcharge at each monitoring stations at the end of the January monitoring period.

6.3 PROPOSED MODIFICATIONS

There have been no modifications to the Surcharge Plan in Area 2S.

TABLE 2S-1
SURCHARGE COMPLETION EVALUATION
AMEC CORRECTED RESULTS JANUARY 2015

SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
S_FS-03	2343	2984	**127%**	VWP data through 1/12/15; SP data through 1/30/15.
S_FS-04	2359	2909	**123%**	VWP data through 1/18/15; SP data through 1/30/15.
S_FS-05	1839	1833	**100%**	VWP data through 1/29/15; SP data through 1/30/15.
S_HS-09	2232	3194	**143%**	VWP data through 1/12/15; SP data through 1/30/15.
S_HS-10	2479	2777	**112%**	VWP data through 1/12/15; SP data through 1/30/15.
S_HS-11	2342	2656	**113%**	VWP data through 1/12/15; SP data through 1/30/15.
S_HS-12	2482	2877	**116%**	VWP data through 1/12/15; SP data through 1/30/15.
S_HS-13	2100	2412	**115%**	VWP data as of 1/29/15; SP data through 1/30/15.
S_HS-14	2138	2839	**133%**	VWP data as of 1/12/15; SP data through 1/30/15.
S_HS-15	2637	3234	**123%**	VWP data as of 1/12/15; SP data through 1/30/15.

7.0 AREA 3S SUMMARY

Geotechnical instrumentation has been installed in Surcharge Area 3S consistent with the Surcharge Monitoring Plan (Amec, 2013) and Design Change Bulletin dated April 30, 2014. The installed instrument locations are depicted on **Figure 3S-1** (attached). Geotechnical Boring Records and Instrument Construction Diagrams for Area 3S were previously provided in Attachment 3S-1 of Report No. 1.

The Baseline Surcharge Settlement Analysis for 3S is shown in **Attachment 3S-1.**

Surcharging was initiated in Area 3S in November 2014 as subgrade fill placement progressing from West to East. Completion of surcharge fill placement finished in the first week of March with the placement of a small volume of gravel surface at the east end of Area 3S.

7.1 SURCHARGE MONITORING DATA TRENDS/ANOMALIES/ MODIFICATIONS

Surcharge monitoring is no longer being conducted.

7.2 SURCHARGE PROGRESS

As of the close of the March, 2015 reporting period Amec Foster Wheeler's evaluation concludes that the surcharge objective has been met at all nine locations. **Table 3S-1,** below, summarizes the status of the surcharge.

MRCE have completed their peer review of the results. MRCE's letter dated April 24, 2015 (Attachment 3S-4 to Report No. 10) indicates that based on their analysis all stations met the surcharge program completion goal as of the end of the March 2015 reporting period.

7.3 PROPOSED MODIFICATIONS

The 0-12 ft. wide Deferred Area strip along Route 440 will not be surcharged. The surcharge design grades have been carried to the point of forming a stable slope at the Barrier Wall at elevation 11. A Design Change Bulletin has been filed documenting this Field Change. The development grades are similar to the existing grades along the "Deferred Area" (i.e. approximately + 0.5 ft.). The surcharge height

in this area was an artifact resulting from generating a simple surcharge pile geometry with a uniform slope. Therefore elimination of surcharge from this strip will have no impact on the Chromium Remedy.

The intent of SP-08 was to monitor settlement impacts on the perimeter pool. The original Settlement Platform SP-08 was located just south of the SA-7 barrier wall and not north of the wall over the perimeter pool. The platform was relocated mid-January 2015 to be over the perimeter pool. The platform was renamed SP-08 (2). Both plots are included in this report.

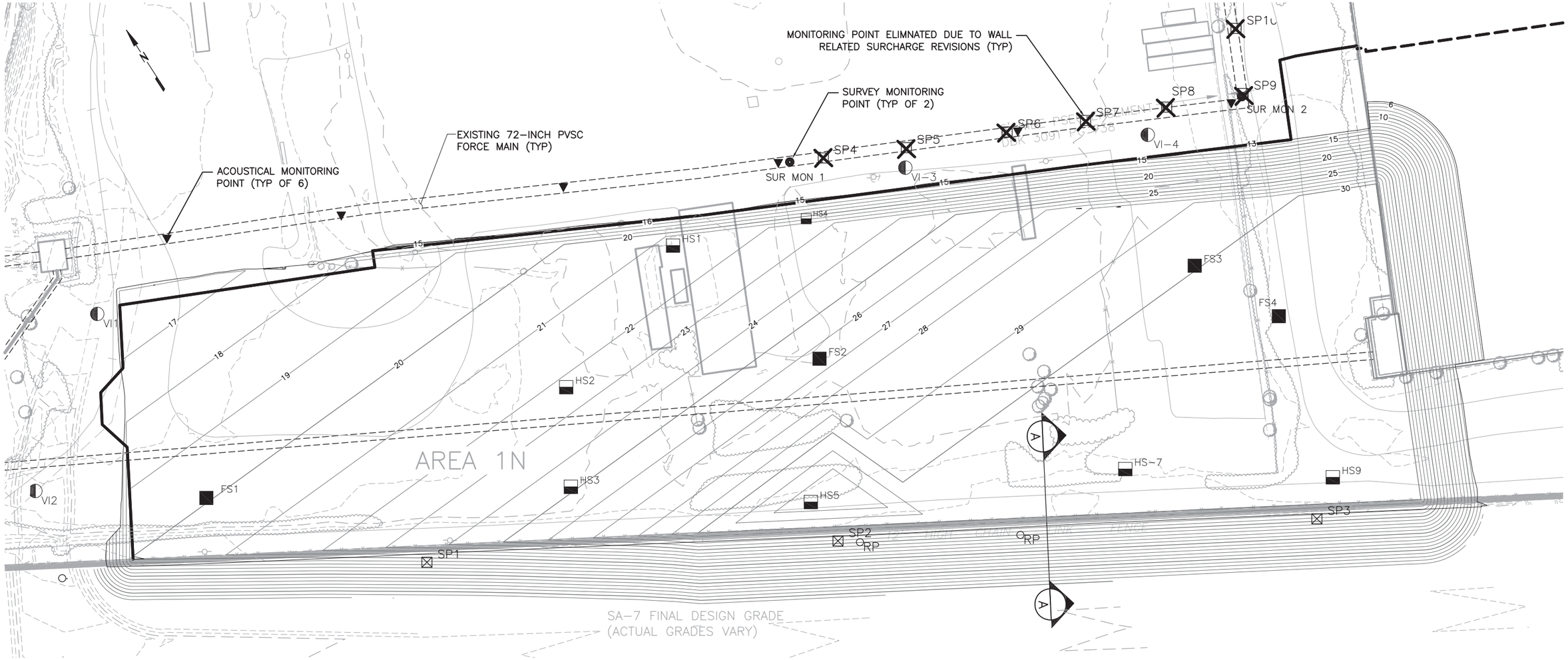
TABLE 3S-1
SURCHARGE COMPLETION EVALUATION

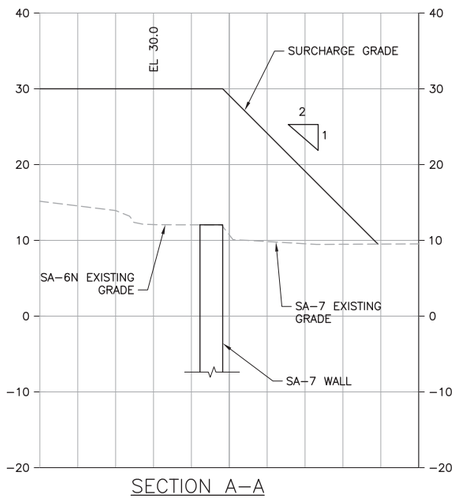
SURCHARGE MONITORING POINT	FINAL DEVELOPMENT CONDITION	SURCHARGE CONDITIONS	SURCHARGE COMPLETION EVALUATION	
	Middle of Stratum D	Middle of Stratum D	Middle of Stratum D Effective Stress Conditions / Comparisons	
	Effective Stress (psf)	Effective Stress (psf)	Percent Complete	Comments
S_FS-06	2099	2664	**127%**	Data through March 2015
S_FS-07	2376	2691	**113%**	Data through March 2015
S_HS-16	2522	2619	**104%**	Data through March 2015
S_HS-17	1751	2046	**117%**	Data through March 2015
S_HS-18	970	1458	**150%**	Data through March 2015
S_HS-19	845	1206	**143%**	Data through March 2015
S_HS-20	2484	2499	**101%**	Data through March 2015
S_HS-21	1504	1978	**132%**	Data through March 2015
S_HS-22	966	1198	**124%**	Data through March 2015

SURCHARGE AREA 1N
FIGURES & ATTACHMENTS

Figure 1N-1

Instrumentation Location Plan





SECTION A-A

SETTLEMENT MONITORING POINTS		
DESCRIPTION	NORTHING	EASTING
VI-1	686110	602120
VI-2	686042	602032
VI-3	685922	602571
VI-4	685860	602703
FS1	685983	602116
FS2	685854	602467
FS3	685779	602684
FS4	685727	602709
HS1	685958	602431
HS2	685922	602330
HS3	685871	602301
HS4	685928	602505
HS5	685786	602416
~~HS6~~	~~685784.69~~	~~602649.88~~
HS7	685700.10	602583.29
~~HS8~~	~~685826.15~~	~~602796.09~~
HS9	685629	602684

SP1	685880	602205
SP2	685757	602417
SP3	685613	602663
~~SP4~~	~~685953.03~~	~~602533.39~~
~~SP5~~	~~685931.28~~	~~602578.16~~
~~SP6~~	~~685906.49~~	~~602633.51~~
~~SP7~~	~~685886.78~~	~~602676.31~~
~~SP8~~	~~685867.20~~	~~602721.11~~
~~SP9~~	~~685849.22~~	~~602763.68~~
~~SP10~~	~~685883.92~~	~~602781.17~~
SUR MON 1	685962	602515
SUR MON 2	685848	602762

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA-7 FENCE AND SA-7 FLOODLIGHTS.
2. RELOCATE POWER SUPPLY TO PW1 AND PW2 PRIOR TO SURCHARGE.
3. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
4. SURCHARGE PILE TO BE SLOPED TO THE SHED FACE WATER TO THE NORTH.
5. LOCATION OF SA-7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI-2	INCLINOMETER LOCATION
FS-1	SETTLEMENT MONITORING POINT FULL - SETUP
HS-1	SETTLEMENT MONITORING POINT HALF - SETUP
SP12	SETTLEMENT MONITORING PLATFORM
RP	APPROXIMATE LOCATION OF SA-7 PERIMETER POOL RISER PIPE
	72-INCH FM ACOUSTICAL MONITORING POINT
SUR MON 1	72-INCH FM SURVEY MONITORING POINT
	STATION RELOCATED OR ELIMINATED DUE TO SURCHARGE PILE RECONFIGURATION

0 15 30 60
SCALE IN FEET

Revised/Date: TDD 08/13/14
Checked/Date: SGS 08/13/14

Honeywell
101 COLUMBIA RD. BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec

INSTRUMENTATION LOCATION PLAN
AREA 1N
Project 3480-09-0006
Figure B1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C30\CAD\SA6N\100 Percent\Figure 1 Surcharge Settling Monitoring Plan - Area 1.dwg Thu, 14 Aug 2014 - 12:56pm roger.riquier

Attachment 1N-1

Baseline Surcharge Analysis for Monitoring Points

AREA 1N
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING POINT	REFERENCE/NEARBY GEOTECHNICAL EXPLORATIONS	EXISTING & PROPOSED GRADING (At Surcharge Monitoring Point)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE (100% Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					ESTIMATED SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	SF/O	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
N_FS-01	087-SB-407	16.3	17.0	20.0	0.3	0.1	0.0	0.4	0.0	0.1	1.0	**20.0**	**3.8**	**3.0**	**22%**	**0.3**	0.2	2.4	**2.6**
N_FS-02	087-SB-411; 115-SB-214	14.8	19.5	26.5	1.5	1.1	0.0	2.6	0.0	0.6	5.8	**26.5**	**11.8**	**7.0**	**48%**	**1.5**	0.4	2.1	**2.5**
N_FS-03	087-SB-409; 087-CPT-006; 087-CPT-012	14.3	21.0	30.0	1.9	1.1	0.0	2.9	0.0	0.3	6.2	**30.0**	**15.8**	**9.0**	**52%**	**1.0**	0.3	1.6	**1.9**
N_FS-04	087-CPT-012	13.3	23.0	30.0	2.1	3.6	0.0	3.9	0.0	0.2	9.8	**30.0**	**16.8**	**7.0**	**68%**	**2.4**	0.7	1.5	**2.2**
N_HS-01	087-CPT-016; 087-SB-403	15.5	17.8	21.0	0.8	0.5	0.0	1.4	0.0	0.1	2.9	**21.0**	**5.5**	**3.3**	**45%**	**1.7**	0.4	2.5	**2.9**
N_HS-02	087-SB-408; 087-SB-411	14.3	18.0	22.5	1.3	0.8	0.0	2.2	0.0	0.5	4.8	**22.5**	**8.3**	**4.5**	**51%**	**1.8**	0.4	2.3	**2.7**
N_HS-03	087-SB-411; 115-SB-214	14.8	19.3	25.0	1.4	1.3	0.0	2.9	0.0	0.6	6.2	**25.0**	**10.3**	**5.8**	**50%**	**2.4**	0.5	2.5	**3.1**
N_HS-04	087-SB-411; 087-SB-403; 087-CPT-016	15.0	18.5	21.0	1.2	0.8	0.0	1.8	0.0	0.1	4.0	**21.0**	**6.0**	**2.5**	**62%**	**2.3**	0.4	2.0	**2.4**
N_HS-05	087-SB-411; 115-SB-214	13.3	20.0	32.0	2.0	1.8	0.0	4.6	0.0	0.2	8.6	**32.0**	**18.8**	**12.0**	**46%**	**2.1**	0.5	2.6	**3.1**
N_HS-07	087-SB-409; 115-SB-213; 087-CPT-012	12.5	22.0	30.0	2.3	2.3	0.0	4.3	0.0	0.3	9.1	**30.0**	**17.5**	**8.0**	**65%**	**1.9**	0.4	1.7	**2.1**
N_HS-09	115-SB-213; 087-CPT-012; 087-CPT-013	13.8	22.5	30.0	2.2	2.0	0.0	4.5	0.0	0.4	9.1	**30.0**	**16.3**	**7.5**	**63%**	**2.5**	0.4	2.1	**2.5**

Prepared By/Date: NDL/4-2-14
Checked By/Date: TCC/5-8-14

Attachment 1N-2
August 8, 2014 Mueser Rutledge Correspondence re:
SA-6 North Surcharge Monitoring, Jersey City, NJ
(Previously Submitted Report No. 4)

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Director of Marketing

August 8, 2014

Geoff Shallard
AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Re: SA-6 North Surcharge Monitoring
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

Mueser Rutledge Consulting Engineers (MRCE) reviewed the settlement and piezometer monitoring data related to Area 1N provided by AMEC, on July 18th 2014. MRCE's review of the available data is summarized below:

1. AMEC indicated boring sampling performed was to define the compressible layer stratification and the Vibrating Wire Piezometers (VWP) were set at the center of the layers. Center of the layer provide the most conservative pore water pressure reading for the effective stress evaluation. MRCE effective stress calculations were made at the center of the layers.

2. MRCE obtained the 06/16/14 measured fill thickness from the "Settlement Platform – Data Report". MRCE calculated the total stress as of 06/16/14 based on the 06/16/14 fill thickness and the "Historic Pre-Construction Conditions" total stresses provided by AMEC. MRCE calculated the pore water pressures based from 06/16/14 piezometer readings on "Vibrating Wire Piezometer – Data Report" and calculated the 06/16/14 effective stresses, as presented in Table 1.

3. MRCE compared calculated 06/16/14 effective stresses with the effective stresses provided by AMEC for "Final Post-Development Conditions". The defined goal of surcharge program was to achieve an equal or greater effective stress than the "Final Post-Development Conditions" effective stress. Accordingly, MRCE evaluated 06/16/14 percentage completion, shown as "MRCE % Completion (06/16/14)" in Table 1. Table 1 also presents 06/30/14 percent completion evaluation of AMEC, "AMEC % Completion (06/30/14)", for comparison.

4. Two settlement monitoring locations, N_FS-04 and N_HS-04 (highlighted in Table 1), had percentage completion less than 100%. These monitoring points did not meet the defined goal of the surcharge program as of 06/16/14.

5. AMEC provided updated settlement and piezometer monitoring data on August 6th 2014. MRCE calculated effective stresses and the percent completion for N_FS-04 and N_HS-04 based on the updated monitoring data, as shown in Table 2.

6. MRCE agrees that the defined goal of the surcharge program of achieving an equal or greater effective stress than the "Final Post-Development Conditions" effective stress is met in all settlement monitoring locations.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

MP:F:\111\11173\SA-6 Surcharge Removal Review\MRCE SA-6 Surcharge Monitoring Review.docx

Table 1. MRCE SA-6 Surcharge Monitoring Review (06/16/14)

Source:		AMEC			Settlement Monitoring Data	VWP Monitoring Data	MRCE				AMEC
Settlement Monitoring Point	Layer	Center of the Layer EL. (ft)	Historic Pre-Construction Conditions Total Stress (psf)	Final Post-Development Conditions Effective Stress (psf)	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 06/16/14 (psf)	Pore Water Pressure 06/16/14 (psf)	Effective Stress 06/16/14 (psf)	% Completion 06/16/14	% Completion 06/30/14
N_FS-01	Center D	-10.8	3073	2308	2.6	6.1	3393	1058	2335	101%	103%
N_FS-02	Center O	-4.6	2262	2279	11.2	11.6	4048	1242	2418	106%	-
N_FS-02	Center D	-8.3	2647	2414	11.2	15.4	3663	1245	2807	116%	117%
N_FS-03	Center O	-2.9	2118	2431	9.8	9.9	3628	1065	2443	100%	-
N_FS-03	Center D	-7.2	2400	2529	9.8	11.5	3346	904	2563	101%	105%
N_FS-04	Center O	-2.2	1830	2598	10.9	12.9	3624	1206	2417	**93%**	-
N_FS-04	Center D	-6.5	2266	2764	10.9	10.1	3189	771	2418	**87%**	92%
N_FS-04	RC	-43.2	6777	4984	10.9	2.7	8135	2866	5269	106%	-
N_HS-01	Center D	-9.6	2886	2287	5.3	5.8	3552	959	2593	113%	110%
N_HS-02	Center D	-9.2	2723	2324	8.7	9.0	3813	1133	2680	115%	115%
N_HS-03	Center D	-8.7	2700	2427	10.9	5.6	4065	894	3171	131%	130%
N_HS-04	Center D	-8.6	2702	2303	3.7	5.7	3163	892	2271	**99%**	96%
N_HS-05	Center D	-9.9	2654	2562	16.7	7.8	4746	1109	3637	142%	145%
N_HS-05	RC	-54.7	7323	4843	16.7	-0.9	9415	3354	6061	125%	-
N_HS-07	Center D	-7.6	2214	2668	12.0	12.0	4374	1224	3149	118%	121%
N_HS-09	Center D	-7.3	2428	2748	12.5	12.5	4429	1235	3194	116%	119%

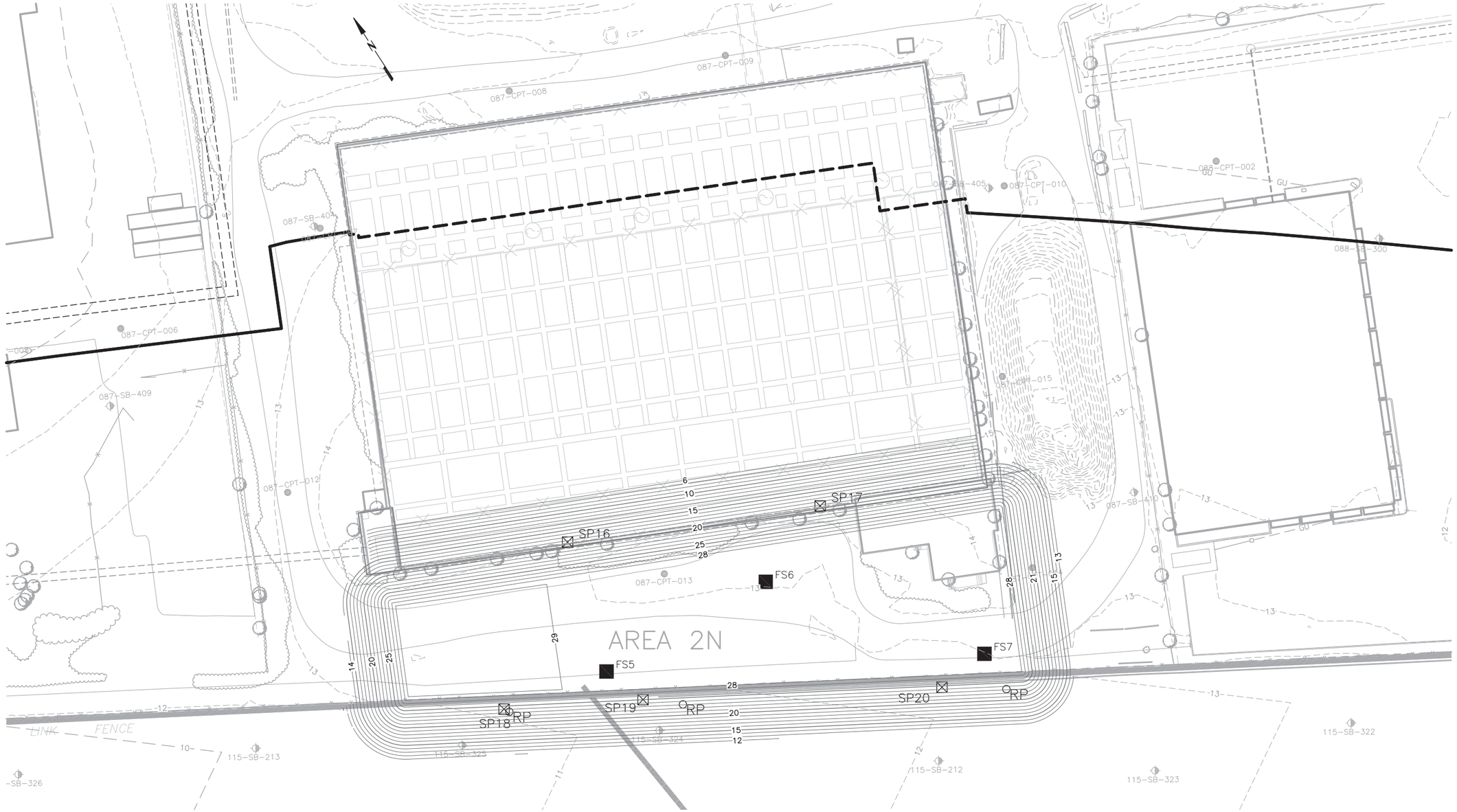
Table 2. MRCE Surcharge Monitoring Review (August 2014)

Source:		Settlement Monitoring Data	VWP Monitoring Data	MRCE				AMEC
Settlement Monitoring Point	Layer	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 06/16/14 (psf)	Pore Water Pressure 06/16/14 (psf)	Effective Stress 06/16/14 (psf)	% Completion August 14	% Completion August 14
N_FS-04	Center O	16.3	9.6	3867	738	3130	**120%**	-
N_FS-04	Center D	16.3	9.6	4303	1003	3300	**119%**	118%
N_HS-04	Center D	9.4	5.0	3877	847	3030	**132%**	99%

SURCHARGE AREA 2N
FIGURES & ATTACHMENTS

Figure 2N-1

Instrumentation Location Plan



SETTLEMENT MONITORING POINT		
DESCRIPTION	NORTHING	EASTING
FS5	685543	602822
FS6	685536	602927
FS7	685433	603010
SP16	685618	602844
SP17	685556	602977
SP18	685557	602761
SP19	685518	602831
SP20	685430	602979

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA-7 FENCE AND SA-7 FLOODLIGHTS.
2. RELOCATE POWER SUPPLY TO PW1 AND PW2 PRIOR TO SURCHARGE.
3. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
4. SURCHARGE PILE TO BE SLOPED TO THE SHED FACE WATER TO THE NORTH.
5. LOCATION OF SA-7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI-2	INCLINOMETER LOCATION
FS-1	SETTLEMENT MONITORING POINT FULL – SET UP
HS12	SETTLEMENT MONITORING POINT HALF – SET UP
SP12	SETTLEMENT MONITORING PLATFORM
RP	APPROXIMATE LOCATION OF SA-7 PERIMETER POOL RISER PIPE

Revised/Date: TDD 08/13/14
Checked/Date: SGS 08/13/14

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amec

INSTRUMENTATION LOCATION PLAN
AREA 2N
Project 3480-09-0006
Figure C1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C30\CAD\SA6N\100 Percent\Figure 2 Surcharge Settling Monitoring Plan - Area 2.dwg Wed, 13 Aug 2014 - 10:58am roger.riquier

Attachment 2N-1

Baseline Surcharge Analysis for Monitoring Points

AREA 2N
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING POINT	REFERENCE/NEARBY GEOTECHNICAL EXPLORATIONS	EXISTING & PROPOSED GRADING (At Surcharge Monitoring Point)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE (100% Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					ESTIMATED SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	SF/O	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
N_FS-05	087-CPT-013; N_FS-06	13.1	22.5	28.5	2.2	3.9	0.0	1.4	0.0	0.3	7.8	**28.5**	**15.4**	**6.0**	**70%**	**1.0**	0.8	0.6	**1.4**
N_FS-06	087-CPT-013; N_FS-05; N_FS-07	12.7	22.8	28.5	2.3	3.3	0.0	3.1	0.0	0.1	8.8	**28.5**	**15.8**	**5.8**	**72%**	**1.9**	0.6	1.2	**1.8**
N_FS-07	087-CPT-013; N_FS-06; 087-CPT-014	13.0	20.8	28.0	2.2	1.0	0.0	1.5	0.0	0.1	4.7	**28.0**	**15.0**	**7.3**	**61%**	**0.4**	0.2	0.7	**1.0**

Prepared By/Date: NDL/8-14-14
Checked By/Date:

Attachment 2N-2

November 21, 2014 Mueser Rutledge Correspondence re:
SA-6 North Surcharge Monitoring, Jersey City, NJ
(Previously Submitted Report No. 8).

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November 21, 2014

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attention: Mr. Geoff Shallard

Re: Area 2N Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of November 17, 2014 AMEC settlement and piezometer monitoring data for Area 2N is summarized below:

AMEC indicated from borings and sampling the Vibrating Wire Piezometers (VWP) were set at the center of the compressible clay layer, which provides the most conservative pore water pressure reading for the effective stress evaluation. All the stress calculations are at the center of the compressible layers.

MRCE used measured fill thickness dated 10/28/14 from "Settlement Platform – Data Report" to calculate the total stress. Pore water was taken from the 10/28/14 "Vibrating Wire Piezometer – Data Report." Effective stress computed for 10/28/14, is presented in Table 1. MRCE compared the 10/28/14 calculated effective stress with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of surcharge program was to achieve an effective stress greater than the "Final Post-Development Conditions."

This review finds all Area 2N monitoring locations have met the surcharge program goal as of 10/28/14.

Very truly yours,
MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

MP:F:\111\11173\2014 Surcharge Removal Review\SA-6_Area 2N_Surcharge Removal Review\MRCE SA-6 Surcharge Monitoring Review- Area 2N.112114.docx

Table 1. MRCE SA-6 Surcharge Monitoring Review for Area 2N (10/28/14)

Source:		AMEC				Settlement Monitoring Data	VWP Monitoring Data	MRCE			MRCE	AMEC
Settlement Monitoring Point	Layer	Center of the Layer EL. (ft)	Pre-Surcharge Conditions Total Stress (psf)	Final Development Condition Effective Stress (psf)	Surcharge Conditions Effective Stress (psf)	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 10/28/14 (psf)	Pore Water Pressure 10/28/14 (psf)	Effective Stress 10/28/14 (psf)	% Completion 10/28/14	% Completion 10/28/14
N_FS-05	Center O			2603.1		14.29	7.12	3750.0	812.4	2937.6	113%	-
N_FS-05	Center D	-7.3	2360.6	2765.9	3343.5	14.29	5.41	4146.9	799.3	3347.5	121%	121%
N_FS-06	Center O			2685.9		15.06	6.47	3837.5	640.8	3196.7	119%	-
N_FS-06	Center D	-7.6	2360.6	2833.1	3387.6	15.06	5.96	4218.8	827.4	3391.3	120%	120%
N_FS-06	RC			6075.3		15.06	2.94	10752.5	3135.0	7617.5	125%	-
N_FS-07	Center O			2523.5		10.69	6.61	3486.3	674.5	2811.7	111%	-
N_FS-07	Center D	-6.7	2360.6	2588.0	2972.4	10.69	4.87	3660.0	740.7	2919.3	113%	115%

Notes:
1. % Completion is the ratio of measured effective stress under surcharge with respect to final effective stress in development condition.

SURCHARGE AREA 3N
FIGURES & ATTACHMENTS

Figure 3N-1

Instrumentation Location Plan

SETTLEMENT MONITORING POINT		
DESCRIPTION	NORTHING	EASTING
FS8	685409	603096
FS9	685493	603135
FS10	685590	603173
FS11	685388	603343
HS10	685491	603322
HS11	685332	603208
HS12	685421	603404
HS13	685256	603314
SP14	685639	603121
SP15	685561	603086
SP21	685299	603197

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA-7 FENCE AND SA-7 FLOODLIGHTS.
2. RELOCATE POWER SUPPLY TO PW1 AND PW2 PRIOR TO SURCHARGE.
3. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
4. SURCHARGE PILE TO BE SLOPED TO THE SHED FACE WATER TO THE NORTH.
5. LOCATION OF SA-7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI-2	INCLINOMETER LOCATION
FS-1	SETTLEMENT MONITORING POINT FULL – SET UP
HS-1	SETTLEMENT MONITORING POINT HALF – SET UP
SP12	SETTLEMENT MONITORING PLATFORM
RP	APPROXIMATE LOCATION OF SA-7 PERIMETER POOL RISER PIPE

Revised/Date: TDD 06/30/15
Checked/Date: NDL 06/30/15

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JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec

INSTRUMENTATION LOCATION PLAN
AREA 3N
Project 3480-13-0377
Figure D1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C3D\CAD\SA6N\100 Percent\Figure 3 Surcharge Settling Monitoring Plan - Area 3.dwg Tue, 30 Jun 2015 - 3:59pm tony.donovan

Attachment 3N-1

Baseline Surcharge Analysis for Monitoring Points

AREA 3N
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING POINT	REFERENCE/NEARBY GEOTECHNICAL EXPLORATIONS	EXISTING & PROPOSED GRADING (At Surcharge Monitoring Point)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE (100% Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					ESTIMATED SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	SF/O	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
N_FS-08	087-SB-410; 087-CPT-014	12.8	19.8	23.7	1.8	2.0	0.0	2.4	0.0	0.1	6.3	**23.7**	**10.9**	**3.9**	**71%**	**1.5**	0.5	1.2	**1.7**
N_FS-09	087-SB-410; 087-CPT-014; 087-CPT-015	13.2	18.3	23.7	1.3	2.1	0.0	1.8	0.0	0.1	5.3	**23.7**	**10.6**	**5.4**	**56%**	**1.2**	0.7	1.2	**1.9**
N_FS-10	087-CPT-015; 087-SB-405; 087-CPT-010; 088-CPT003	13.3	20.7	23.8	1.8	1.2	0.0	2.7	0.0	0.2	6.0	**23.8**	**10.6**	**3.1**	**76%**	**1.9**	0.3	1.4	**1.7**
N_FS-11	088-SB-307	12.4	15.5	18.4	0.9	1.3	0.0	0.5	0.0	0.1	2.7	**18.4**	**6.0**	**2.9**	**56%**	**0.4**	0.6	0.5	**1.1**
N_HS-10	088-SB-300; 088-SB-301; 088-SB-307	12.3	17.0	18.7	1.3	0.7	0.0	1.0	0.0	0.0	2.9	**18.7**	**6.4**	**1.7**	**77%**	**0.6**	0.2	0.7	**1.0**
N_HS-11	088-SB-307; 087-CPT-014; 115-SB-211	12.8	18.7	18.9	1.7	0.9	0.0	2.5	0.0	0.0	5.0	**18.9**	**6.1**	**0.2**	**97%**	**4.9**	0.2	1.4	**1.7**
N_HS-12	088-SB-307; 088-SB-301	13.1	14.5	18.3	0.4	0.4	0.0	0.2	0.0	0.1	1.0	**18.3**	**5.2**	**3.8**	**30%**	**0.1**	0.5	0.5	**1.0**
N_HS-13	115-SB-211; 088-SB-307; 088-SB-306	13.0	16.8	18.3	1.1	0.0	0.0	2.5	0.0	0.0	3.6	**18.3**	**5.3**	**1.5**	**75%**	**2.7**	0.0	2.2	**2.2**

Prepared By/Date: NDL/6-26-15
Checked By/Date:

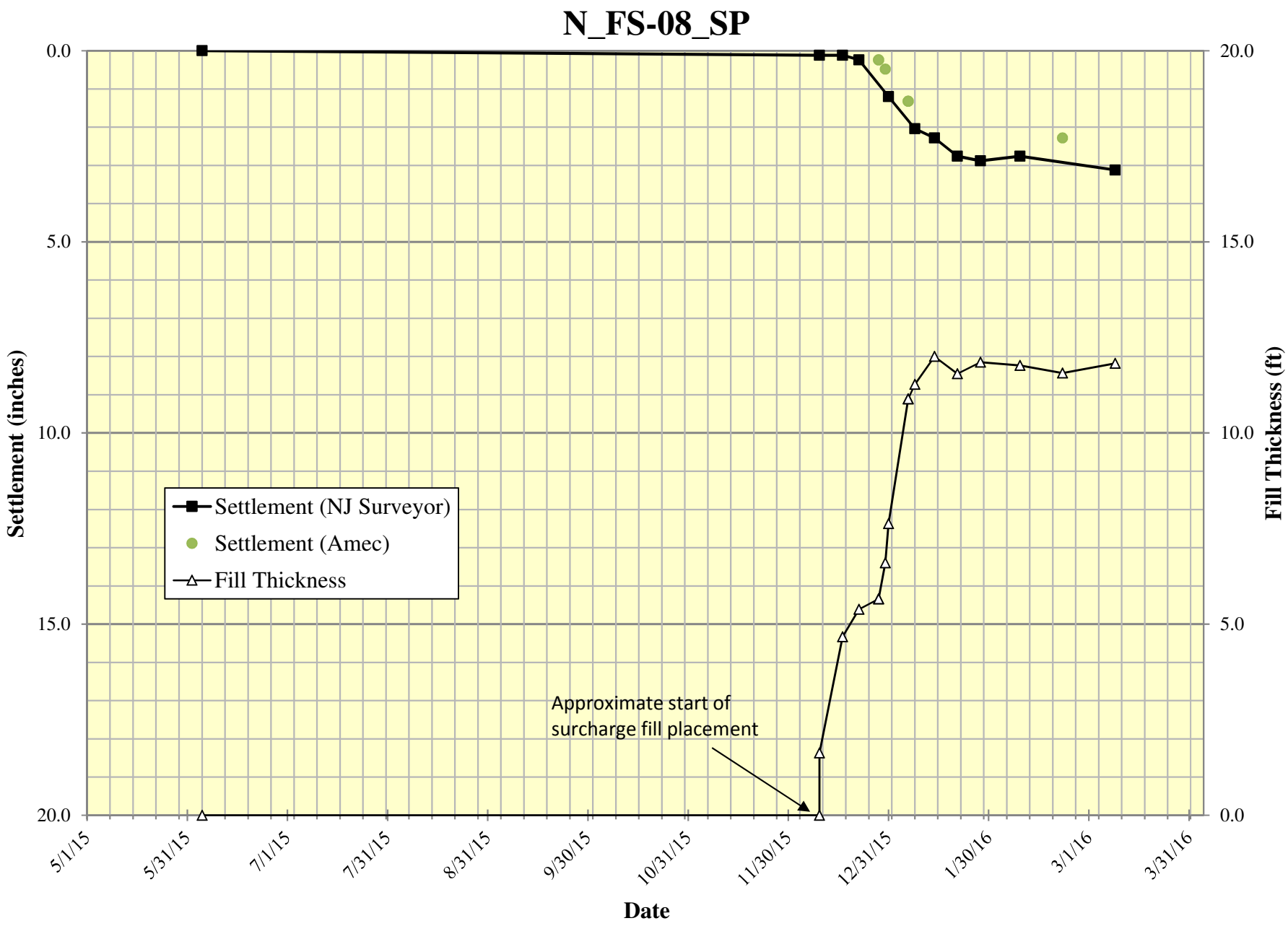
Attachment 3N-2

Surcharge Monitoring Data

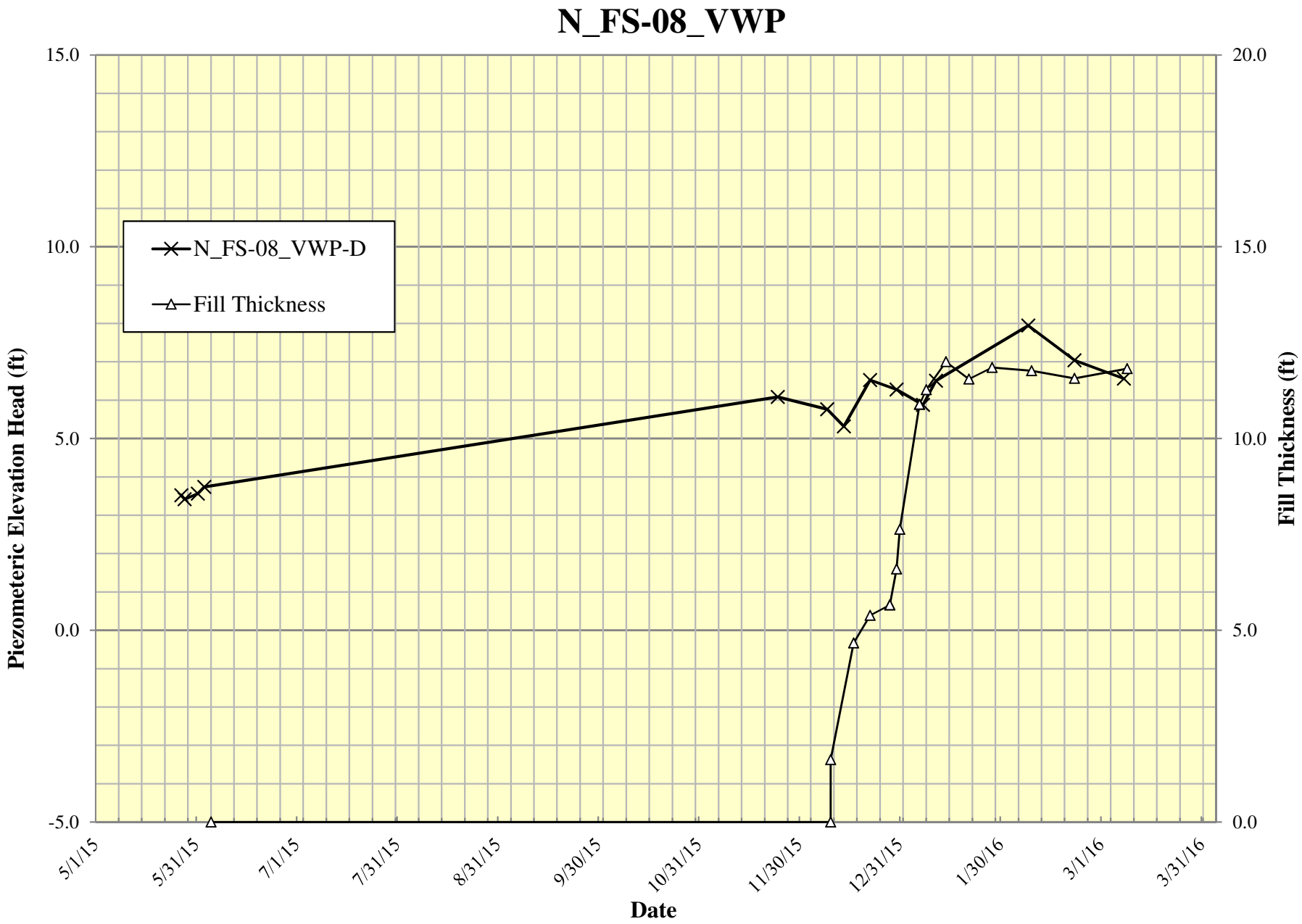
Surcharge Monitoring Data

N_FS-08

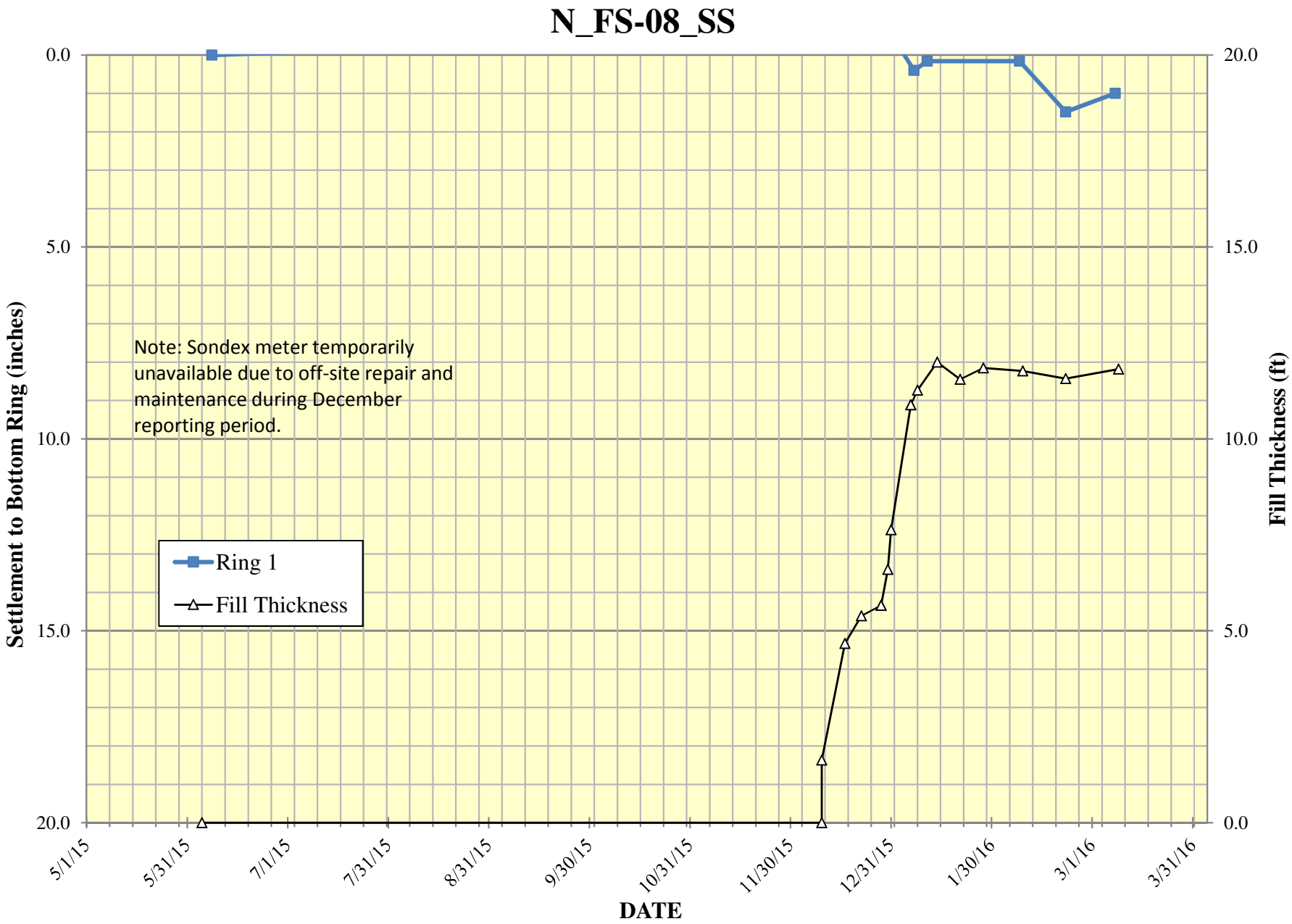
Settlement Platform Data Summary



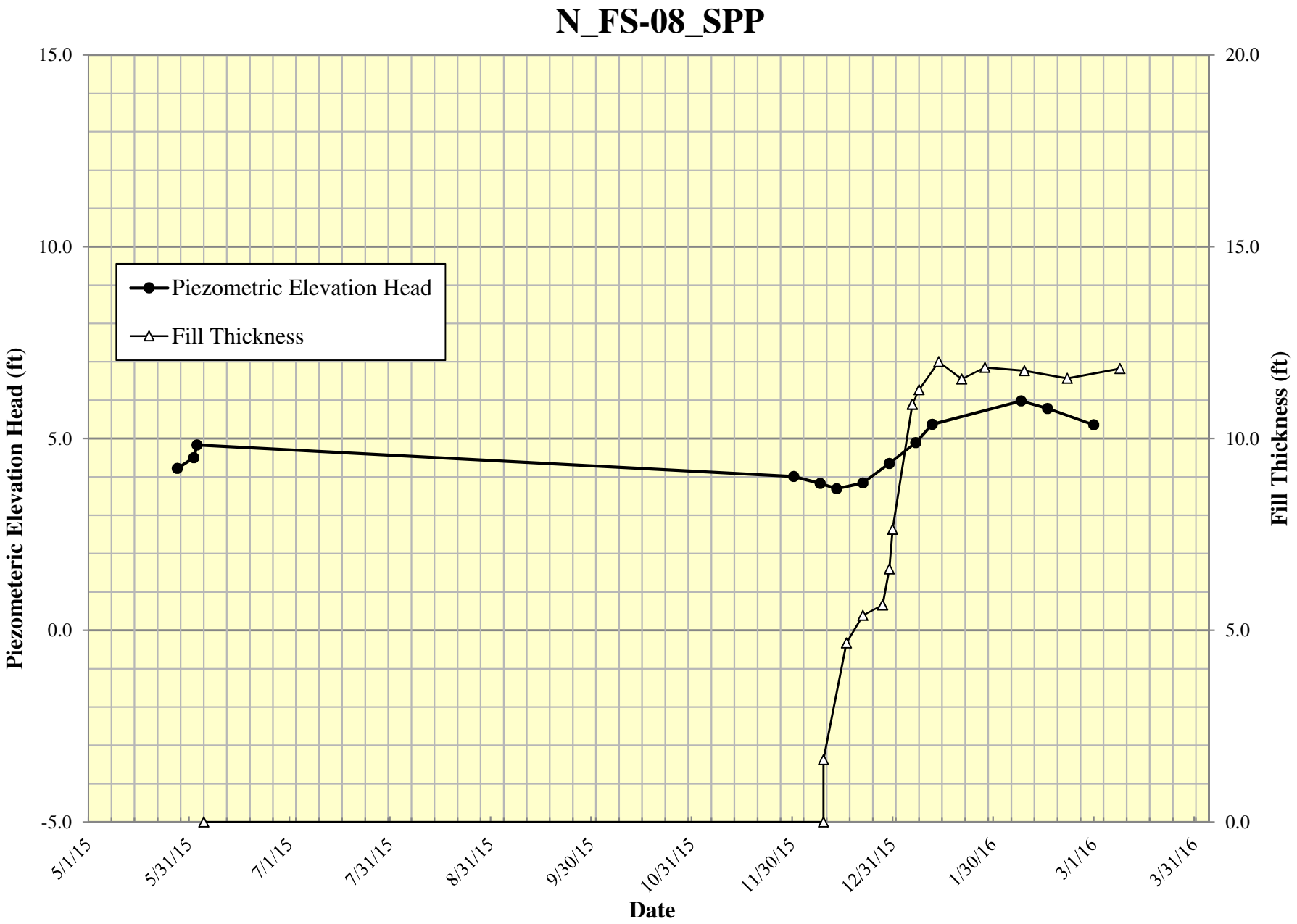
Vibrating Wire Piezometer Data Summary



Sondex System Data Summary



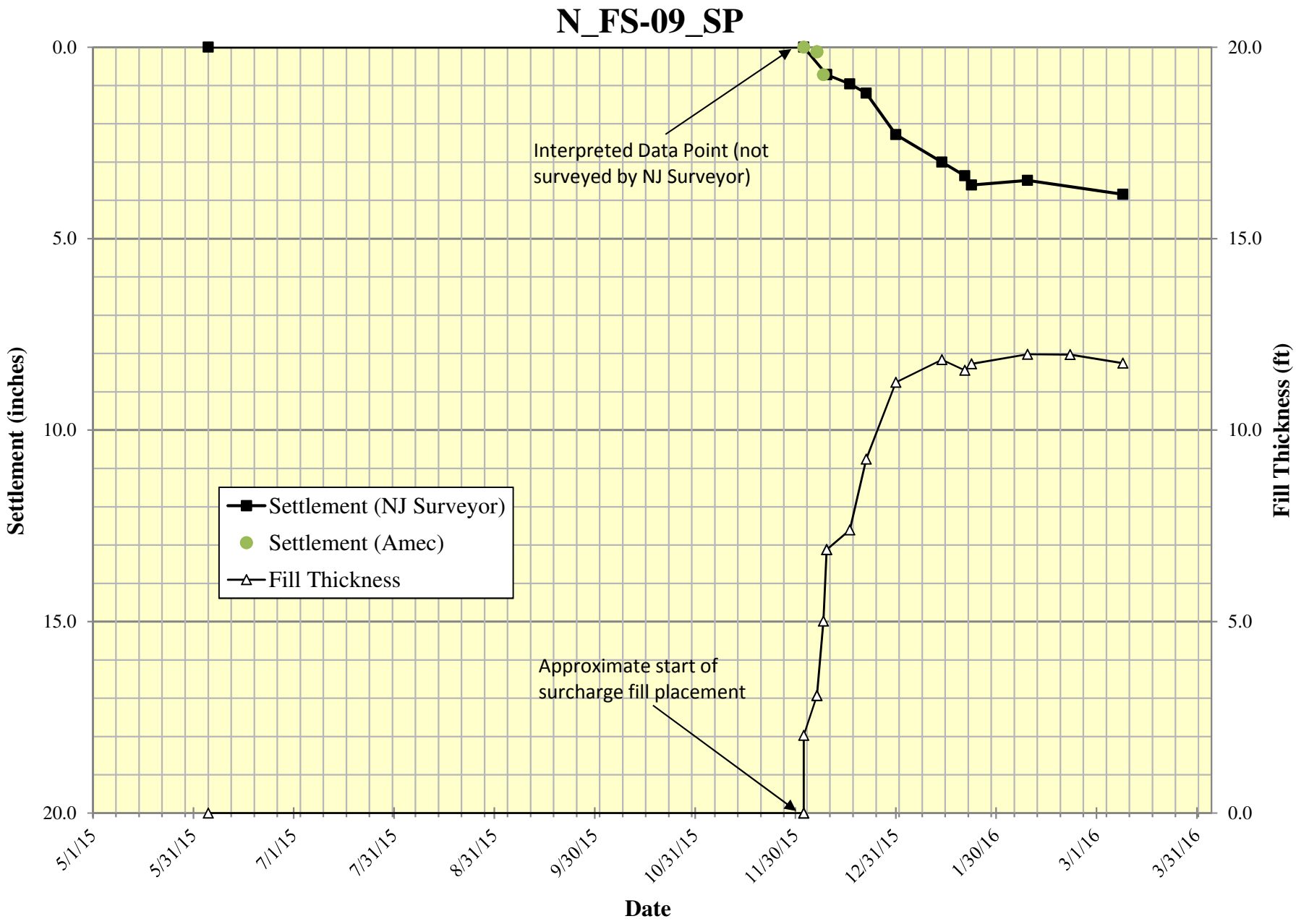
Standpipe Piezometer Data Summary



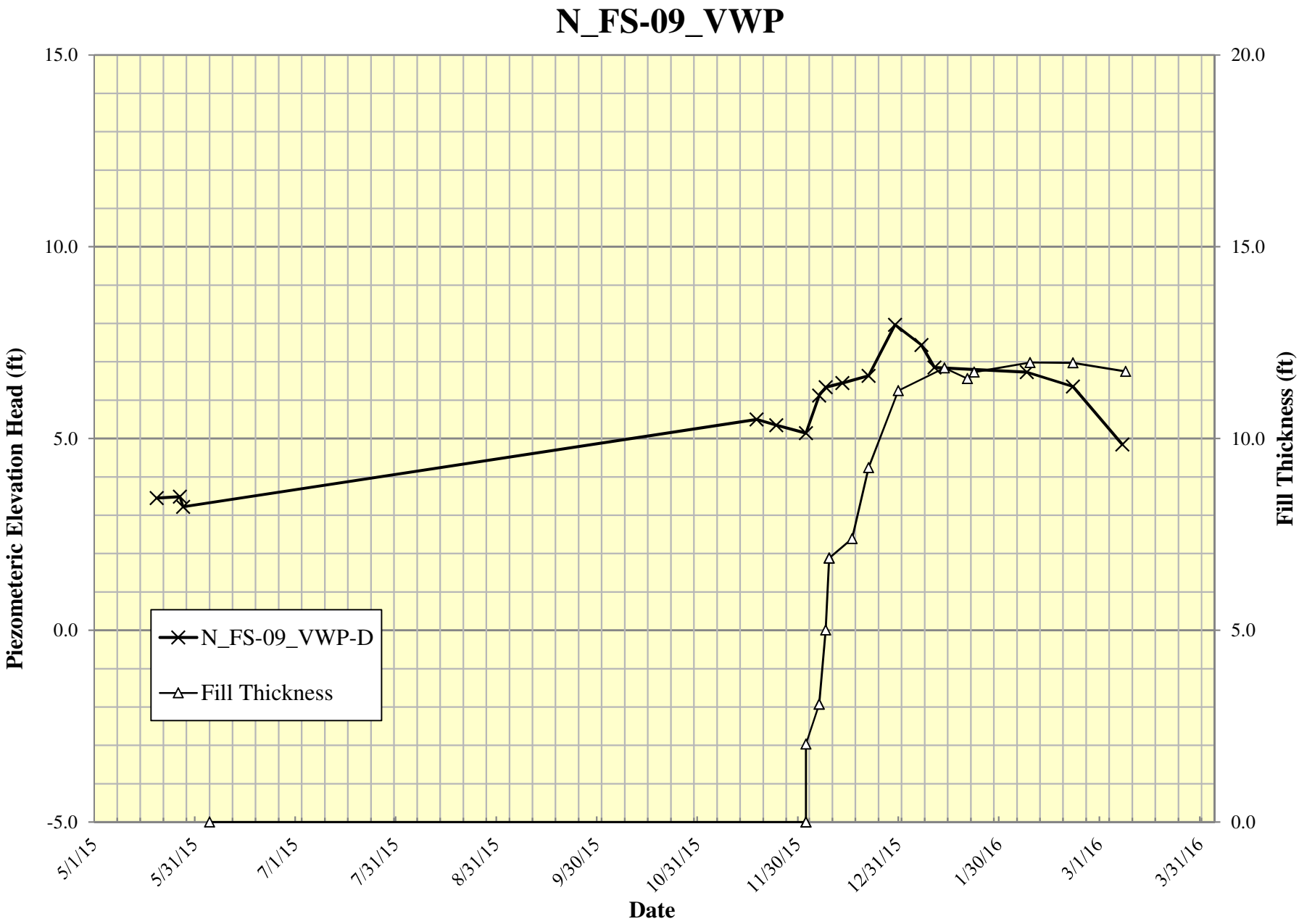
Surcharge Monitoring Data

N_FS-09

Settlement Platform Data Summary



Vibrating Wire Piezometer Data Summary



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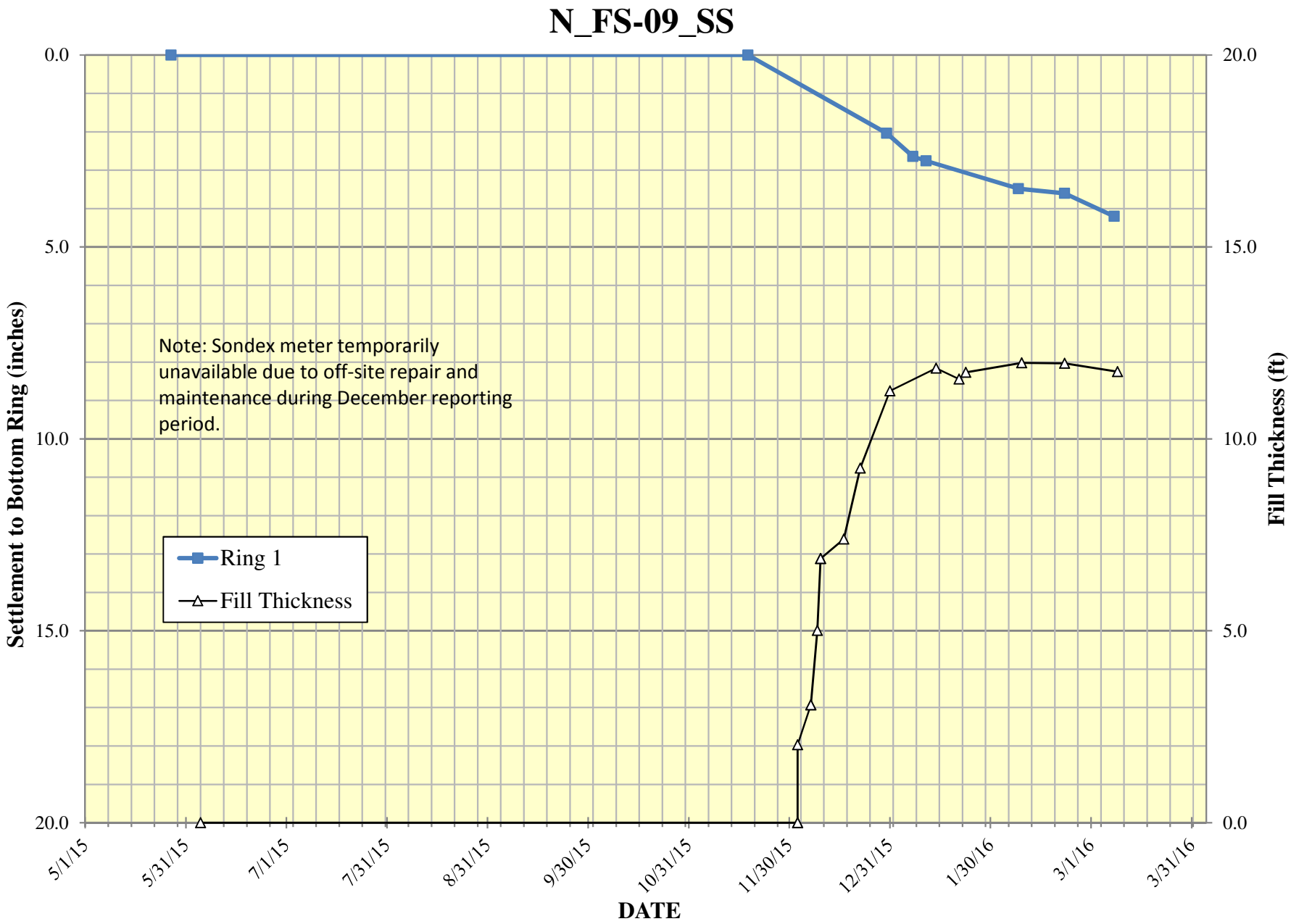
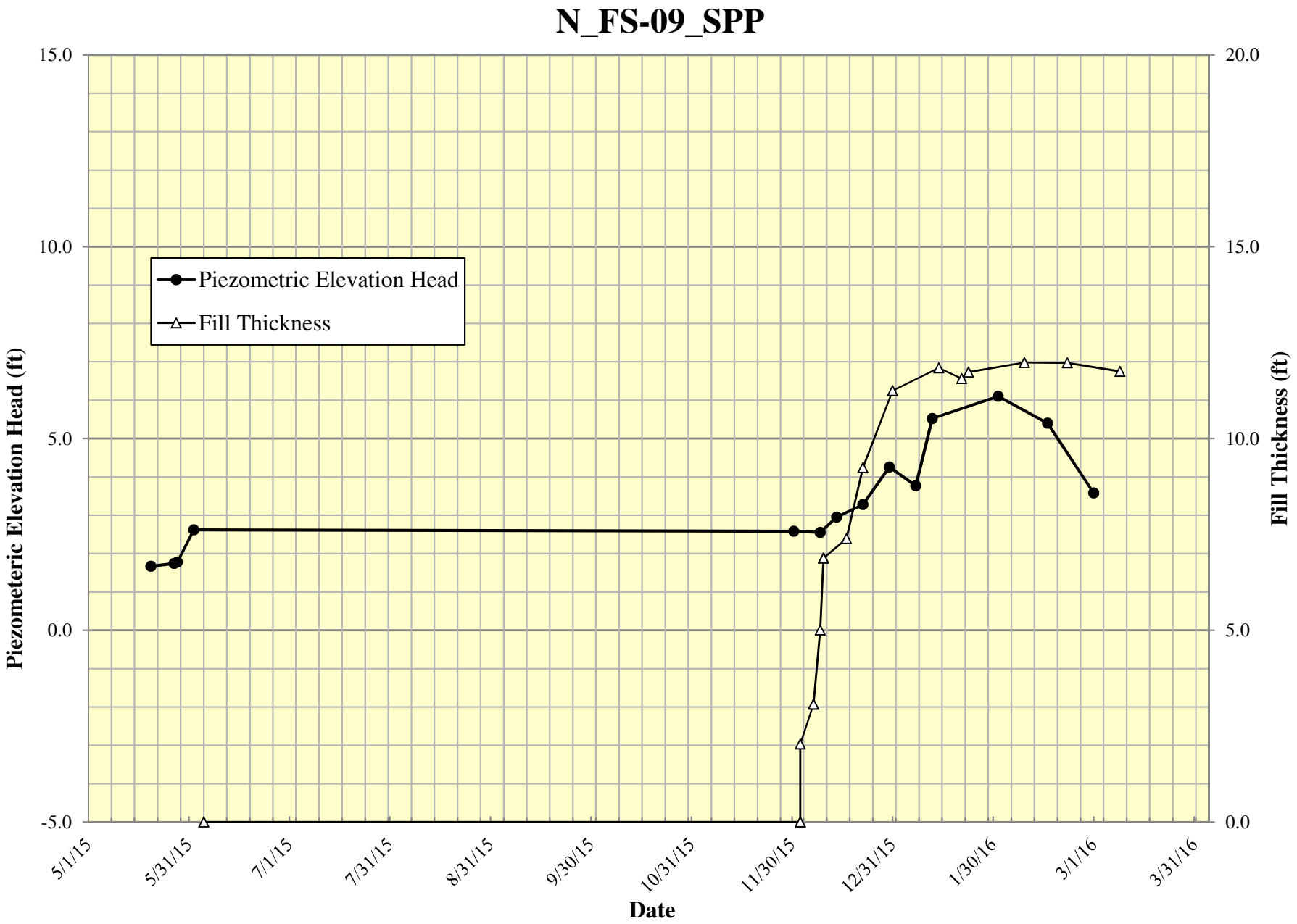


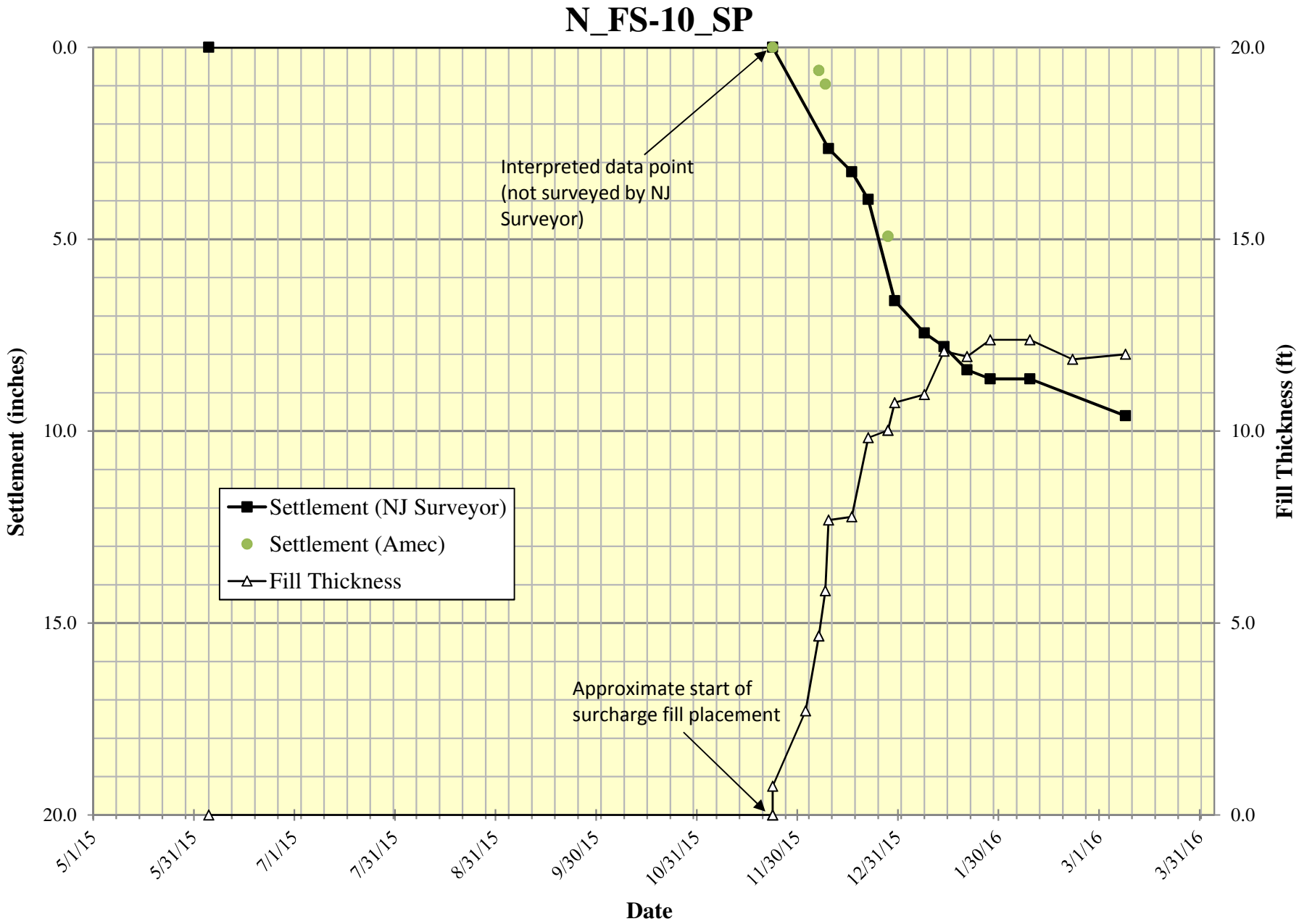
Standpipe Piezometer Data Summary



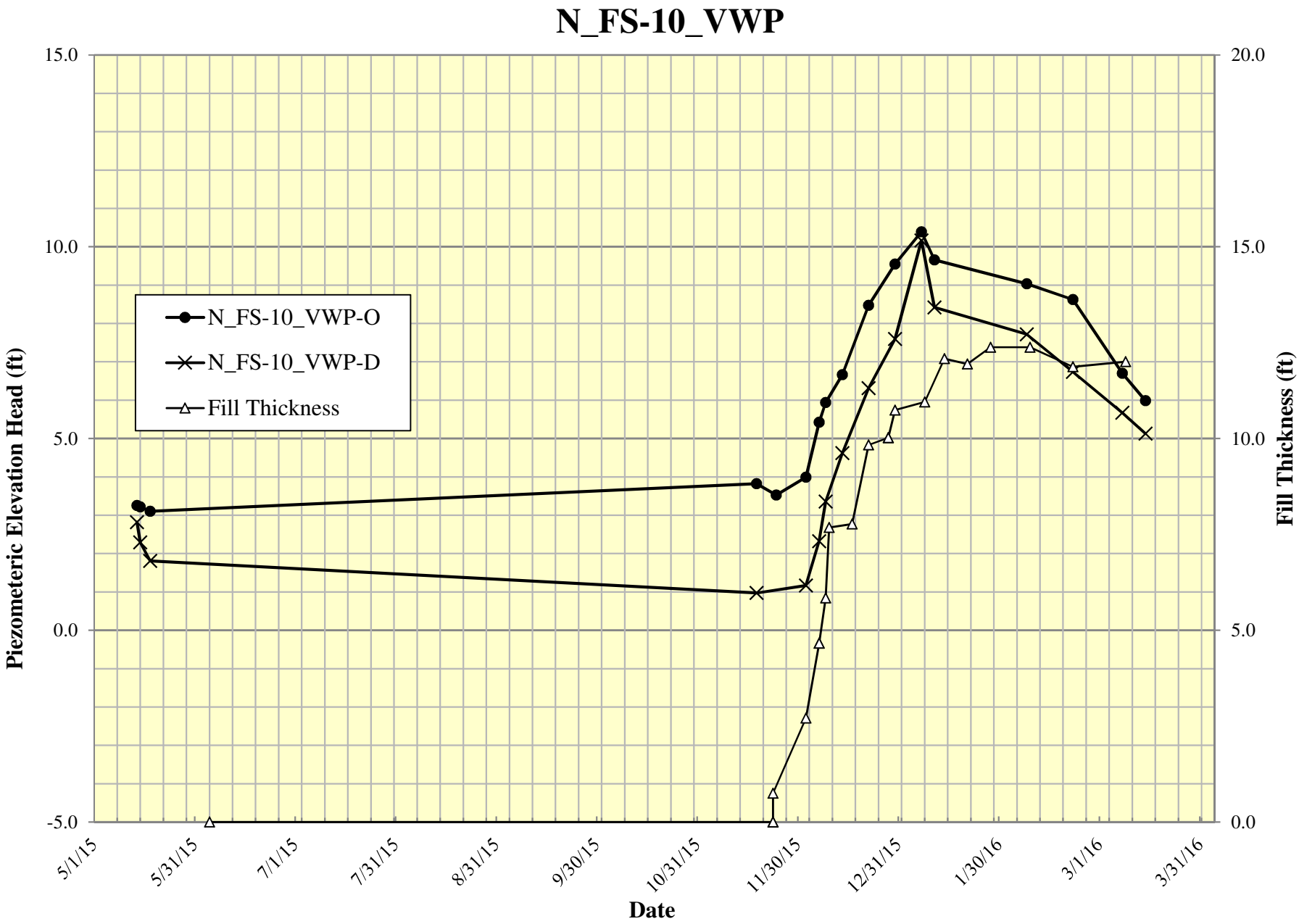
Surcharge Monitoring Data

N_FS-10

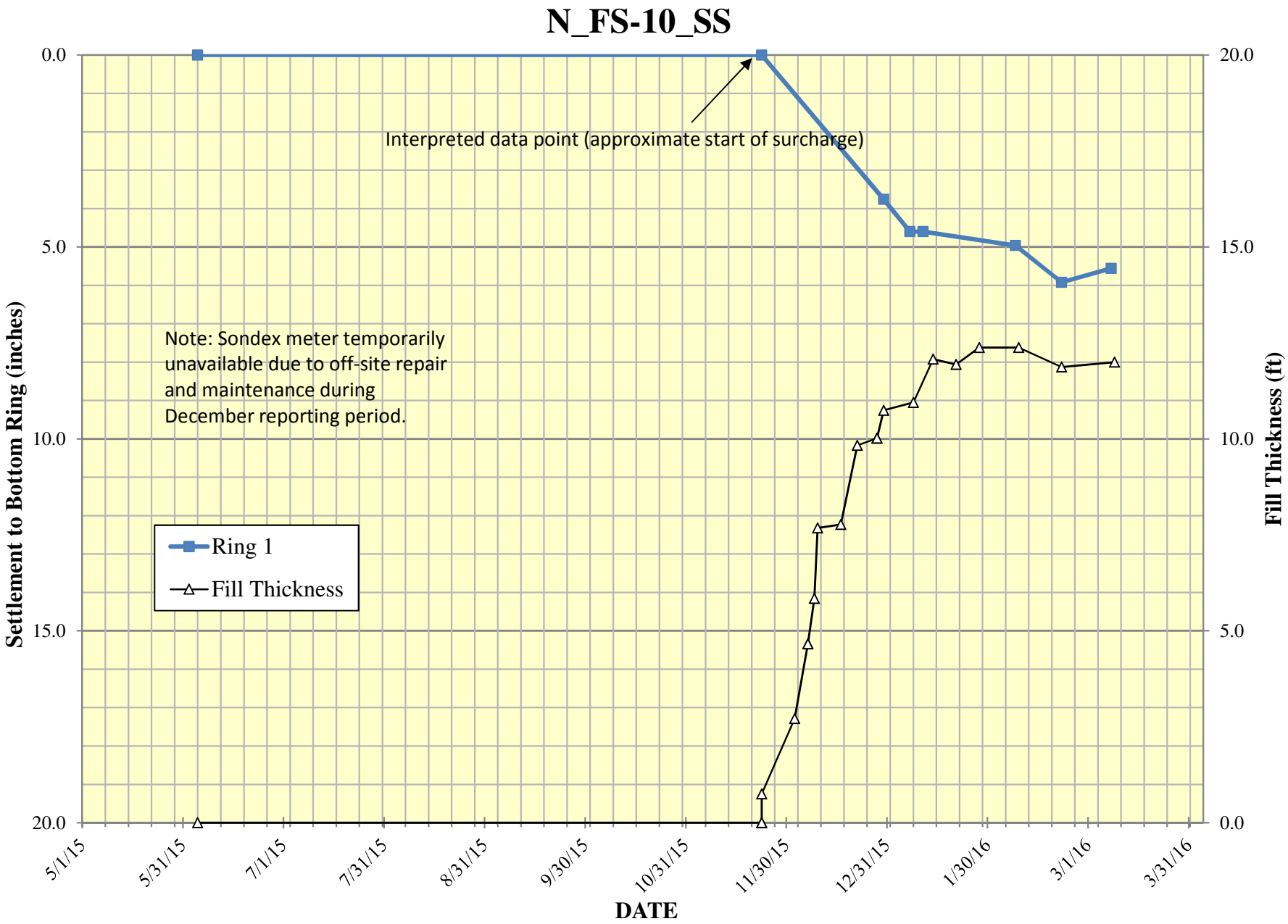
Settlement Platform Data Summary



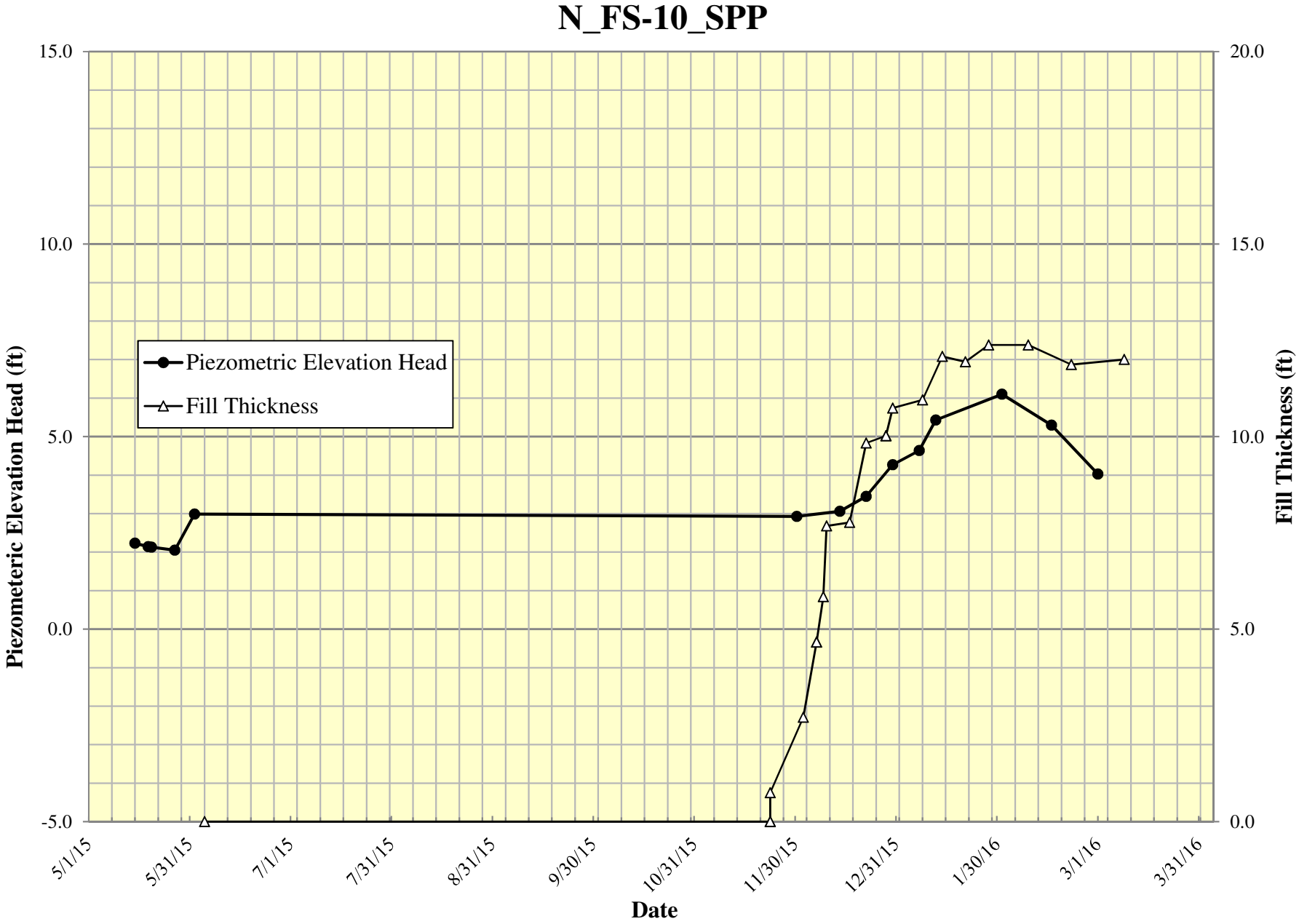
Vibrating Wire Piezometer Data Summary



Sondex System Data Summary



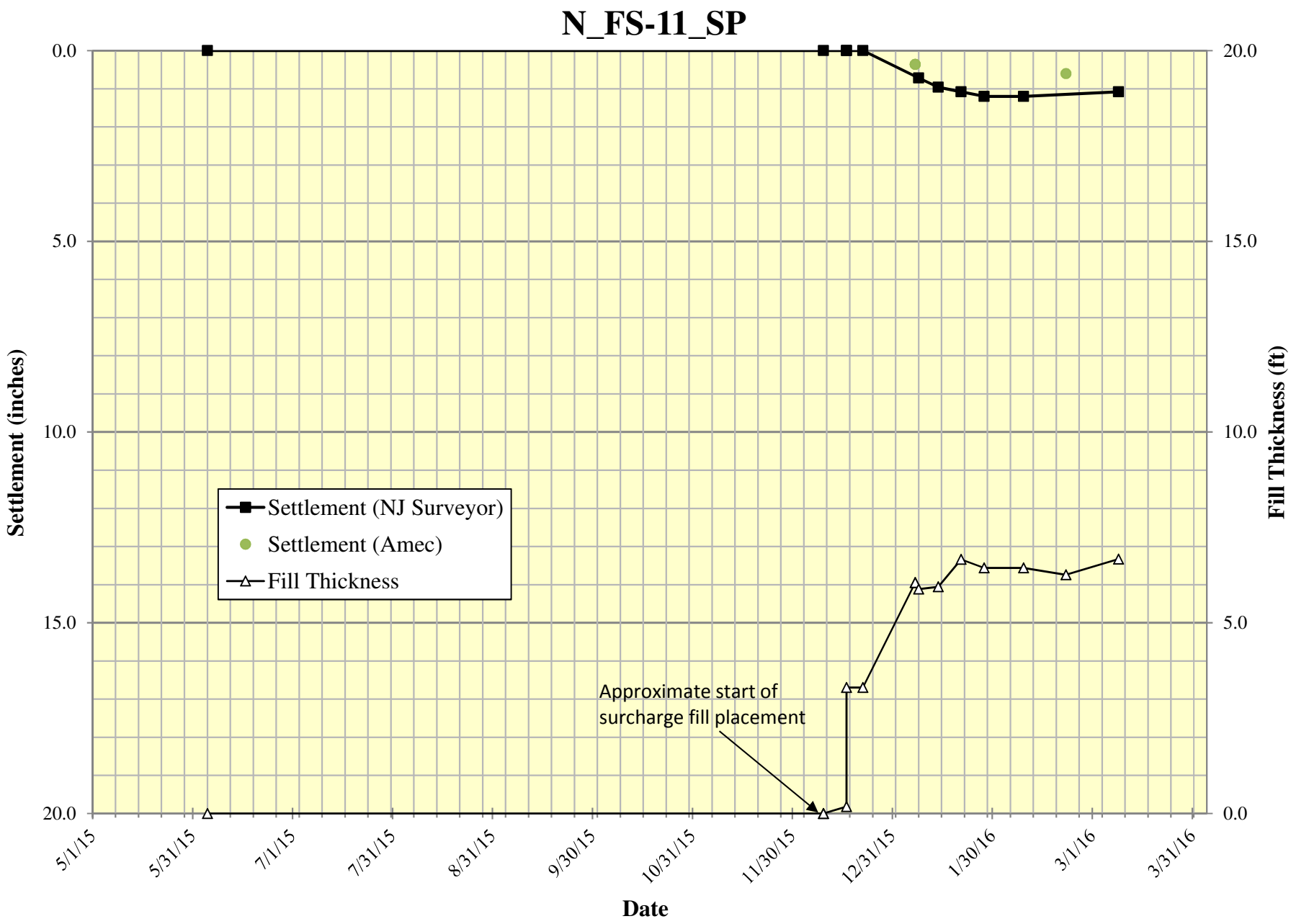
Standpipe Piezometer Data Summary



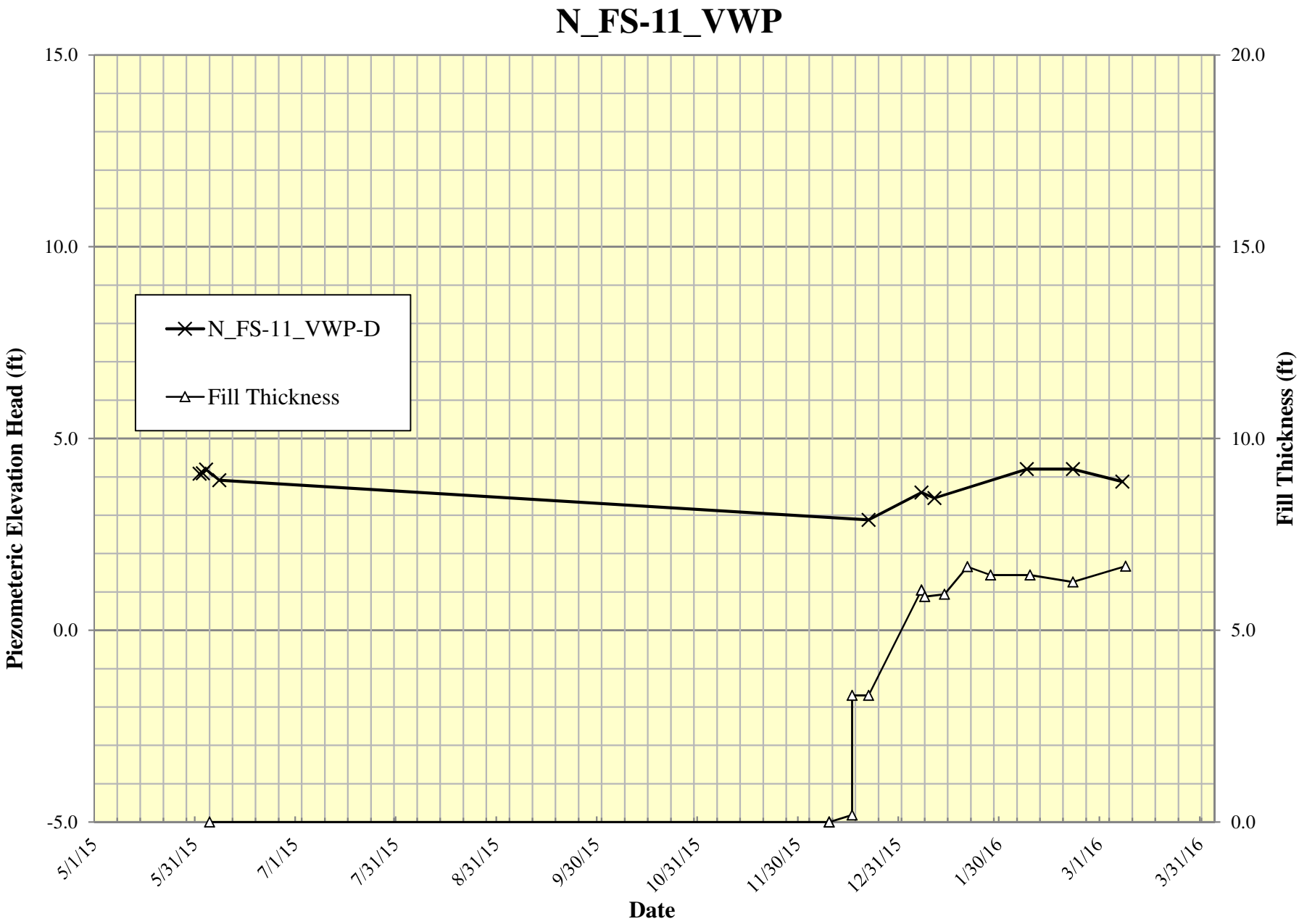
Surcharge Monitoring Data

N_FS-11

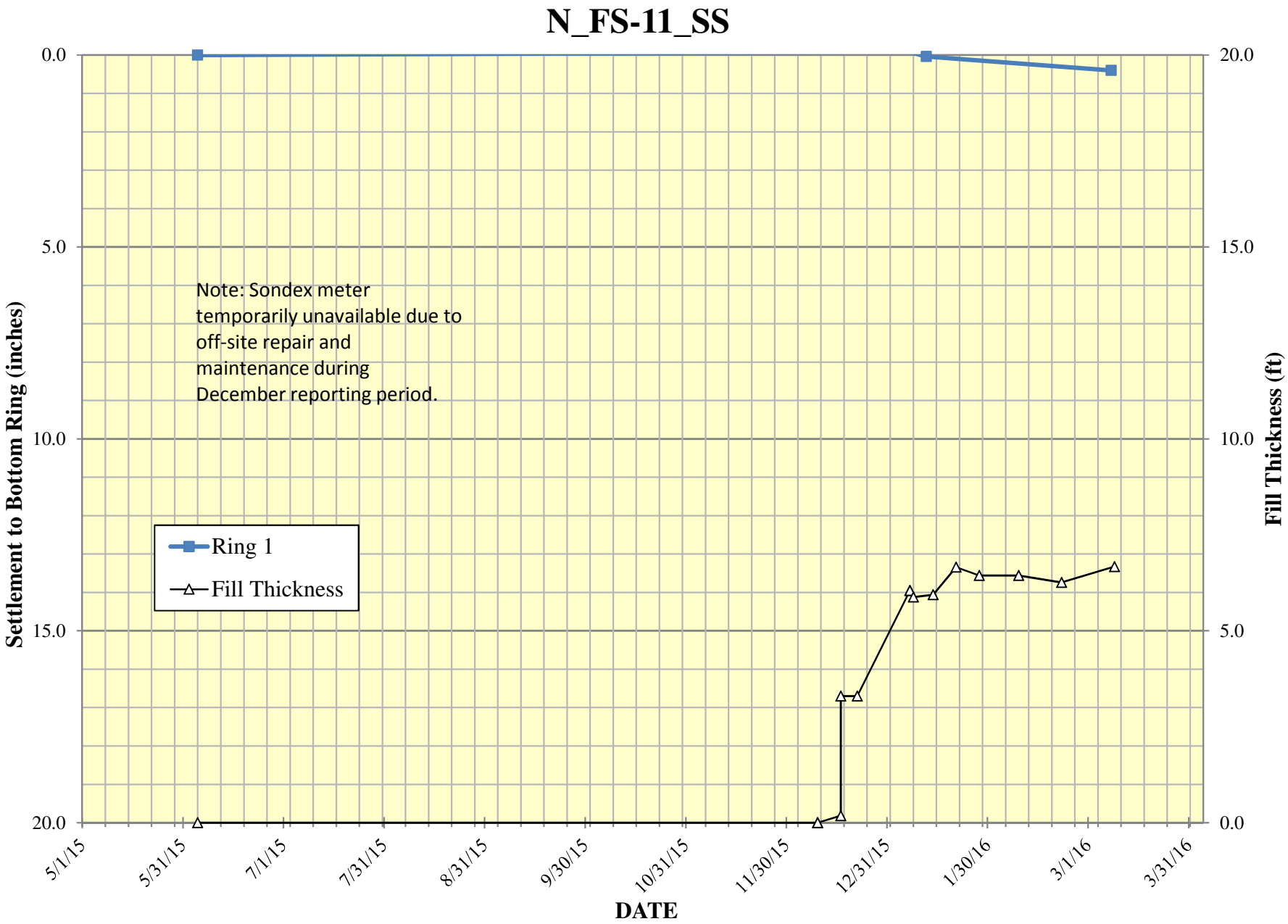
Settlement Platform Data Summary



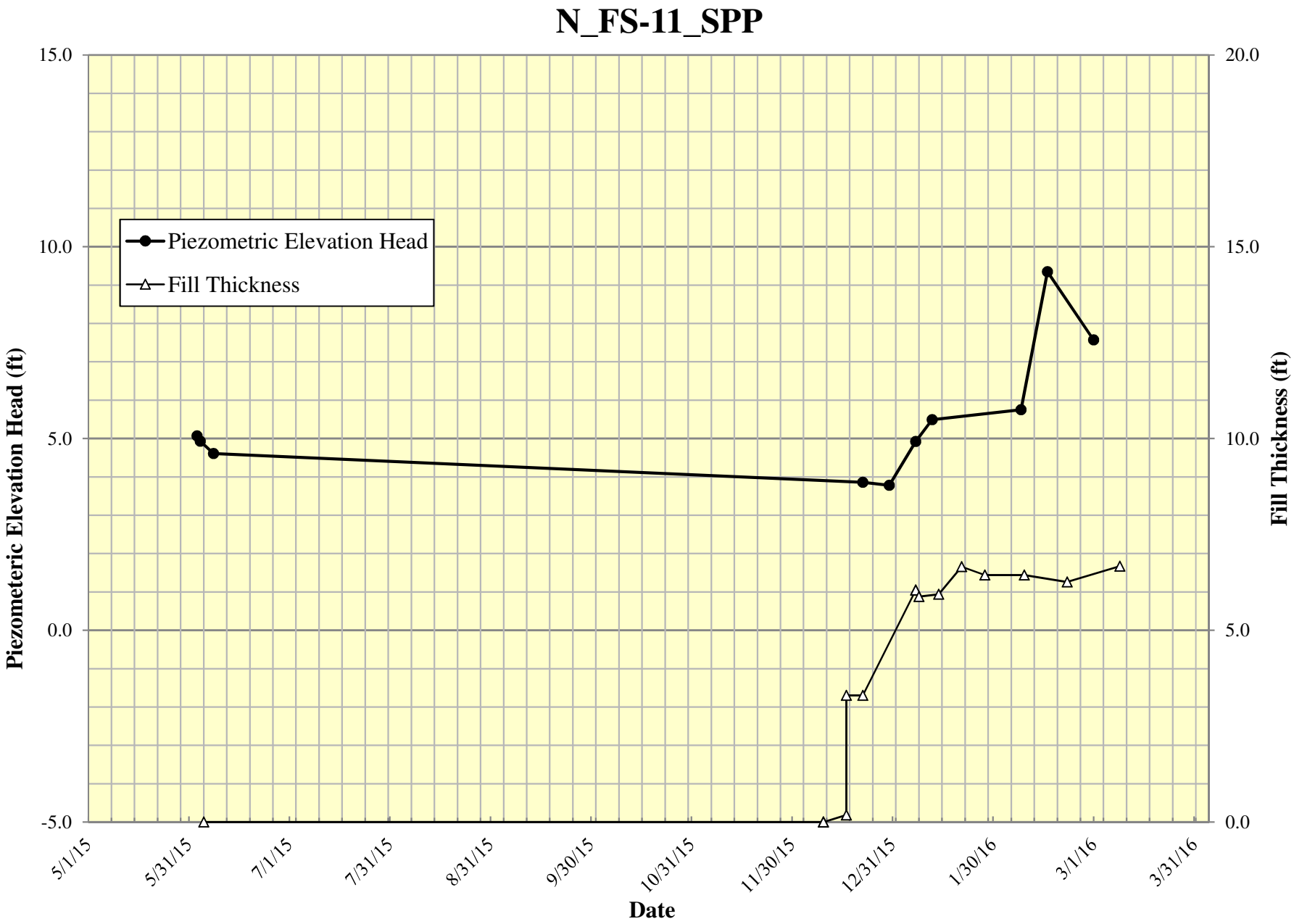
Vibrating Wire Piezometer Data Summary



Sondex System Data Summary



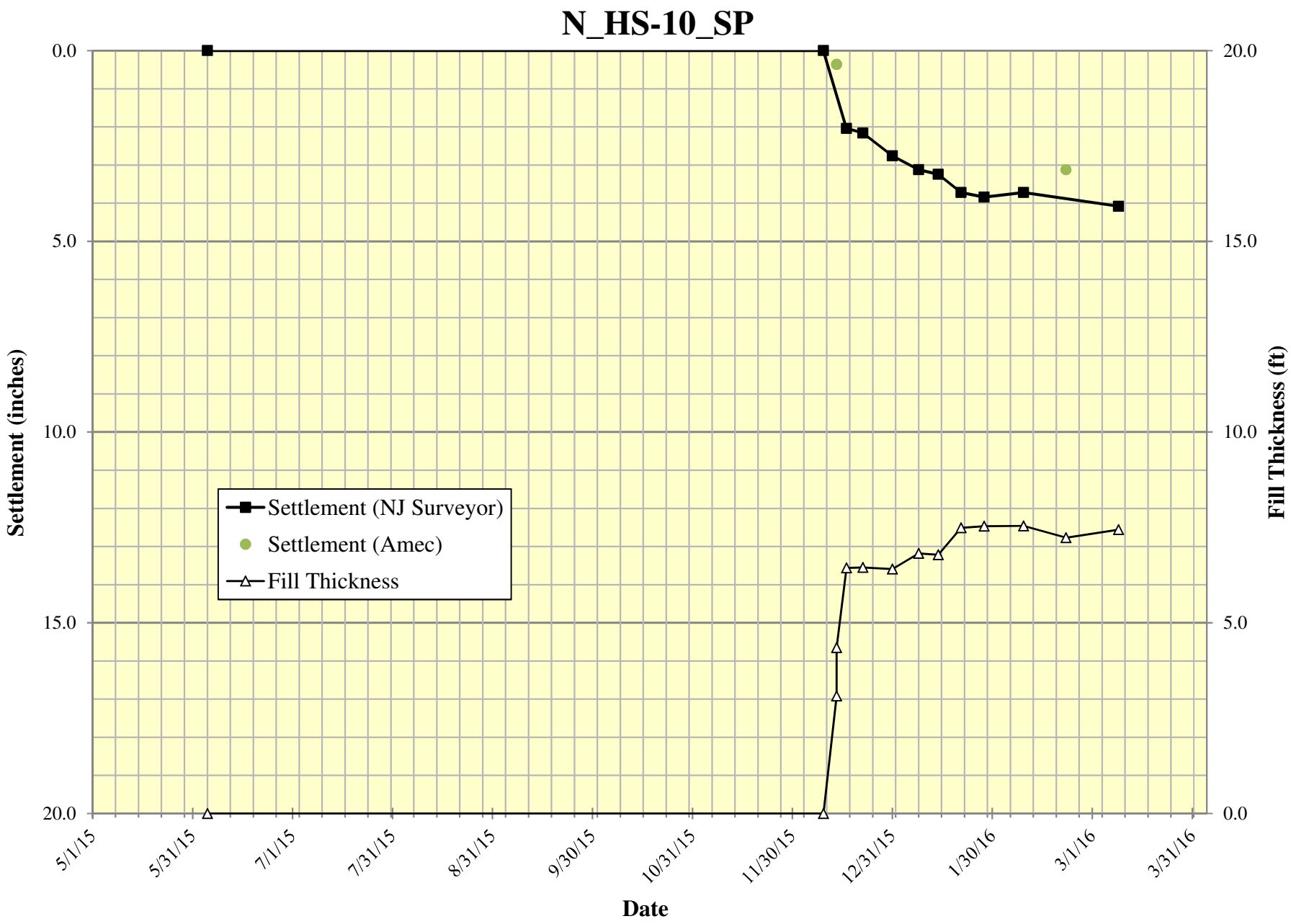
Standpipe Piezometer Data Summary



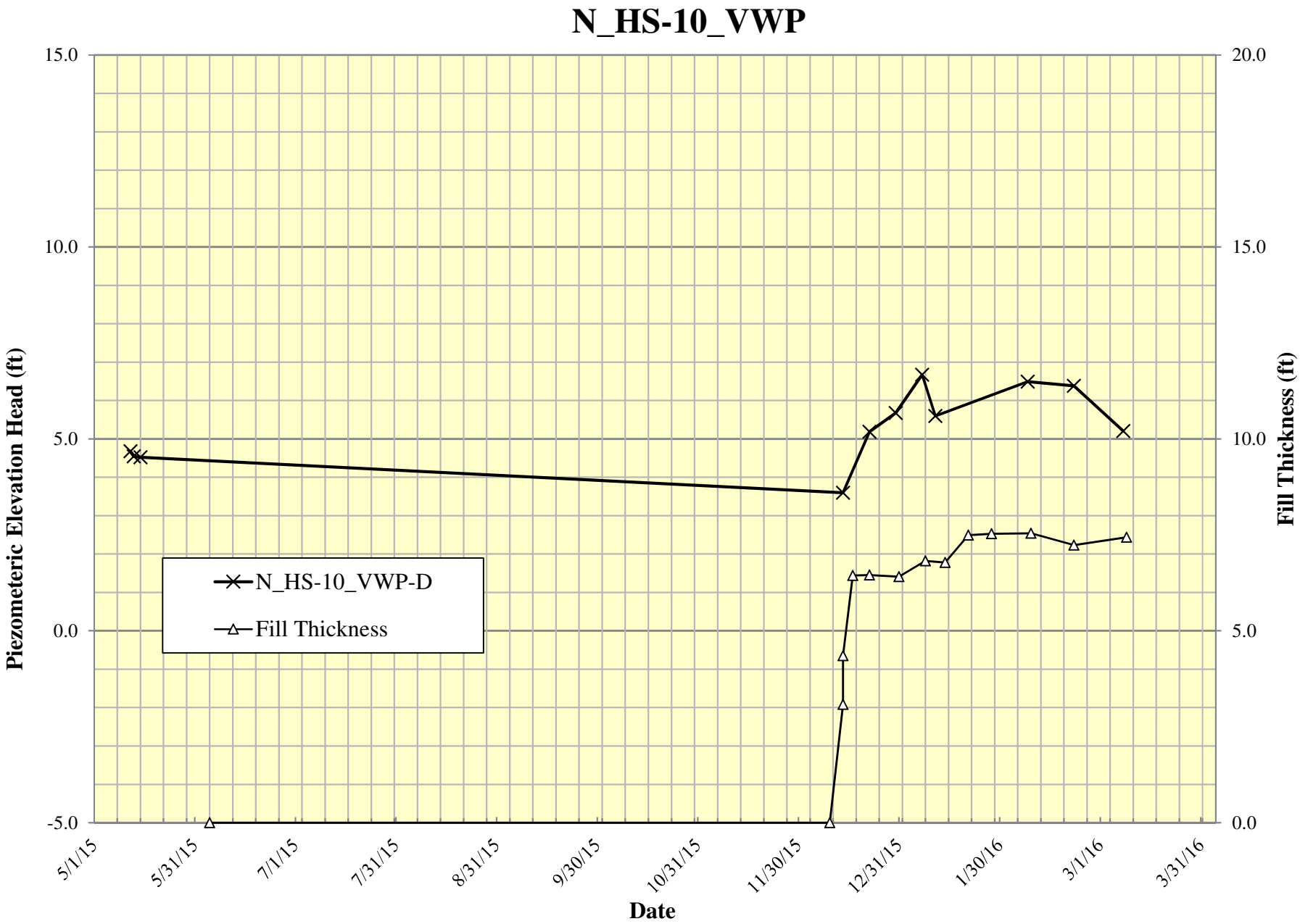
Surcharge Monitoring Data

N_HS-10

Settlement Platform Data Summary



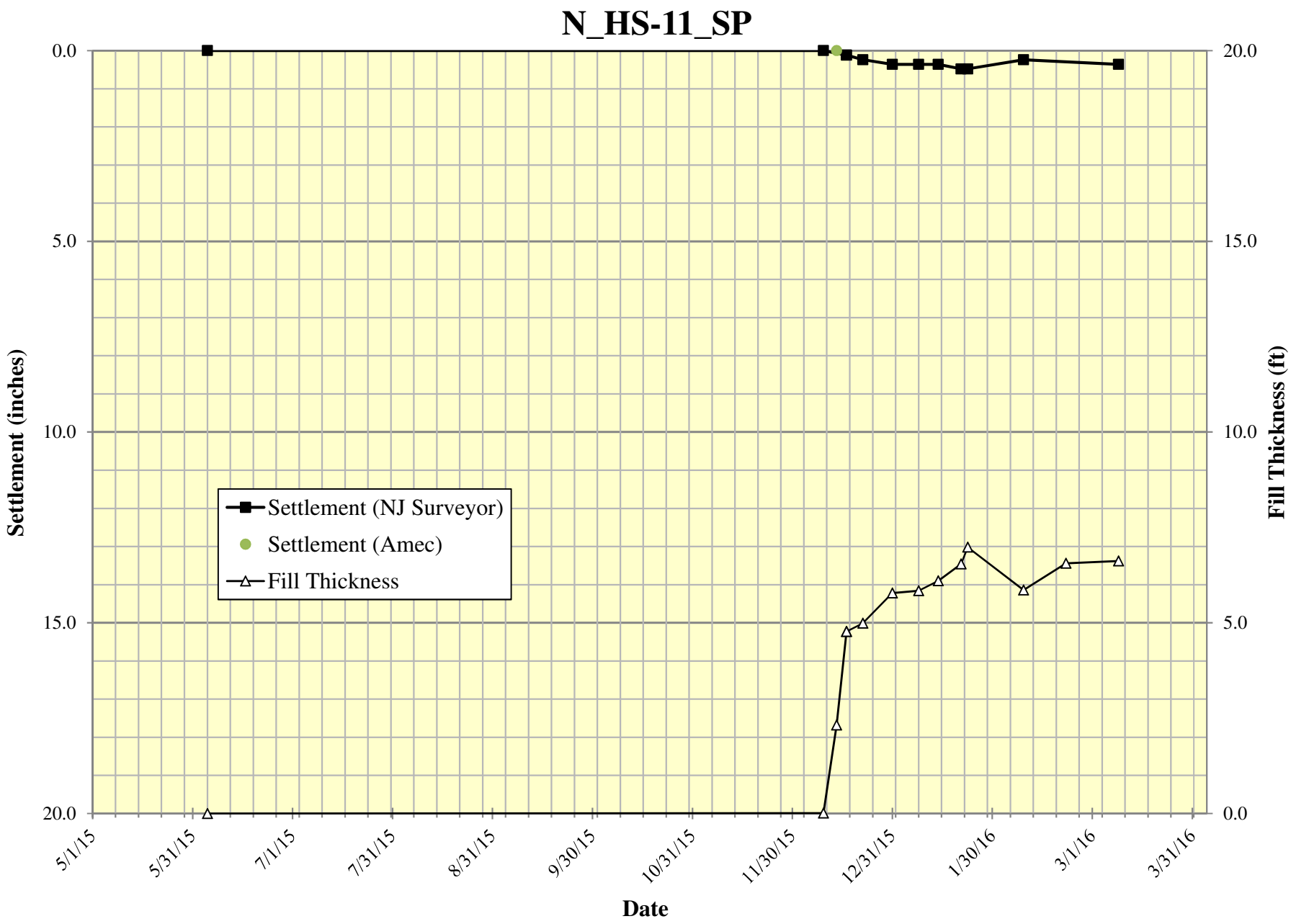
Vibrating Wire Piezometer Data Summary



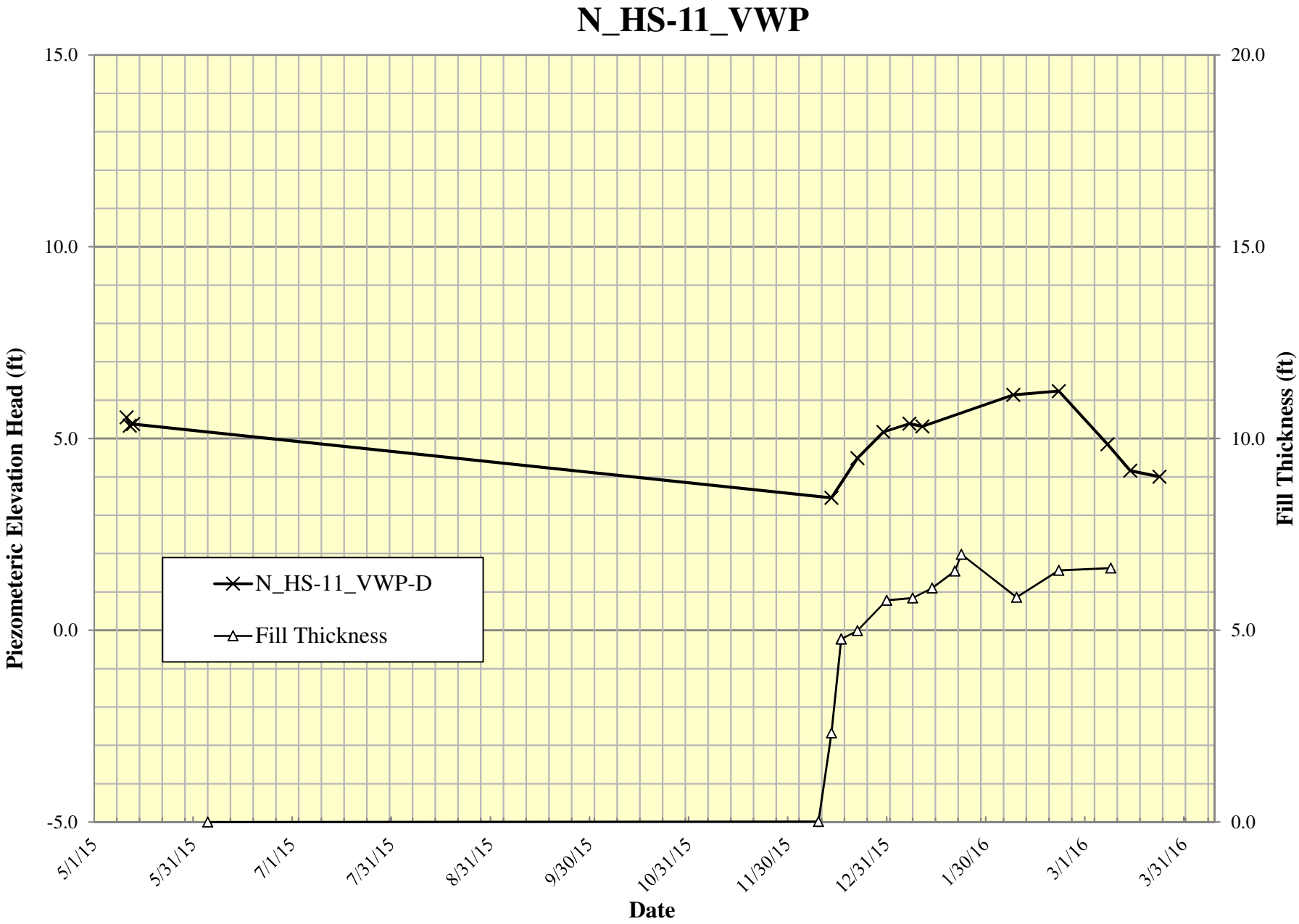
Surcharge Monitoring Data

N_HS-11

Settlement Platform Data Summary



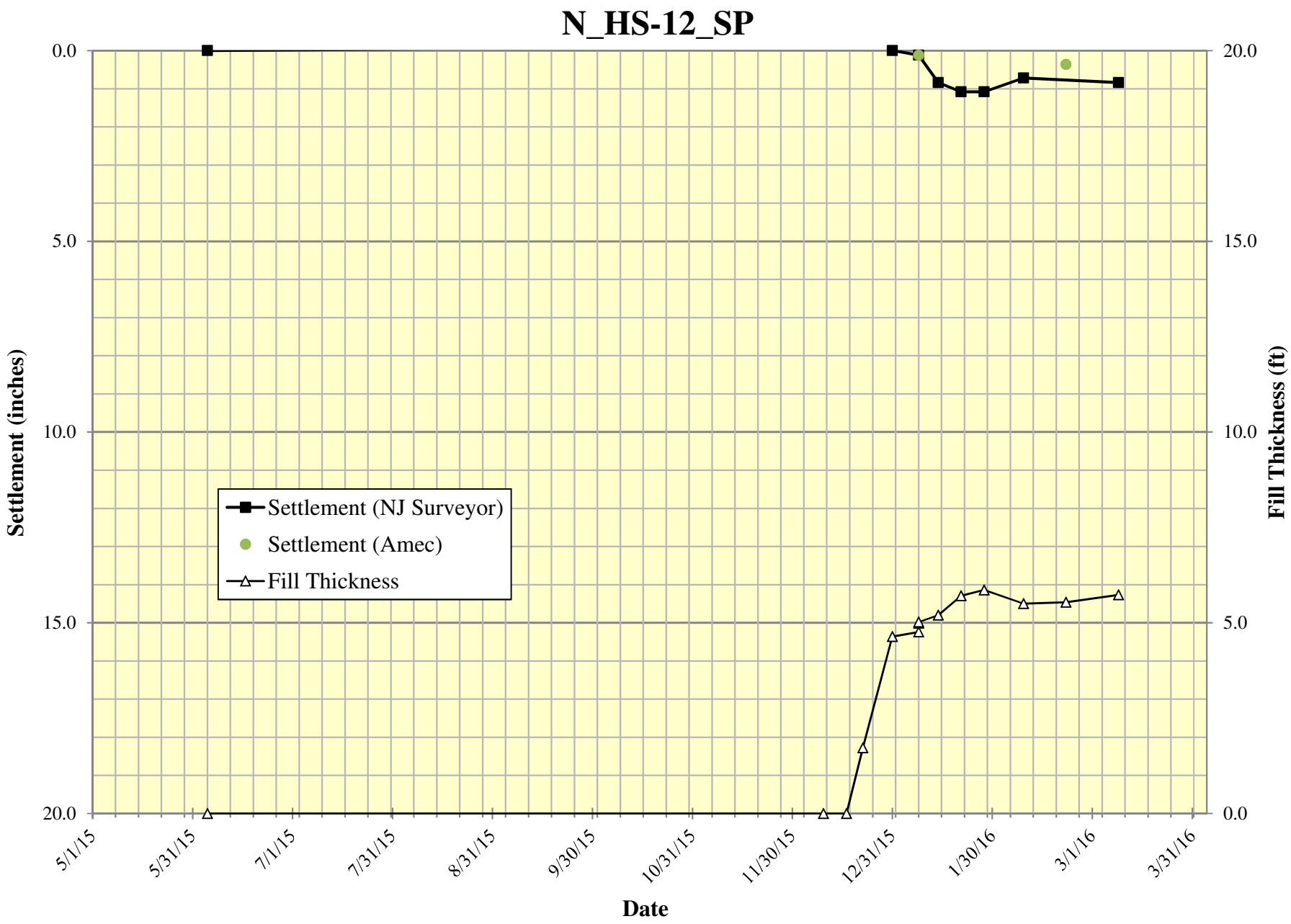
Vibrating Wire Piezometer Data Summary



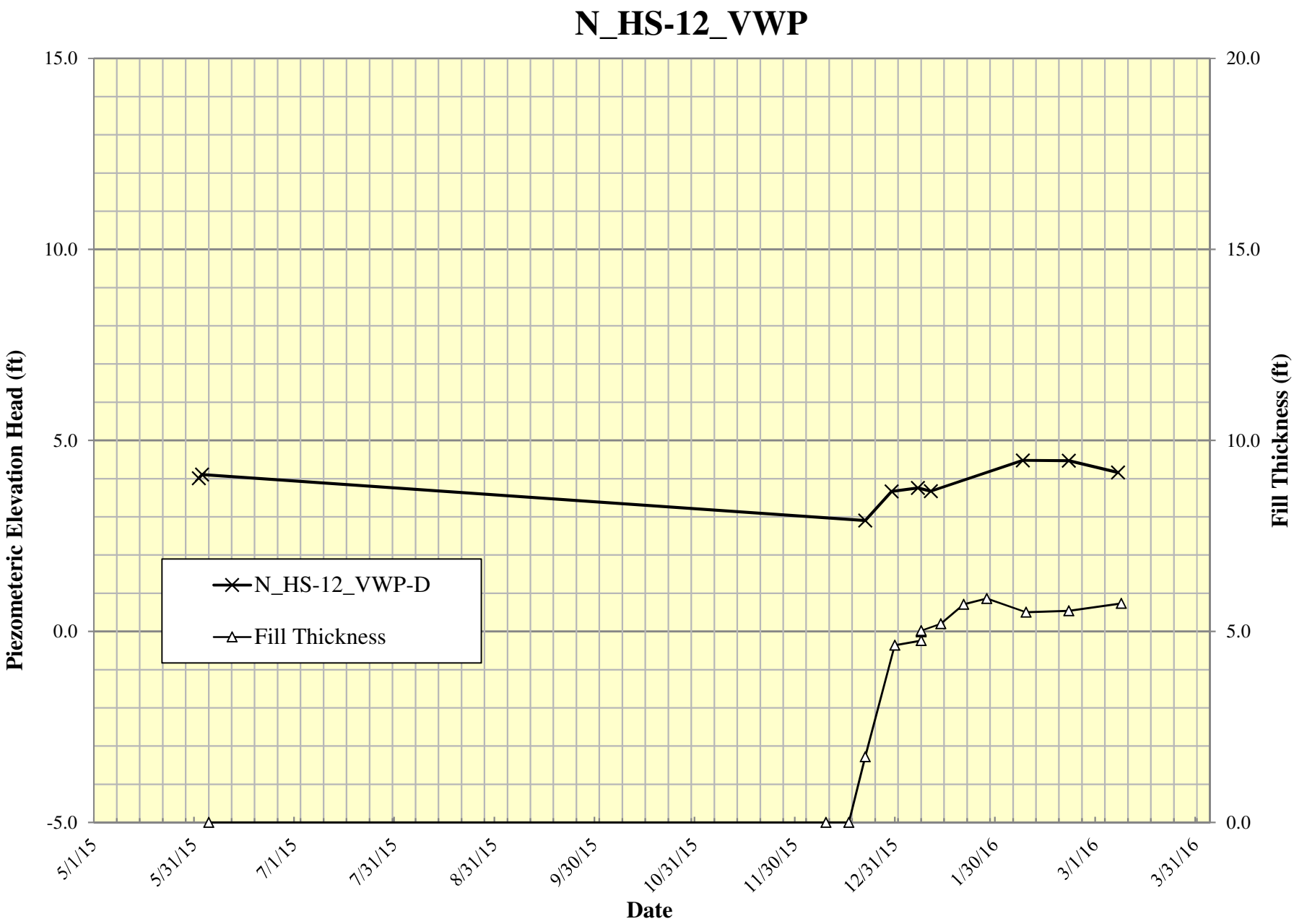
Surcharge Monitoring Data

N_HS-12

Settlement Platform Data Summary



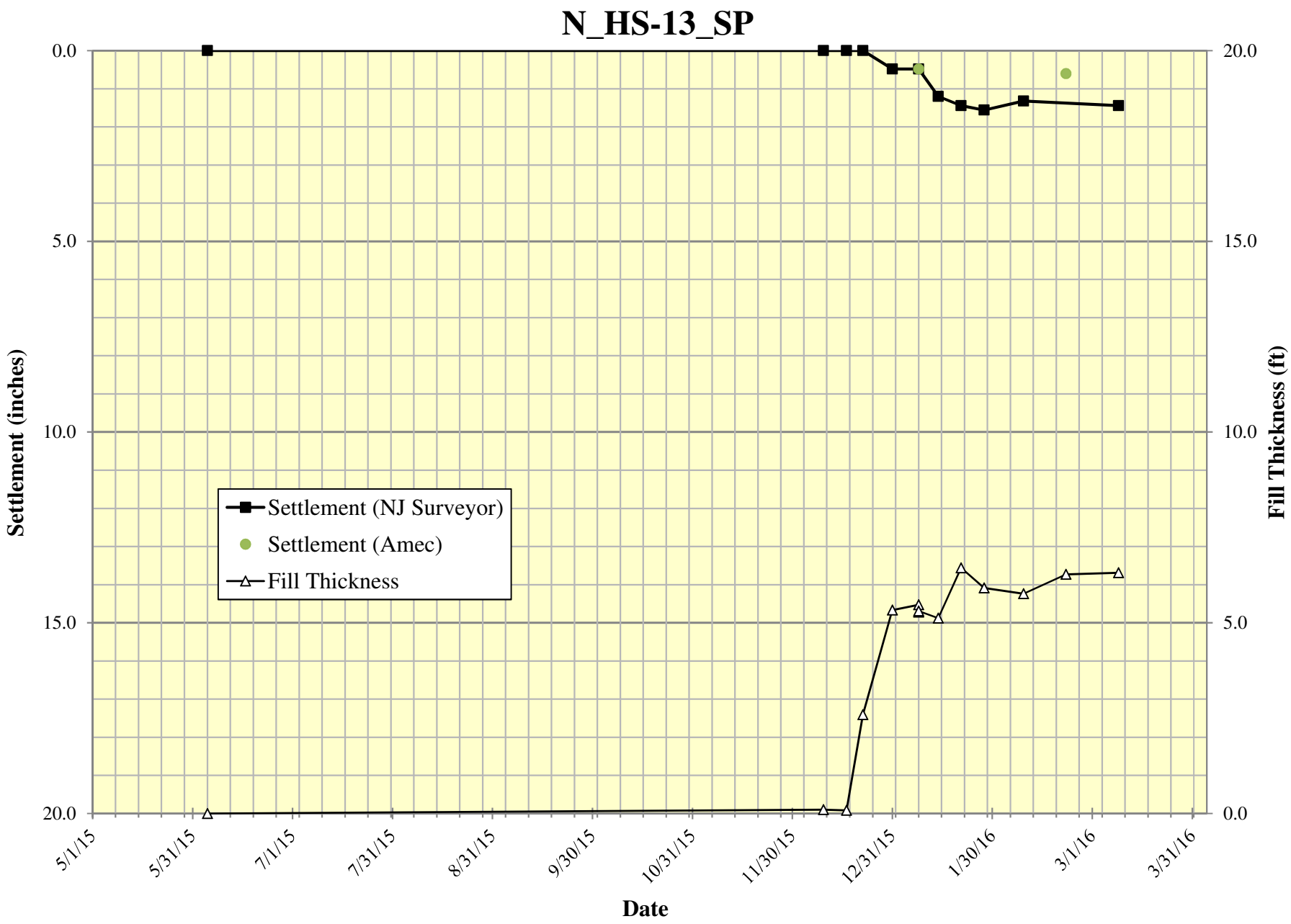
Vibrating Wire Piezometer Data Summary



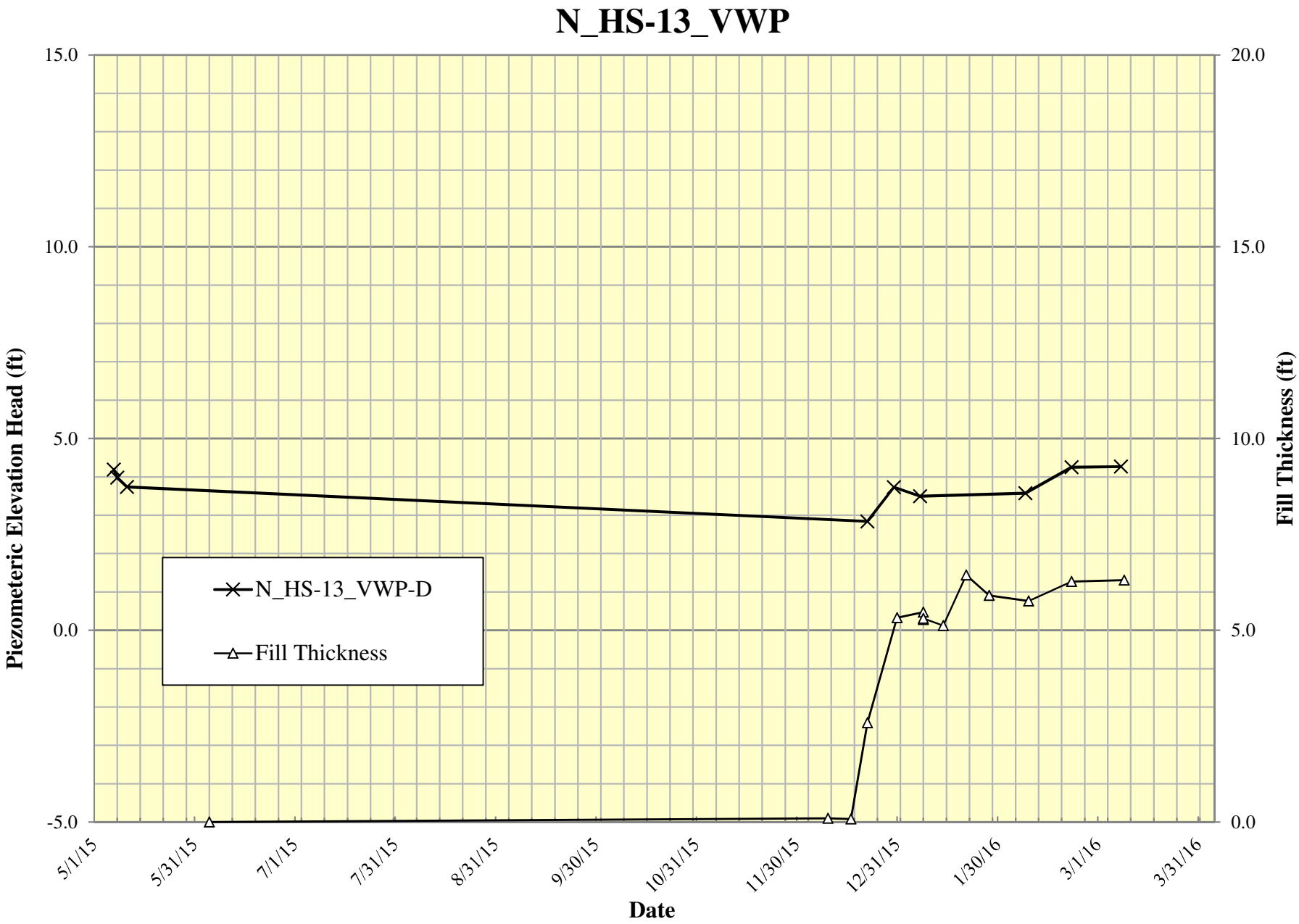
Surcharge Monitoring Data

N_HS-13

Settlement Platform Data Summary



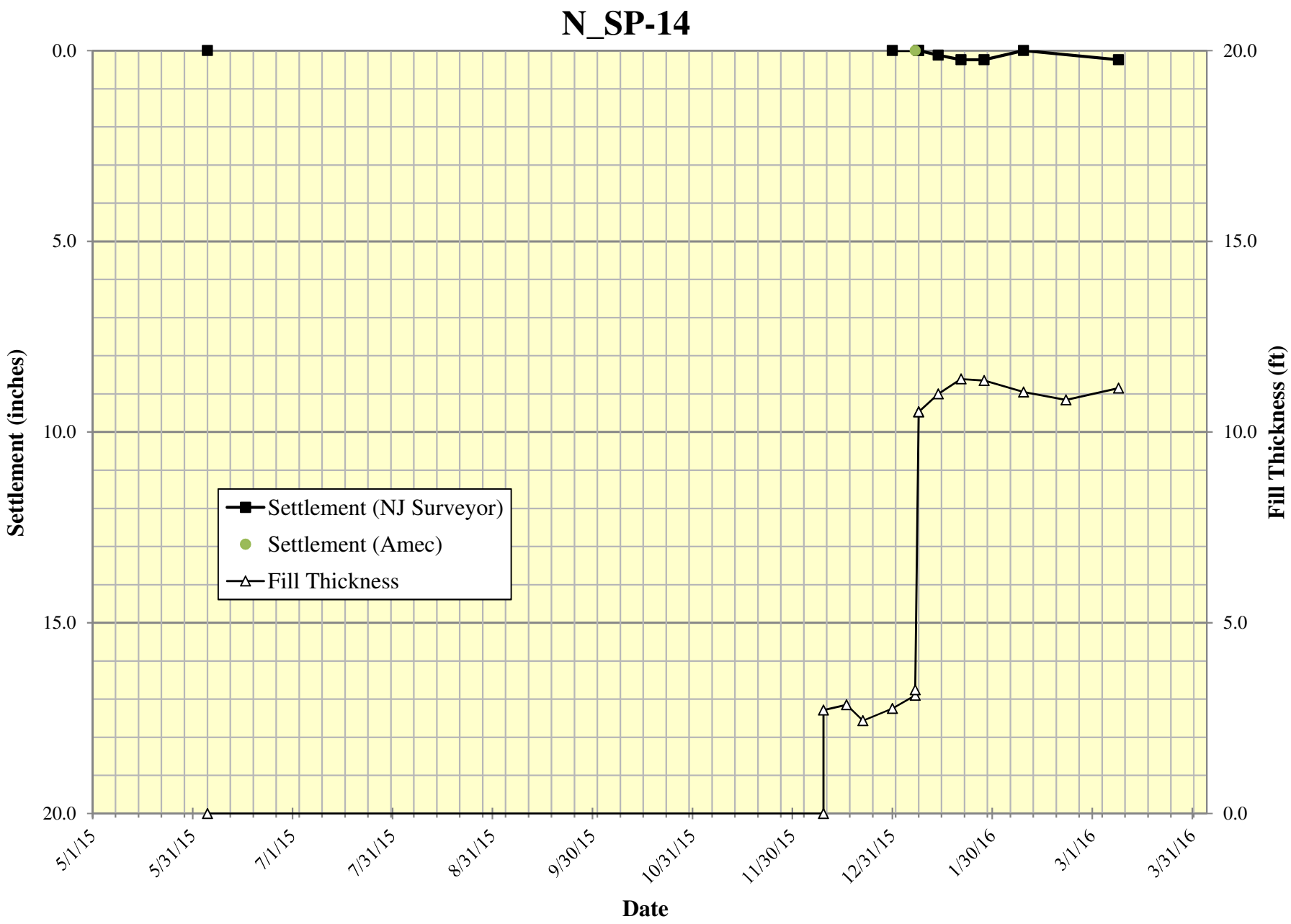
Vibrating Wire Piezometer Data Summary



Surcharge Monitoring Data

N_SP-14

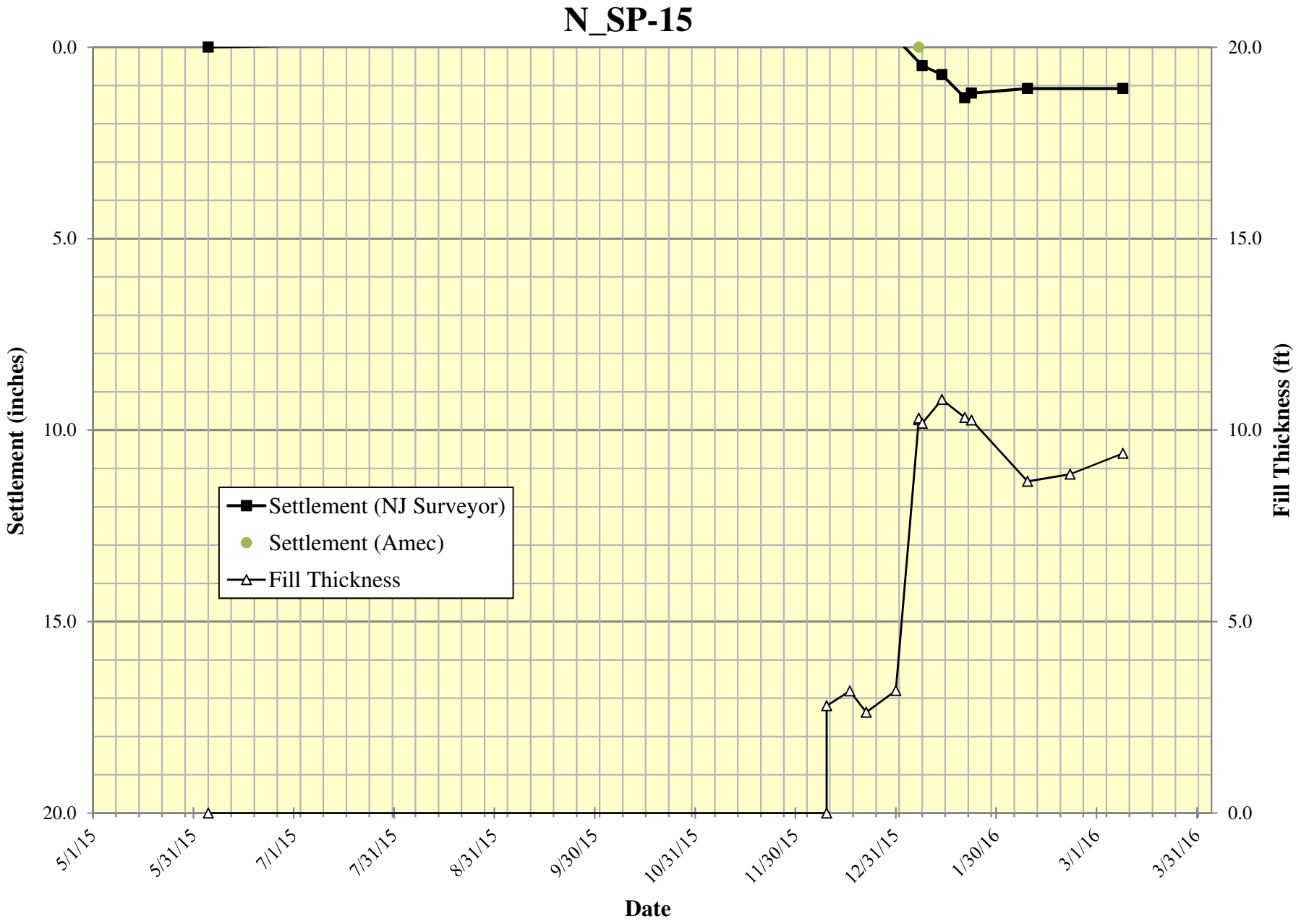
Settlement Platform Data Summary



Surcharge Monitoring Data

N_SP-15

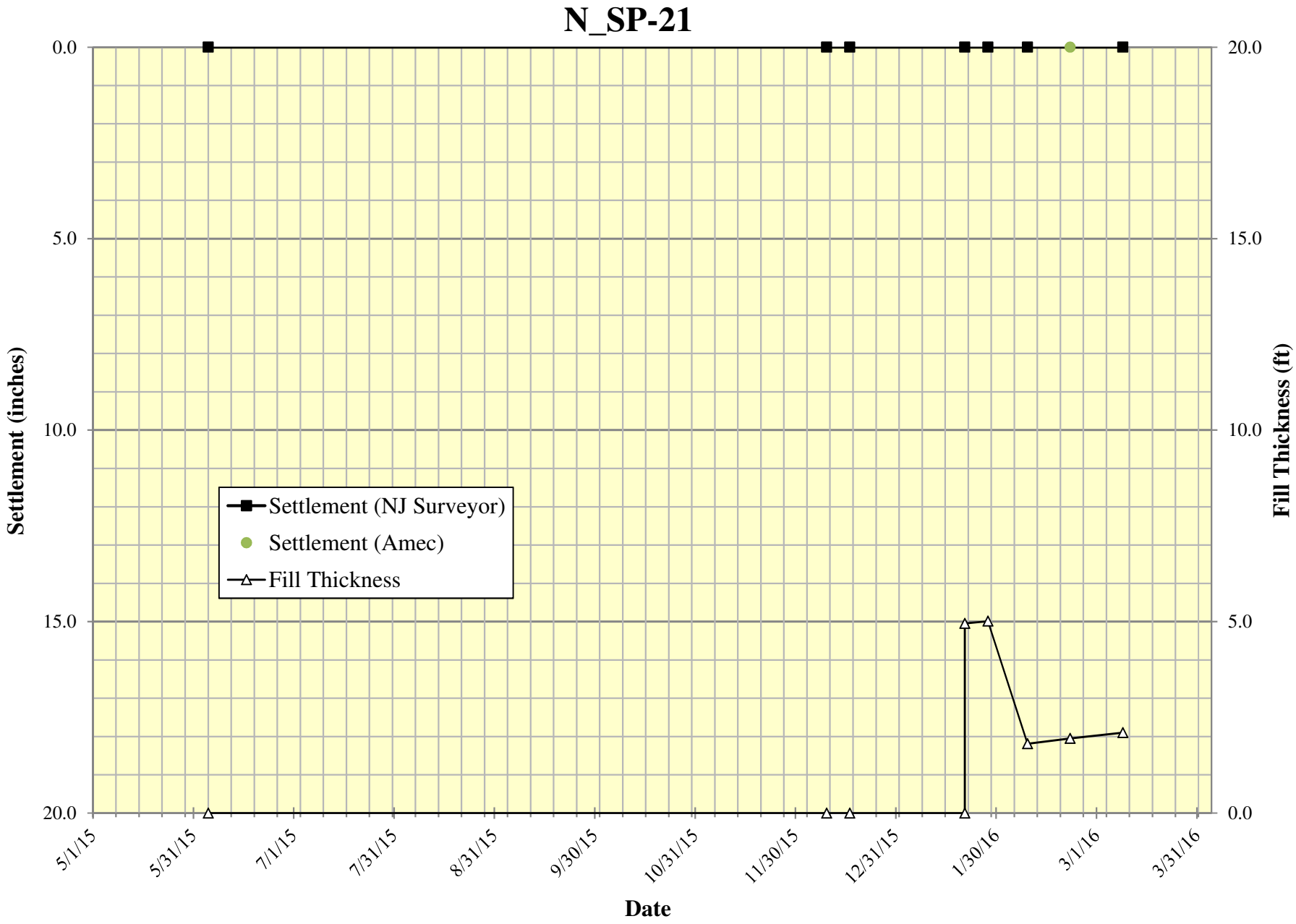
Settlement Platform Data Summary



Surcharge Monitoring Data

N_SP-21

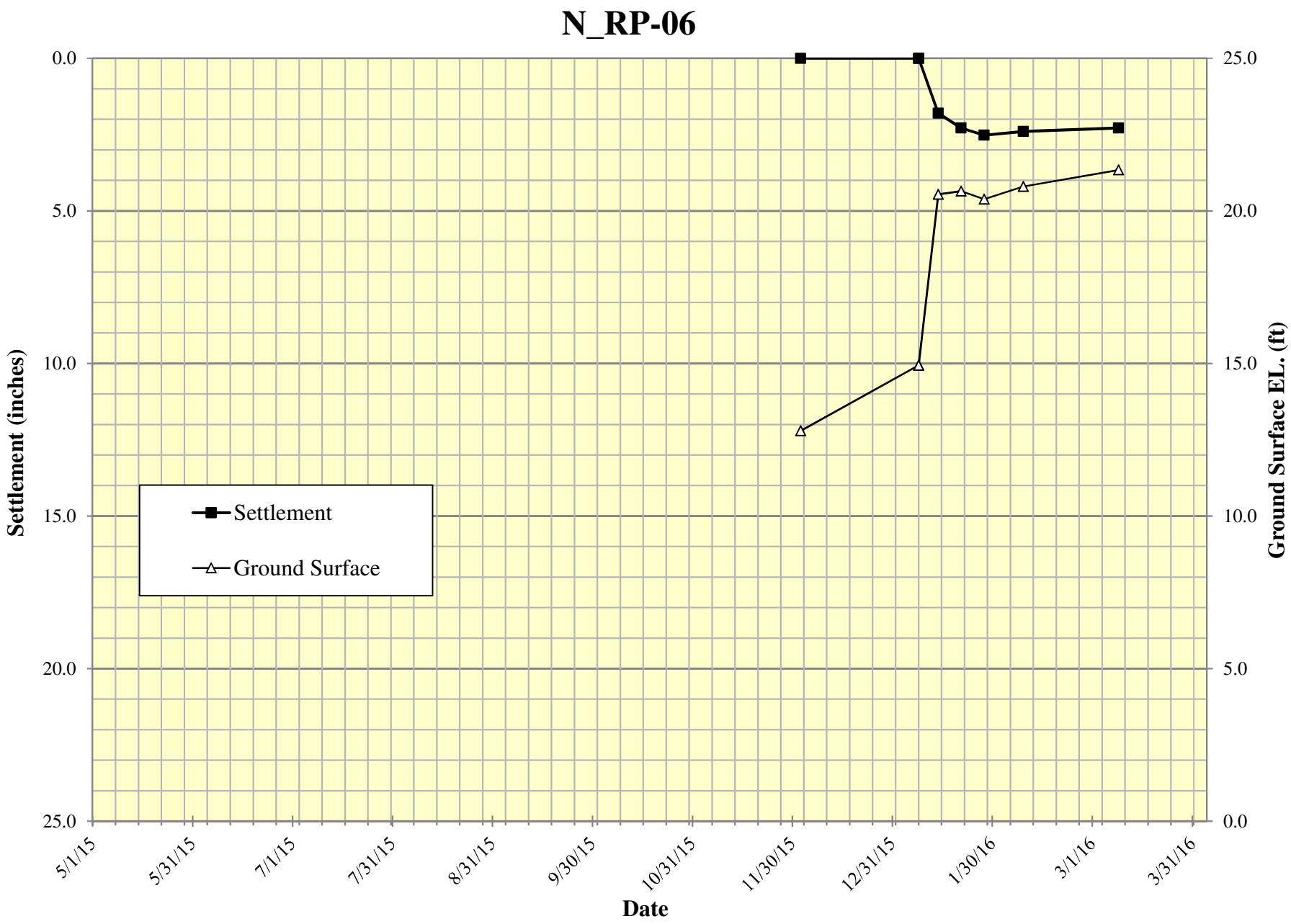
Settlement Platform Data Summary



Surcharge Monitoring Data

N_RP-06

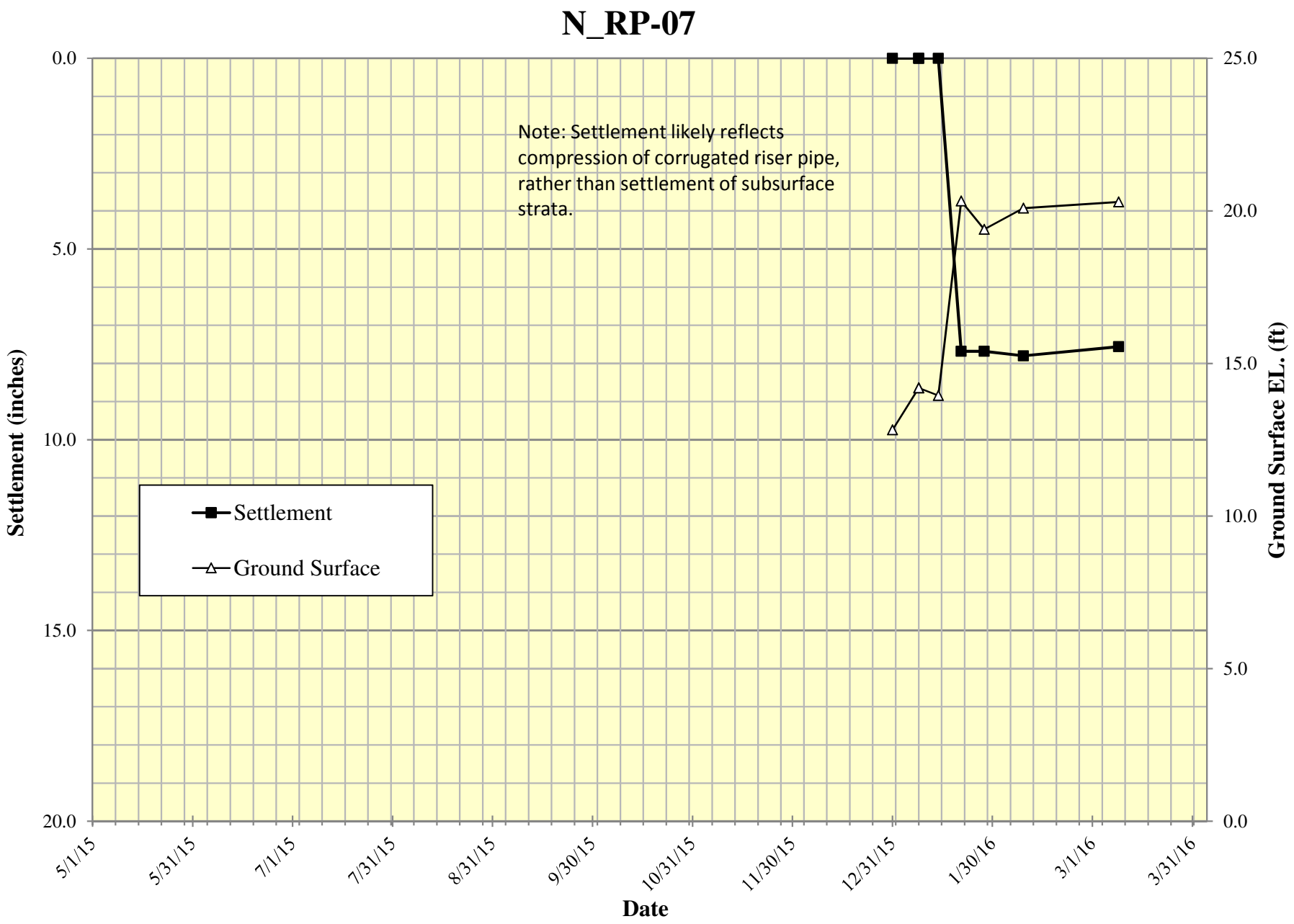
Riser Pipe Data Summary



Surcharge Monitoring Data

N_RP-07

Riser Pipe Data Summary



Attachment 3N-3

March 29, 2016 Mueser Rutledge Correspondence re:
Updated Area 3N and 4N Surcharge Review, SA-6 North, Jersey City, NJ

Mueser Rutledge Consulting Engineers

14 Penn Plaza · 225 West 34th Street · New York, NY 10122
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Farid F. Vastani
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Joseph N. Courtade
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Martha J. Huguet
Director of Marketing

March 29, 2016

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attn: Mr. Geoff Shallard

Re: Updated Area 3N and 4N Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of March 15th, 2016 AMEC settlement and piezometer monitoring data for Area 3N and 4N is summarized below:

AMEC indicated boring sampling was performed to define the soil profile and the Vibrating Wire Piezometer (VWP) was set at the center of the compressible layer, so that the pore water pressure reading is the most conservative for effective stress evaluation. All the effective stress calculations were made at the center of the layers.

MRCE used the latest measured elevation head dated March 15th, 2016 from "Vibrating Wire Piezometer – Data Report" to calculate the post-surcharge pore water pressures. Post-surcharge total stresses were calculated using fill thickness measurements from the "Settlement Platform – Data Report" taken on March 9th, 2016. Calculated post-surcharge effective stresses are presented in Table 1 and Table 2. MRCE compared the calculated post-surcharge effective stresses with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of the surcharge program was to achieve an effective stress greater than "Final Post-Development Conditions."

This review finds that with the March 15, 2016 readings all settlement monitoring locations, including the two settlement locations, N_HS-11 in Area 3N (Table 1) and N_FS-12 in Area 4N (Table 2), have met the surcharge program goal. This finding is in agreement with the AMEC data review and interpretation.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

F:\111\11173\2015 Surcharge Removal Review\MRCE Peer Review Area 3N and 4N final.pdf

FOR: SA-6 North Surcharge Monitoring Review

Table 1. Area 3N Surcharge Review

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
N_FS-08	Center D	-7.0	2226.3	2400.5	2/9/2016	2/22/2016	11.8	7.0	3697.5	876.1	2821.4	**118%**	**114%**
N_FS-09	Center D	-4.9	2151.3	2217.8	2/9/2016	2/22/2016	12.0	6.4	3648.8	699.4	2949.4	**133%**	**127%**
N_FS-10	Center O	-3.5	1937.5	2525.6	2/9/2016	2/22/2016	12.4	8.6	3485.0	756.7	2728.3	**108%**	**109%**
	Center D	-6.0	2202.5	2619.0	2/9/2016	2/22/2016	12.4	6.7	3750.0	794.8	2955.2	**113%**	
N_FS-11	Center D	-5.1	2032.5	1919.6	2/9/2016	2/22/2016	6.4	4.2	2837.5	579.8	2257.7	**118%**	**118%**
N_HS-10	Center D	-5.2	2083.8	2216.4	2/9/2016	2/22/2016	7.5	6.4	3026.3	721.5	2304.7	**104%**	**101%**
N_HS-11	Center D	-5.7	2147.5	2280.4	3/9/2016	3/15/2016	6.6	4.2	2975.0	617.3	2357.7	**103%**	**102%**
N_HS-12	Center D	-4.4	2042.5	1931.7	2/9/2016	2/22/2016	5.5	4.5	2730.0	551.0	2179.0	**113%**	**111%**
N_HS-13	Center D	-4.4	1991.3	2050.1	2/9/2016	2/22/2016	5.8	4.3	2711.3	539.3	2172.0	**106%**	**107%**

FOR: SA-6 North Surcharge Monitoring Review

Table 2. Area 4N Surcharge Review

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
N_FS-12	Center D	-4.1	1927.5	1869.2	3/9/2016	3/15/2016	3.4	3.5	2348.8	473.9	1874.9	**100%**	**101%**
N_FS-13	Center D	-4.6	2248.8	2063.8	1/28/2016	2/22/2016	3.1	-0.9	2640.0	232.2	2407.8	**117%**	**119%**

SURCHARGE AREA 4N
FIGURES & ATTACHMENTS

Figure 4N-1

Instrumentation Location Plan

SETTELMENT MONITORING POINT		
DESCRIPTION	NORTHING	EASTING
FS12	685304	603416
FS13	685208	603374
SP22	685182	603355
SP23	685359	603466
SP24	685359	603491
SP25	685072	603483

VI-2 INCLINOMETER LOCATION

FS12 SETTLEMENT MONITORING POINT FULL – SET UP

HS12 SETTLEMENT MONITORING POINT HALF – SET UP

SP12 SETTLEMENT MONITORING PLATFORM

RP APPROXIMATE LOCATION OF SA–7 PERIMETER POOL RISER PIPE

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA–7 FENCE AND SA–7 FLOODLIGHTS.
2. RELOCATE POWER SUPPLY TO PW1 AND PW2 PRIOR TO SURCHARGE.
3. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
4. SURCHARGE PILE TO BE SLOPED TO THE SHED FACE WATER TO THE NORTH.
5. LOCATION OF SA–7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

0 15 30 60
SCALE IN FEET

Revised/Date: TDD 06/30/15
Checked/Date: NDL 06/30/15

Honeywell
101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 37472

amec

INSTRUMENTATION LOCATION PLAN
AREA 4N
Project 3480-13-0377
Figure E1

J:\Projects\HONEYWELL\JERSEY CITY\Cap Design–SA6–CSD\CAD\SA6N\105 Percent\Figure 4 Surcharge Settling Monitoring Plan – Area 4.dwg Tue, 30 Jun 2015 – 2:30pm kony.donovan

Attachment 4N-1

Baseline Surcharge Analysis for Monitoring Points

AREA 4N
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING POINT	REFERENCE/NEARBY GEOTECHNICAL EXPLORATIONS	EXISTING & PROPOSED GRADING (At Surcharge Monitoring Point)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE (100% Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					ESTIMATED SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	SF/O	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
N_FS-12	088-SB-307; 088-SB-306	12.9	14.4	16.5	0.5	0.0	0.0	0.7	0.0	0.0	1.2	**16.5**	**3.6**	**2.1**	**45%**	**0.4**	0.0	1.4	**1.4**
N_FS-13	088-SB-306; 115-SB-211	15.0	16.6	18.0	0.6	0.0	0.0	0.8	0.0	0.0	1.3	**18.0**	**3.0**	**1.4**	**56%**	**0.8**	0.0	1.7	**1.7**

Prepared By/Date: NDL/6-26-15
Checked By/Date:

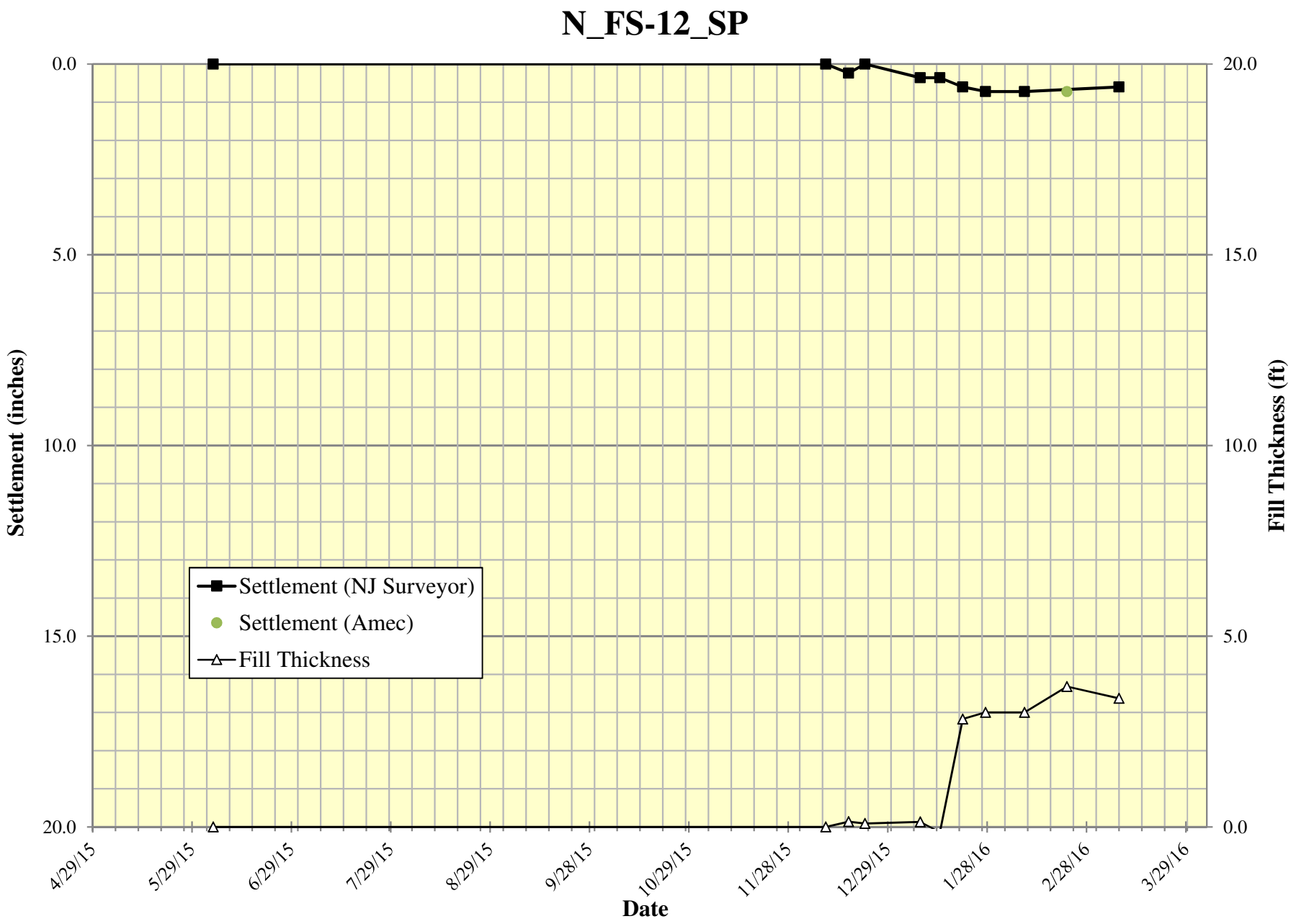
Attachment 4N-2

Surcharge Monitoring Data

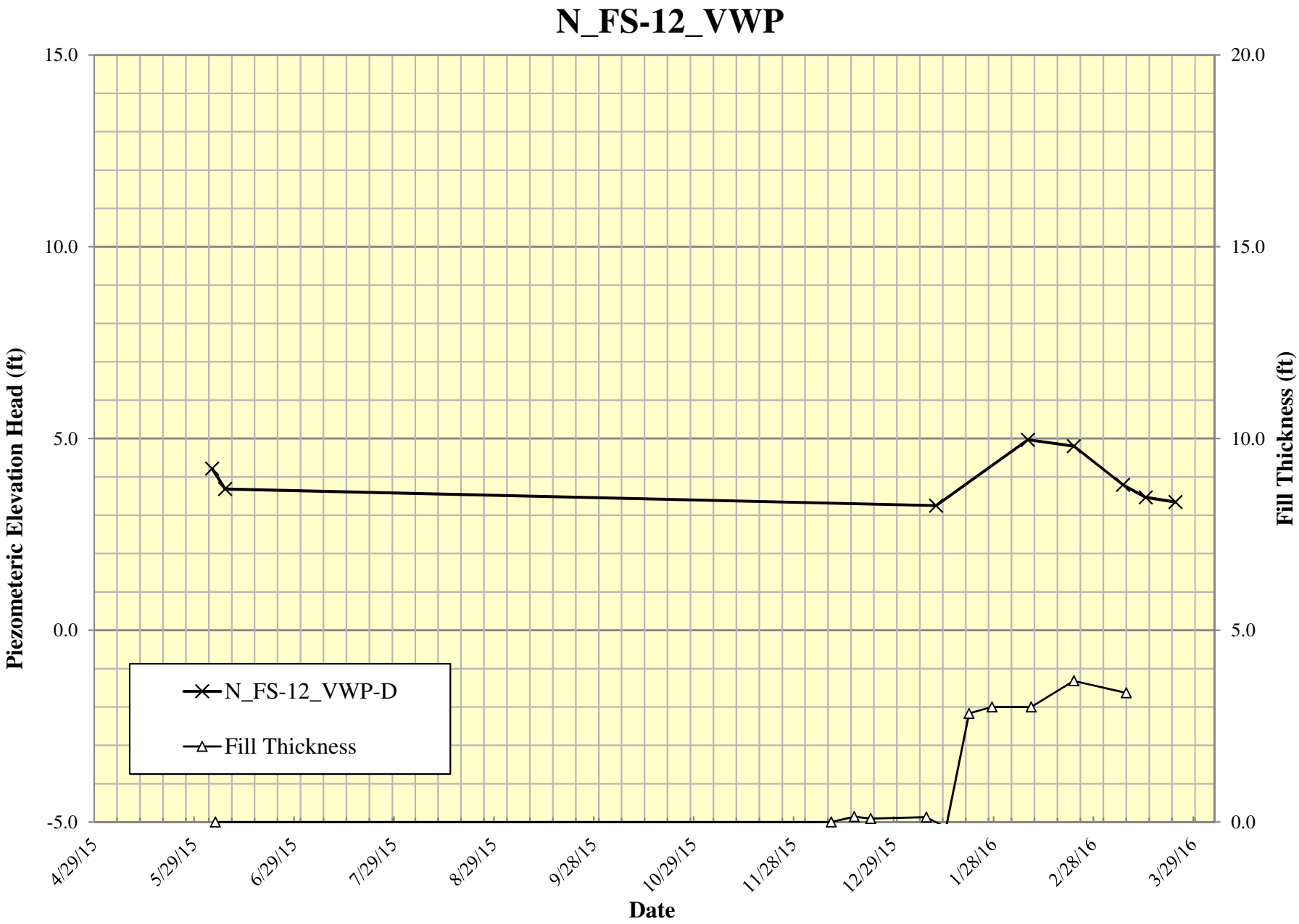
Surcharge Monitoring Data

N_FS-12

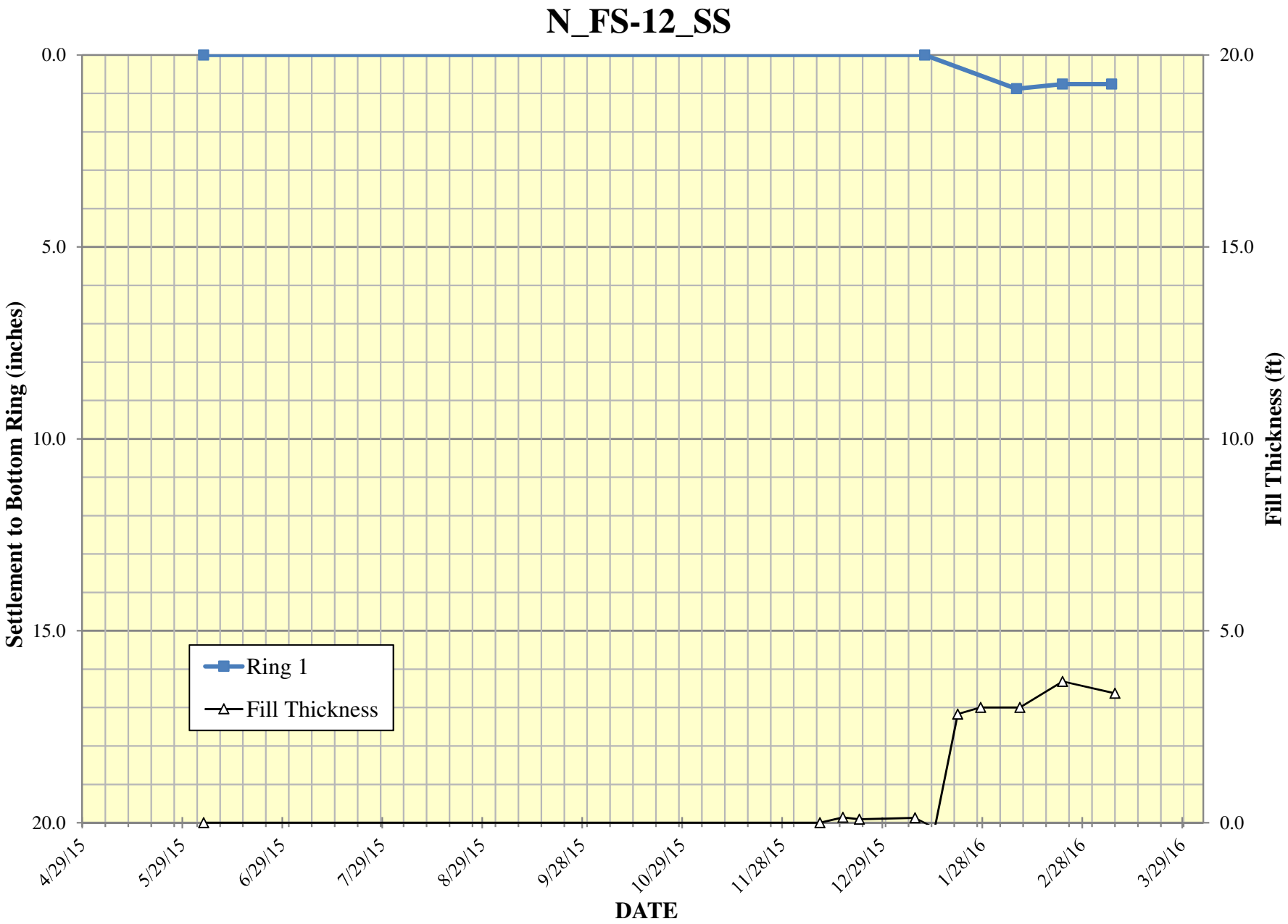
Settlement Platform Data Summary



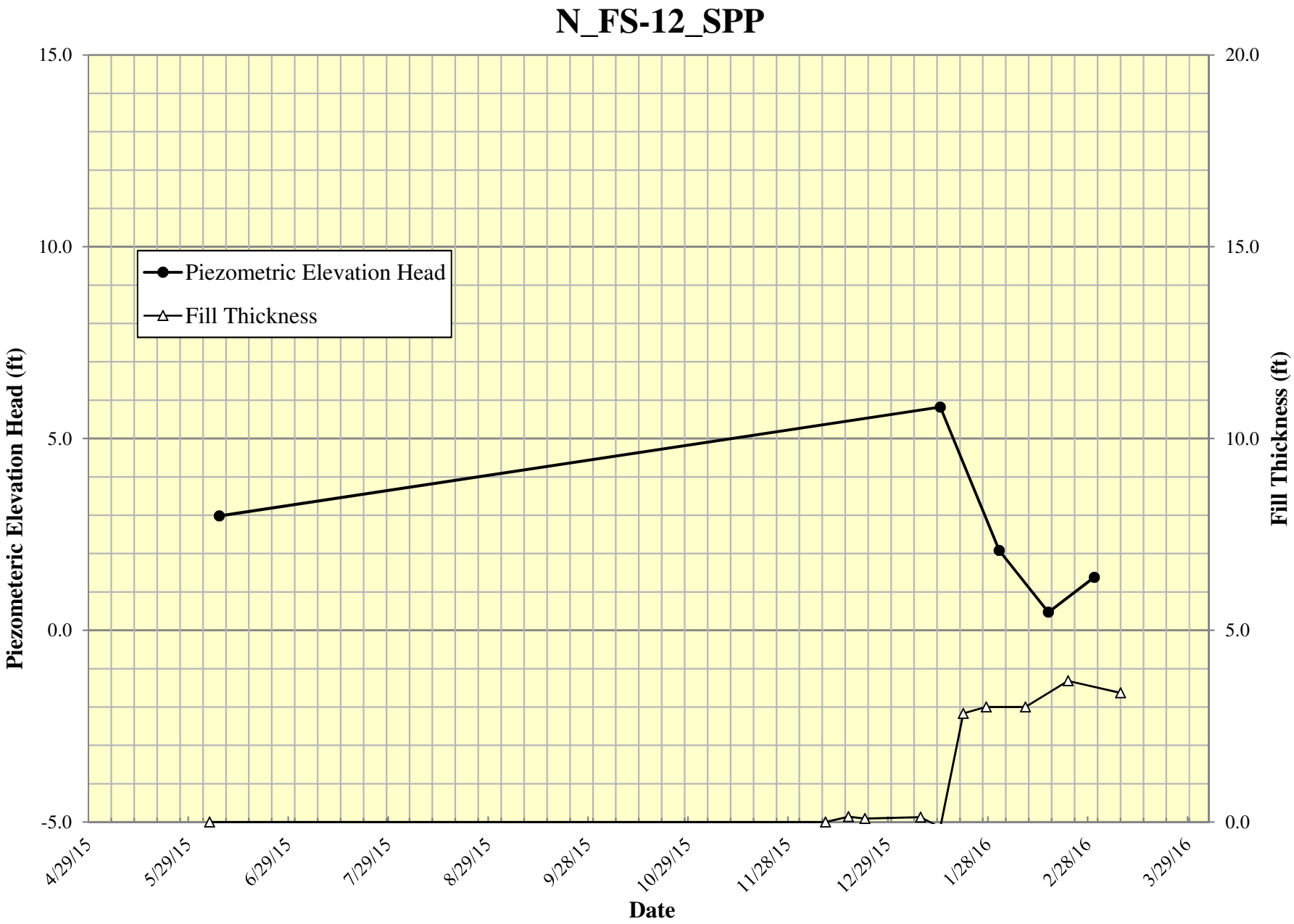
Vibrating Wire Piezometer Data Summary



Sondex System Data Summary



Standpipe Piezometer Data Summary

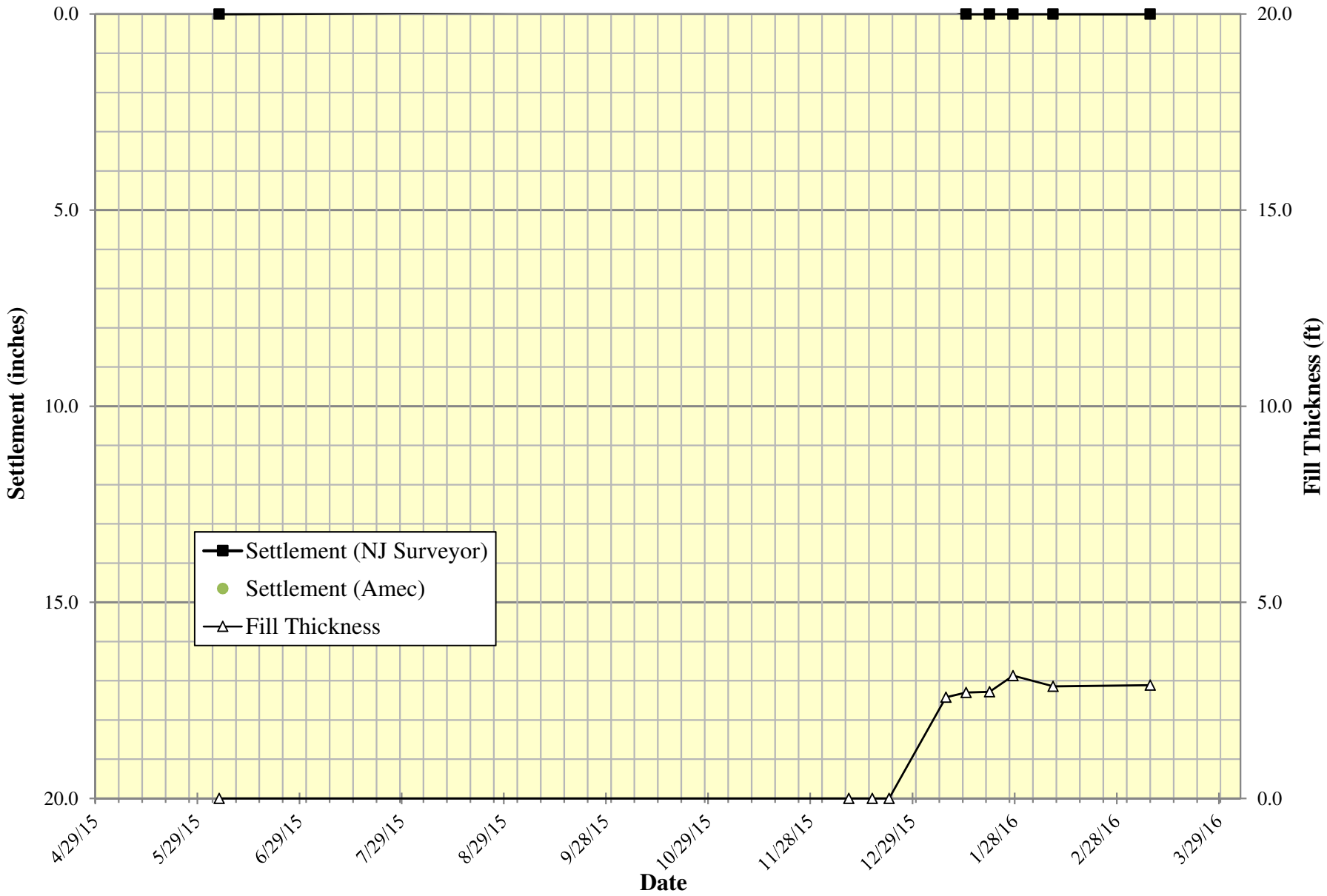


Surcharge Monitoring Data

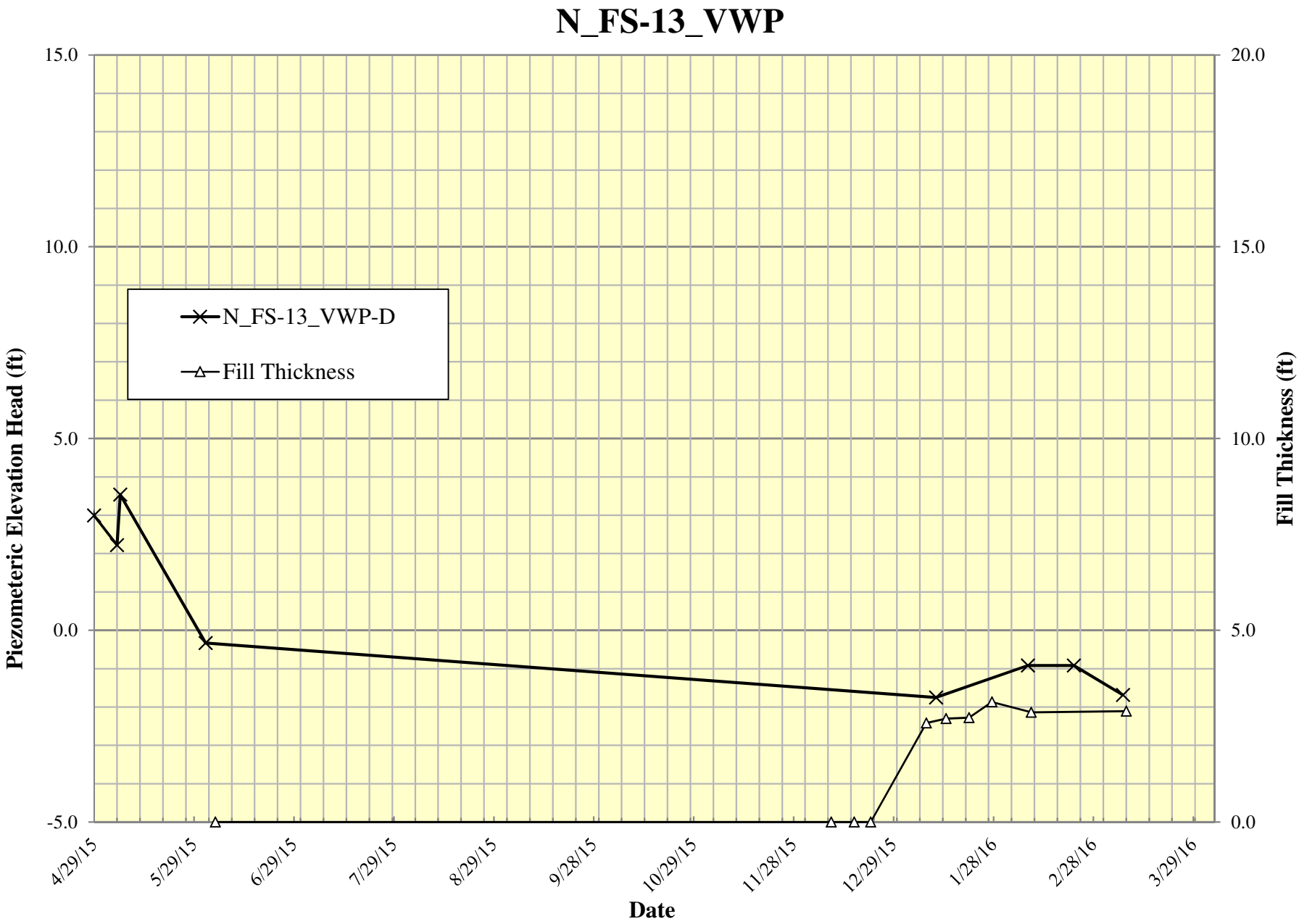
N_FS-13

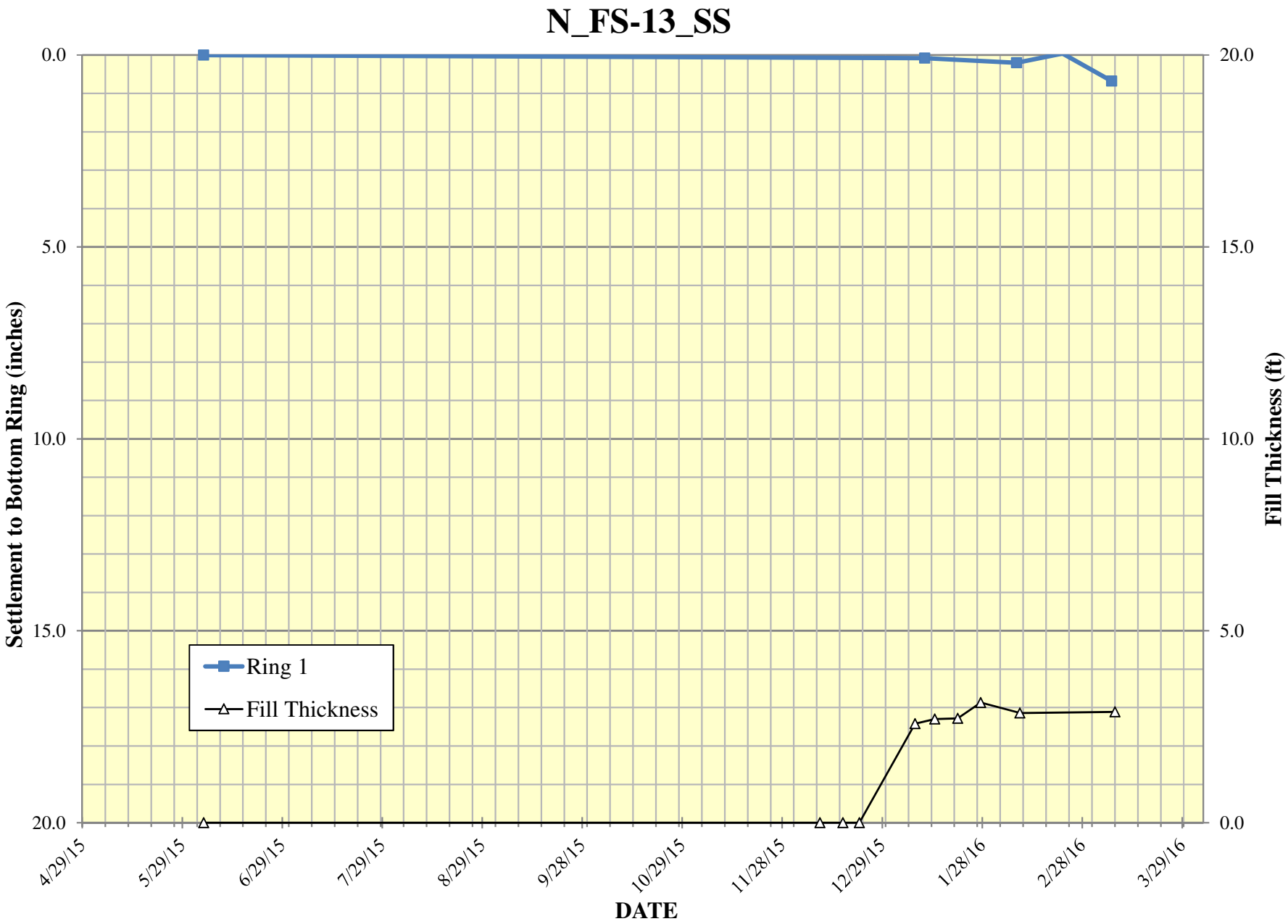
Settlement Platform Data Summary

N_FS-13_SP

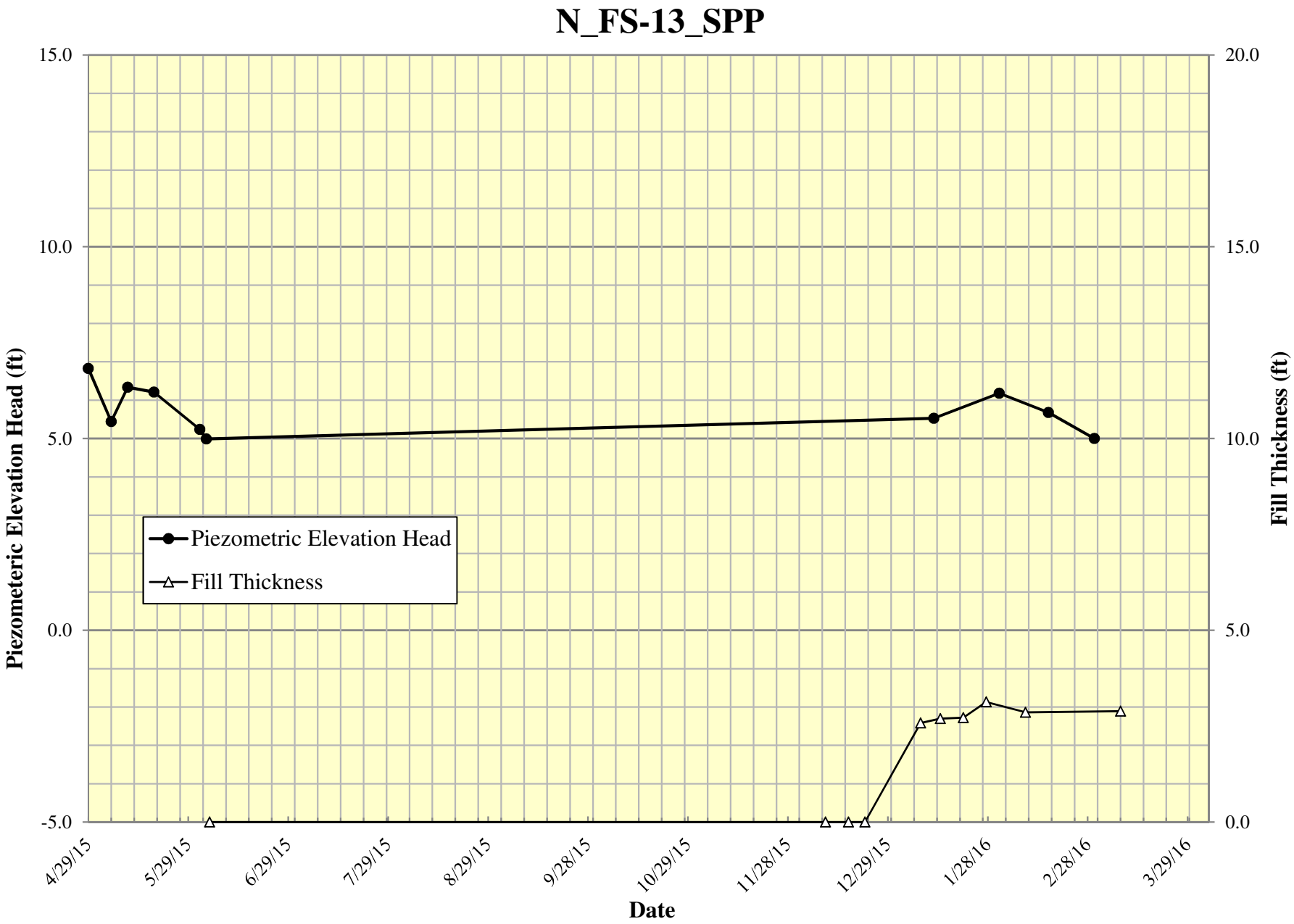


Vibrating Wire Piezometer Data Summary




N_FS-13_SS
Settlement to Bottom Ring (inches)
Fill Thickness (ft)
0.0
5.0
10.0
15.0
20.0
0.0
5.0
10.0
15.0
20.0
Ring 1
Fill Thickness
4/29/15
5/29/15
6/29/15
7/29/15
8/29/15
9/28/15
10/29/15
11/28/15
12/29/15
1/28/16
2/28/16
3/29/16
DATE

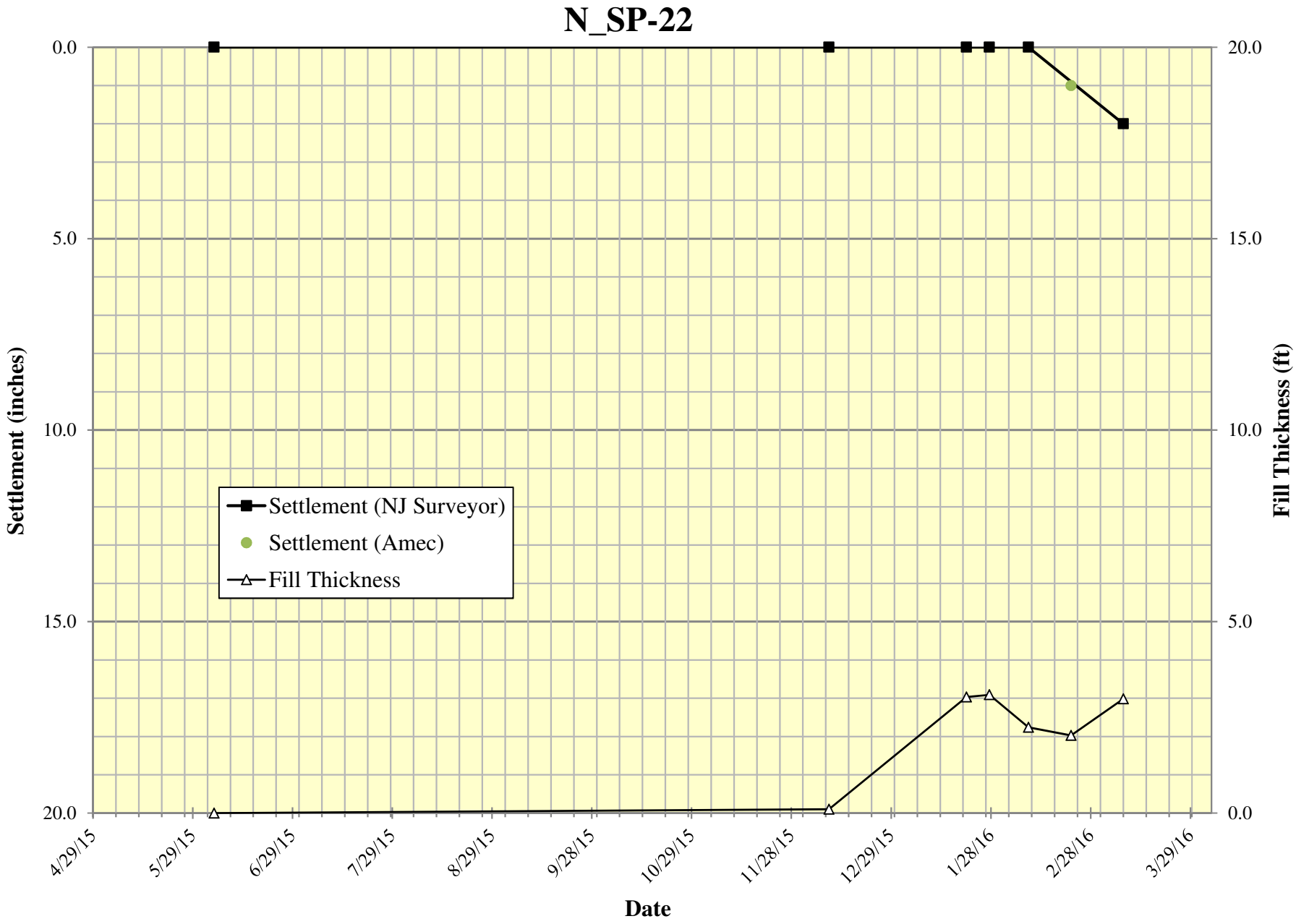
Standpipe Piezometer Data Summary



Surcharge Monitoring Data

N_SP-22

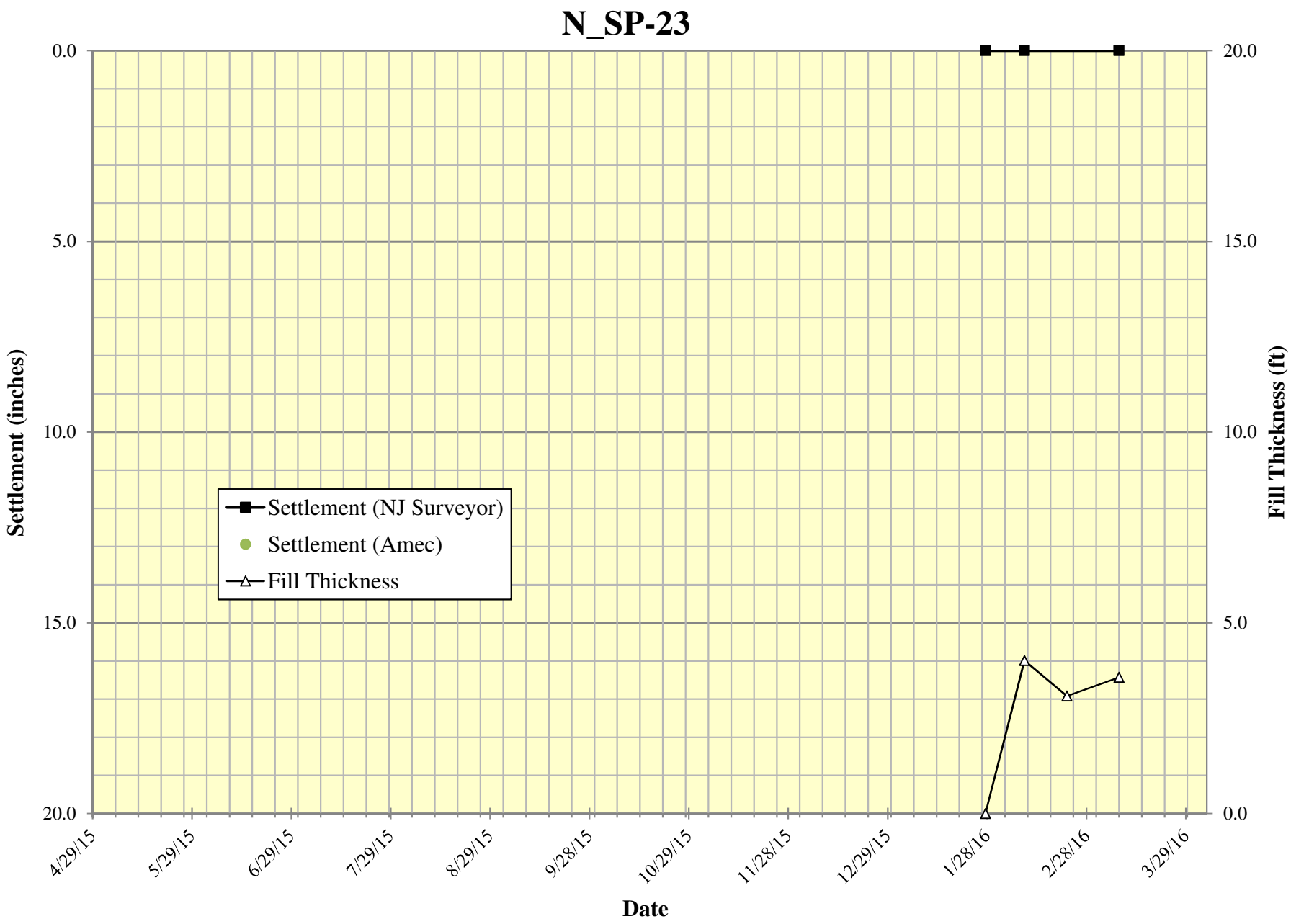
Settlement Platform Data Summary



Surcharge Monitoring Data

N_SP-23

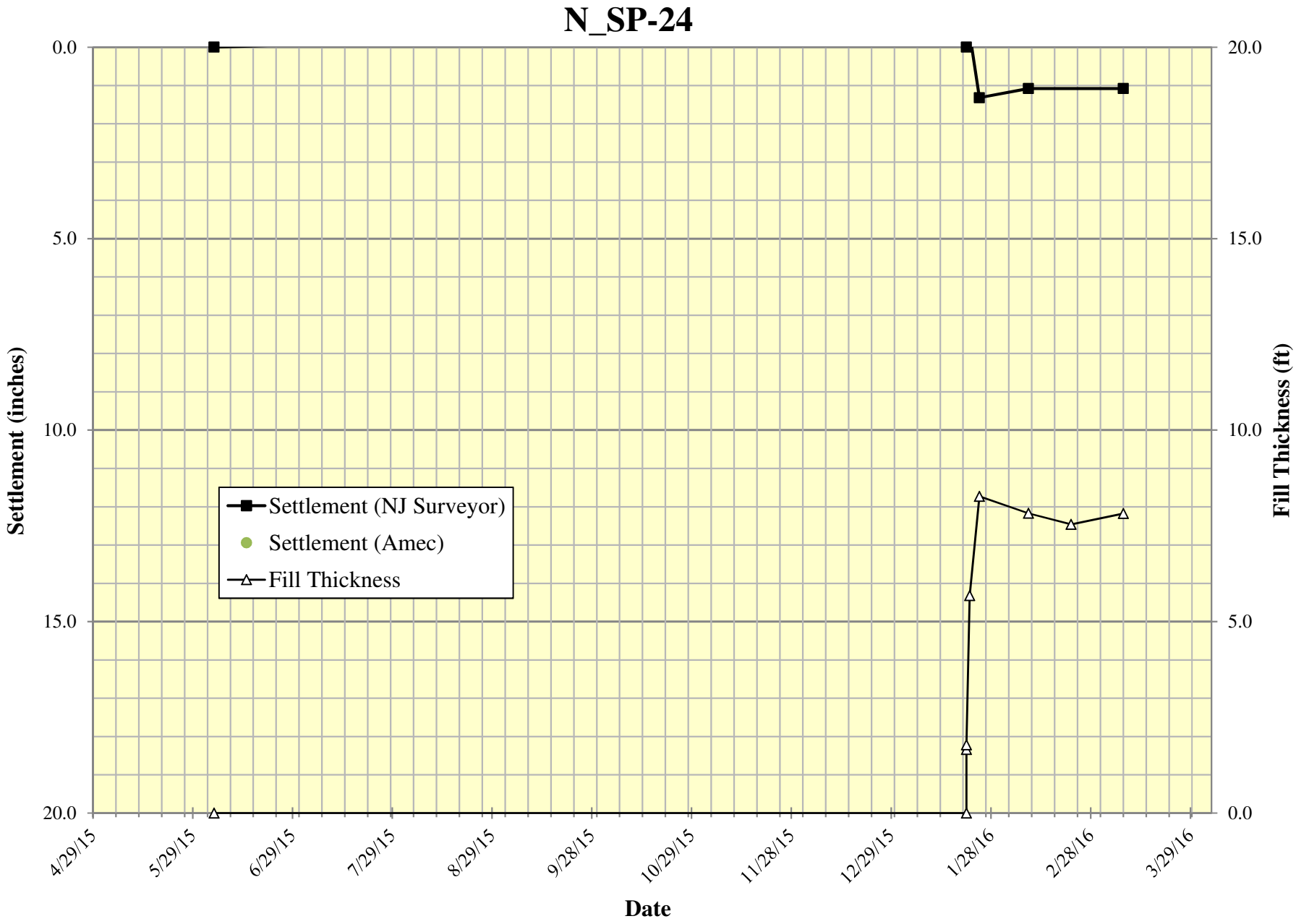
Settlement Platform Data Summary



Surcharge Monitoring Data

N_SP-24

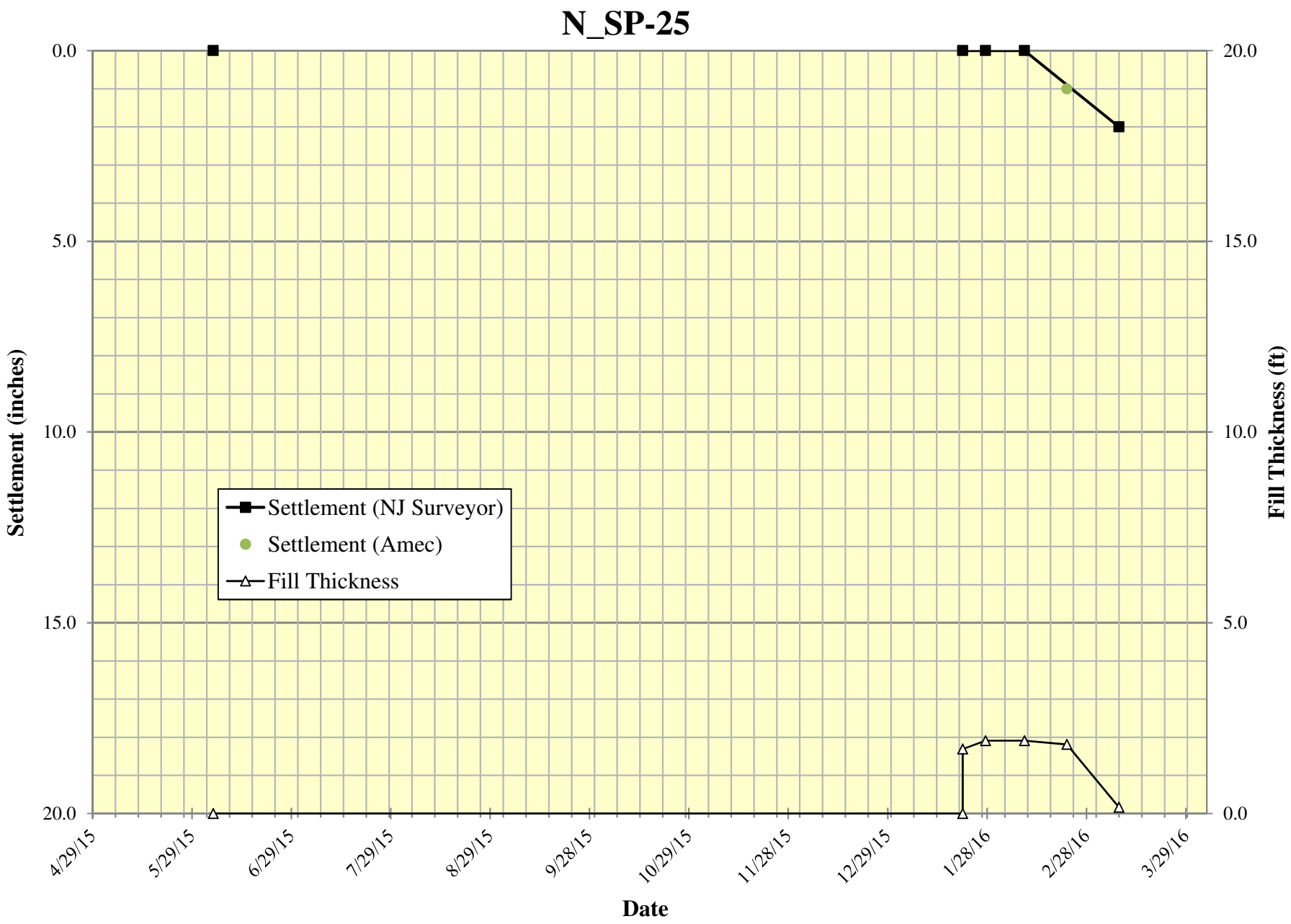
Settlement Platform Data Summary



Surcharge Monitoring Data

N_SP-25

Settlement Platform Data Summary



Attachment 4N-3

March 29, 2016 Mueser Rutledge Correspondence re:
Updated Area 3N and 4N Surcharge Review, SA-6 North, Jersey City, NJ

Mueser Rutledge Consulting Engineers

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Director of Marketing

March 29, 2016

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attn: Mr. Geoff Shallard

Re: Updated Area 3N and 4N Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of March 15th, 2016 AMEC settlement and piezometer monitoring data for Area 3N and 4N is summarized below:

AMEC indicated boring sampling was performed to define the soil profile and the Vibrating Wire Piezometer (VWP) was set at the center of the compressible layer, so that the pore water pressure reading is the most conservative for effective stress evaluation. All the effective stress calculations were made at the center of the layers.

MRCE used the latest measured elevation head dated March 15th, 2016 from "Vibrating Wire Piezometer – Data Report" to calculate the post-surcharge pore water pressures. Post-surcharge total stresses were calculated using fill thickness measurements from the "Settlement Platform – Data Report" taken on March 9th, 2016. Calculated post-surcharge effective stresses are presented in Table 1 and Table 2. MRCE compared the calculated post-surcharge effective stresses with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of the surcharge program was to achieve an effective stress greater than "Final Post-Development Conditions."

This review finds that with the March 15, 2016 readings all settlement monitoring locations, including the two settlement locations, N_HS-11 in Area 3N (Table 1) and N_FS-12 in Area 4N (Table 2), have met the surcharge program goal. This finding is in agreement with the AMEC data review and interpretation.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

F:\111\11173\2015 Surcharge Removal Review\MRCE Peer Review Area 3N and 4N final.pdf

FOR: SA-6 North Surcharge Monitoring Review

Table 1. Area 3N Surcharge Review

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
N_FS-08	Center D	-7.0	2226.3	2400.5	2/9/2016	2/22/2016	11.8	7.0	3697.5	876.1	2821.4	**118%**	**114%**
N_FS-09	Center D	-4.9	2151.3	2217.8	2/9/2016	2/22/2016	12.0	6.4	3648.8	699.4	2949.4	**133%**	**127%**
N_FS-10	Center O	-3.5	1937.5	2525.6	2/9/2016	2/22/2016	12.4	8.6	3485.0	756.7	2728.3	**108%**	**109%**
	Center D	-6.0	2202.5	2619.0	2/9/2016	2/22/2016	12.4	6.7	3750.0	794.8	2955.2	**113%**	
N_FS-11	Center D	-5.1	2032.5	1919.6	2/9/2016	2/22/2016	6.4	4.2	2837.5	579.8	2257.7	**118%**	**118%**
N_HS-10	Center D	-5.2	2083.8	2216.4	2/9/2016	2/22/2016	7.5	6.4	3026.3	721.5	2304.7	**104%**	**101%**
N_HS-11	Center D	-5.7	2147.5	2280.4	3/9/2016	3/15/2016	6.6	4.2	2975.0	617.3	2357.7	**103%**	**102%**
N_HS-12	Center D	-4.4	2042.5	1931.7	2/9/2016	2/22/2016	5.5	4.5	2730.0	551.0	2179.0	**113%**	**111%**
N_HS-13	Center D	-4.4	1991.3	2050.1	2/9/2016	2/22/2016	5.8	4.3	2711.3	539.3	2172.0	**106%**	**107%**

FOR: SA-6 North Surcharge Monitoring Review

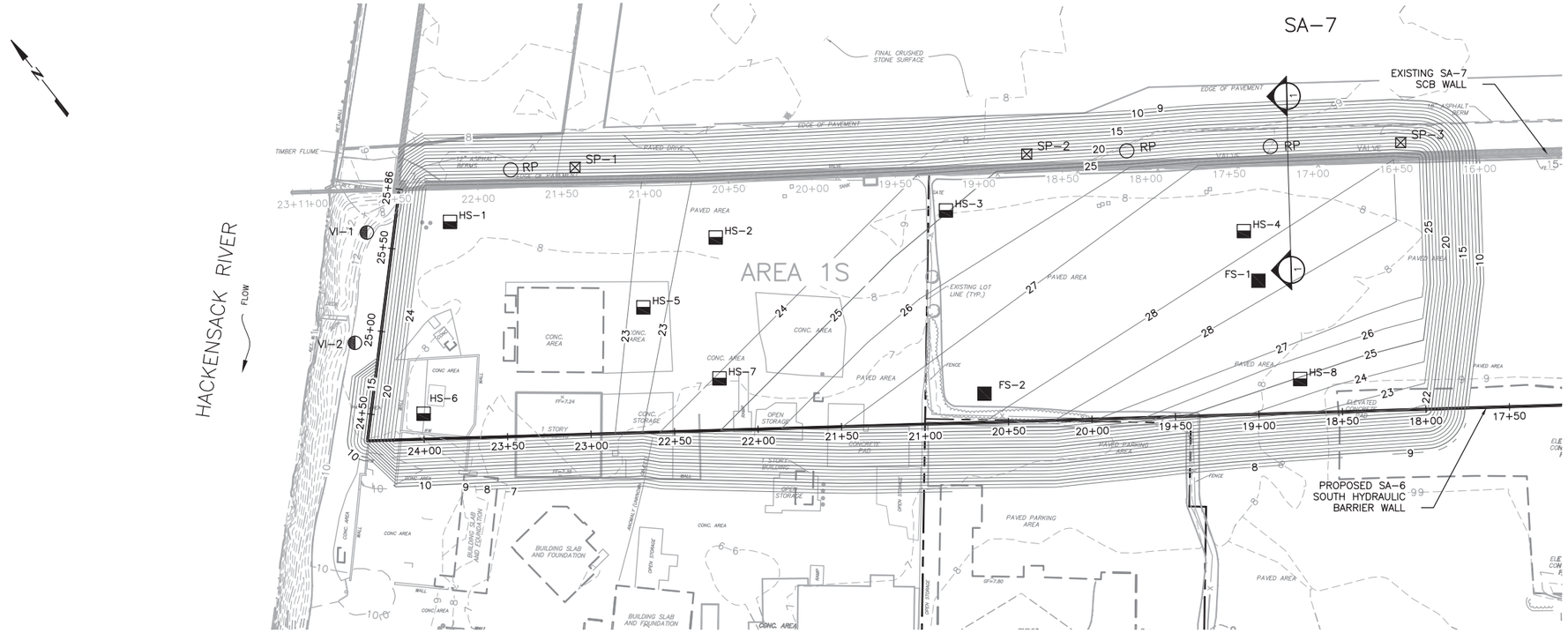
Table 2. Area 4N Surcharge Review

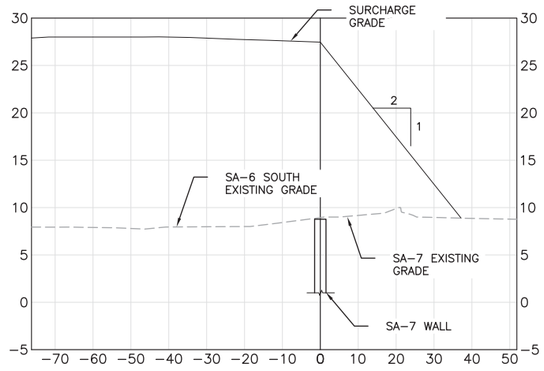
Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
N_FS-12	Center D	-4.1	1927.5	1869.2	3/9/2016	3/15/2016	3.4	3.5	2348.8	473.9	1874.9	**100%**	**101%**
N_FS-13	Center D	-4.6	2248.8	2063.8	1/28/2016	2/22/2016	3.1	-0.9	2640.0	232.2	2407.8	**117%**	**119%**

SURCHARGE AREA 1S
FIGURES & ATTACHMENTS

Figure 1S-1

Instrumentation Location Plan





SECTION 1–1

SETTELMENT MONITORING POINTS		
DESCRIPTION	NORTHING	EASTING
FS–1	685274	601922
FS–2	685321	601752
HS–1	685597	601567
HS–2	685494	601682
HS–3	685422	601801
HS–4	685302	601934
HS–5	685488	601622
HS–6	685519	601480
HS–7	685413	601624
HS–8	685212	601906
VI–1	685625	601520
VI–2	685577	601473
SP–1	685579	601642
SP–2	685419	601860
SP–3	685286	602040

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA–7 FENCE AND SA–7 FLOODLIGHTS.
2. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
3. LOCATION OF SA–7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI–2	INCLINOMETER LOCATION
FS–1	SETTLEMENT MONITORING POINT FULL – SET UP
HS–1	SETTLEMENT MONITORING POINT HALF – SET UP
SP12	SETTLEMENT MONITORING PLATFORM
RP	APPROXIMATE LOCATION OF SA–7 PERIMETER POOL RISER PIPE

0 20 40 80
SCALE IN FEET

Prepared/Date: RJR 10/117/14
Checked/Date: SGS 10/17/14

Honeywell
101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962

CHROMIUM REMEDY
STUDY AREA 6 SOUTH
JERSEY CITY, NEW JERSEY

amec

INSTRUMENTATION LOCATION PLAN
AREA 1S
Project 3480-12-0317
Figure F1

Z:\Projects\HONEYWELL\JERSEY CITY\Cop Design-CAD\CAD\SAS\Figure - Surcharge Area1 Instrumentation Plan.dwg Fri, 17 Oct 2014 - 11:20am roger.royer

Attachment 1S-1

Baseline Surcharge Analysis for Monitoring Points

AREA 1S
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING STATION NO.	NEARBY EXPLORATION NO(s).	ELEVATION DATA (At Surcharge Monitoring Station)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADES (Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	F-COPR	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
S_FS-01	134-SB-503	7.9	20.5	28.0	2.5	3.2	0.0	9.6	1.6	0.9	17.8	**28.0**	**20.1**	**7.5**	**75%**	**5.3**	0.5	2.4	**2.9**
S_FS-02	073-SB-501	7.0	18.5	27.5	2.6	3.0	0.0	5.8	1.5	0.3	13.2	**27.5**	**20.5**	**9.0**	**69%**	**2.7**	0.5	1.7	**2.2**
S_HS-01	073-SB-005; 115-SB-202	8.3	22.0	24.0	3.0	3.1	0.0	3.4	1.4	1.4	12.3	**24.0**	**15.7**	**2.0**	**91%**	**3.1**	0.5	1.0	**1.5**
S_HS-02	073-PZ-001; 073-PZ-002; 115-SB-305; 115-SB-203	8.7	18.8	23.5	2.5	1.4	0.0	4.9	1.1	1.0	10.9	**23.5**	**14.9**	**4.8**	**76%**	**2.6**	0.3	1.7	**2.0**
S_HS-03	073-SB-501; 115-SB-306; 134-SB-503	8.1	18.3	25.0	1.8	4.8	0.0	7.8	1.3	0.3	16.1	**25.0**	**16.9**	**6.8**	**71%**	**6.4**	0.8	2.4	**3.2**
S_HS-04	134-SB-503; 115-SB-307	8.0	20.3	28.0	2.7	2.3	0.0	8.6	2.0	2.1	17.7	**28.0**	**20.0**	**7.8**	**74%**	**3.9**	0.4	2.2	**2.5**
S_HS-05	073-PZ-002; 073-CPT-003	9.2	19.0	23.0	2.0	3.0	0.0	3.3	1.0	1.4	10.8	**23.0**	**13.8**	**4.0**	**78%**	**2.8**	0.7	1.2	**1.9**
S_HS-06	073-SB-500; 073-CPT-001; 073-CPT-005	7.9	20.3	24.0	2.9	1.3	0.0	4.0	1.4	0.7	10.4	**24.0**	**16.2**	**3.8**	**84%**	**1.8**	0.2	1.2	**1.4**
S_HS-07	073-CPT-003	7.0	18.0	24.0	2.1	4.2	0.0	5.0	1.3	1.6	14.2	**24.0**	**17.0**	**6.0**	**75%**	**3.4**	0.7	1.4	**2.2**
S_HS-08	134-SB-500; 134-CPT-002	8.3	20.8	24.5	2.2	3.6	0.0	9.5	2.1	2.0	19.5	**24.5**	**16.2**	**3.8**	**85%**	**7.9**	0.5	2.4	**2.9**

Prepared By/Date: NDL/8-14-14

Checked By/Date:

Attachment 1S-2

October 27, 2014 Mueser Rutledge Correspondence re:
SA-6 South Surcharge Monitoring, Jersey City, NJ
(Previously Submitted Report No. 7)

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October 27, 2014

Geoff Shallard
AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Re: SA-6 ~~North~~ Surcharge Monitoring
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

Mueser Rutledge Consulting Engineers (MRCE) reviewed the settlement and piezometer monitoring data related to Area 1S provided by AMEC, on October 17th 2014. MRCE's review of the available data is summarized below:

1. AMEC indicated boring sampling were performed and the Vibrating Wire Piezometer (VWP) was set at the center of the layer. Center of the layer provide the most conservative pore water pressure reading for the effective stress evaluation. All the effective stress calculations were made at the center of the layers.

2. MRCE used measured fill thickness dated 09/22/14 from provided "Settlement Platform – Data Report" and calculated the total stress as of 09/22/14 based on the fill thickness recorded on 09/22/14 and the "Historic Pre-Construction Conditions" total stresses provided by AMEC. MRCE evaluated the pore water pressures based on the piezometer reading on 09/23/14 from "Vibrating Wire Piezometer – Data Report" and calculated the effective stresses as of 09/23/14, as presented in Table 1.

3. MRCE compared calculated effective stresses of 09/23/14 with the effective stresses provided by AMEC for "Final Post-Development Conditions". The defined goal of surcharge program was to achieve an effective stress greater than the "Final Post-Development Conditions" effective stress. Percent completion computed by MRCE ("MRCE % Completion (09/23/14)" in Table 1) indicates effective stress compared to "Final Post-Development Conditions" effective stress; percent completion greater than 100 % indicates overconsolidation compared to "Final Post-Development Conditions" effective stress. Table 1 also presents percent completion evaluation of AMEC as of 09/26/14, "AMEC % Completion (09/26/14)" for comparison.

4. Settlement monitoring location S_FS-02 (highlighted in attached Table 1) has not yet met the surcharge program goal as of 09/23/14.

5. MRCE suggests leaving the surcharge on at S_FS-02 location until the pore water pressure dissipate such that the pore pressure head measured in the middle of Stratum D drops an additional 1.5 ft, or raising grade to increase the total stress to accelerate consolidation.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

MP:H:\111\11173\2014 Surcharge Removal Review\SA-6_Area 1S_Surcharge Removal Review\MRCE SA-6 Surcharge Monitoring Review- Area 1S.docx

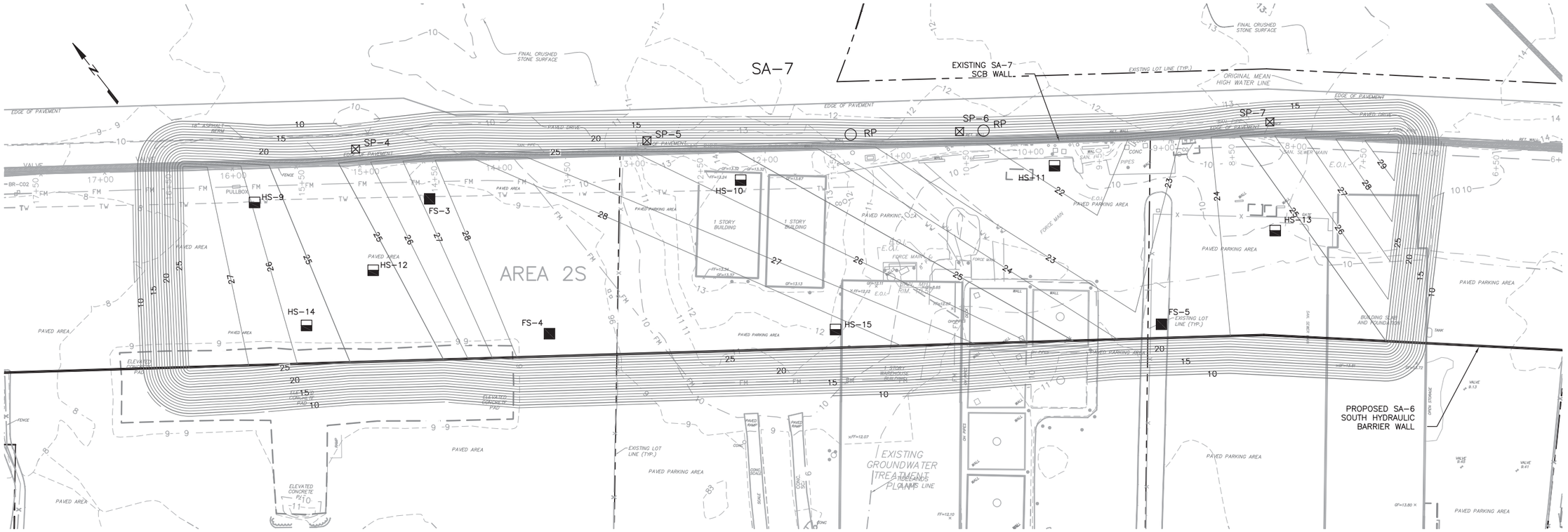
Table 1. MRCE SA-6 Surcharge Monitoring Review for Area 1S (09/23/14)

Source:		AMEC				Settlement Monitoring Data	VWP Monitoring Data	MRCE			MRCE	AMEC
Settlement Monitoring Point	Layer	Center of the Layer EL. (ft)	Pre-Surcharge Conditions Total Stress (psf)	Final Development Condition Effective Stress (psf)	Surcharge Conditions Effective Stress	Fill Thickness (ft)	Elevation Head (ft)	Total Stress 09/22/14 (psf)	Pore Water Pressure 09/23/14 (psf)	Effective Stress 09/23/14 (psf)	% Completion 09/23/14	% Completion 09/26/14
S_FS-01	Center D	-8.6	1852.5	2616.3	2451.0	17.15	-8.6	3996.3	1274.8	2721.4	104%	94%
S_FS-02	Center D	-11.16	2083.8	2627.1	2428.0	16.31	-11.16	4122.6	1509.5	2613.1	99%	92%
S_HS-01	Center D	-11.2	2260.0	3064.0	3196.0	15.31	-11.2	4173.8	891.7	3282.1	107%	104%
S_HS-02	Center D	-9.6	2103.8	2570.7	2774.0	15.22	-9.6	4006.3	1042.7	2963.6	115%	108%
S_HS-03	Center D	-9.4	1942.5	2400.1	2440.0	15.9	-9.4	3930.0	1347.2	2582.8	108%	102%
S_HS-04	Center D	-8.3	1841.3	2548.2	2595.0	15.54	-9	3783.8	1148.2	2635.6	103%	102%
S_HS-05	Center D	-8.5	2031.3	2583.0	2703.0	13.89	-9.3	3767.6	970.3	2797.2	108%	105%
S_HS-06	Center D	-10.4	2126.3	2880.7	3214.0	16.24	-11.15	4156.3	867.4	3288.9	114%	112%
S_HS-07	Center D	-9.5	1867.5	2493.7	2894.0	17.84	-9.5	4097.5	1007.8	3089.7	124%	116%
S_HS-08	Center D	-7.7	1787.5	2595.0	2707.0	16.29	-7.7	3823.8	963.5	2860.3	110%	104%

SURCHARGE AREA 2S
FIGURES & ATTACHMENTS

Figure 2S-1

Instrumentation Location Plan



SETTLEMENT MONITORING POINTS		
DESCRIPTION	NORTHING	EASTING
FS-3	685140	602174
FS-4	685005	602182
FS-5	684727	602549
HS-9	685219	602068
HS-10	685007	602367
HS-11	684870	602559
HS-12	685124	602107
HS-13	684730	602660
HS-14	685122	602042
HS-15	684875	602354
SP-4	685204	602153
SP-5	685074	602329
SP-6	684935	602519
SP-7	684797	602707

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA-7 FENCE AND SA-7 FLOODLIGHTS.
2. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
3. LOCATION OF SA-7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI-2 INCLINOMETER LOCATION

FS-1 SETTLEMENT MONITORING POINT FULL – SET UP

HS-1 SETTLEMENT MONITORING POINT HALF – SET UP

SP-12 SETTLEMENT MONITORING PLATFORM

RP APPROXIMATE LOCATION OF SA-7 PERIMETER POOL RISER PIPE

0 20 40 80
SCALE IN FEET

Prepared/Date: RJR 08/13/14
Checked/Date: TDD 08/13/14

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CHROMIUM REMEDY
STUDY AREA 6 SOUTH
JERSEY CITY, NEW JERSEY

amec

INSTRUMENTATION LOCATION PLAN
AREA 2S
Project 3480-12-0317
Figure G1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C30\CAD\SA6S\Figure - Surcharge Area2 Instrumentation Plan.dwg Thu, 14 Aug 2014 - 12:48pm roger.riquier

Attachment 2S-1

Baseline Surcharge Analysis for Monitoring Point

AREA 2S
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING STATION NO.	NEARBY EXPLORATION NO(s).	ELEVATION DATA (At Surcharge Monitoring Station)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADES (Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	F-COPR	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
S_FS-03	115-SB-308; 115-SB-309; 134-PZ-003; 134-PZ-004	8.3	19.5	27.5	2.3	2.8	0.0	8.6	1.9	1.4	17.0	**27.5**	**19.3**	**8.0**	**72%**	**3.9**	0.4	2.2	**2.6**
S_FS-04	134-SB-501; 140-CPT-001	8.5	20.0	28.0	2.2	2.2	0.0	12.3	1.7	1.0	19.4	**28.0**	**19.5**	**8.0**	**73%**	**6.3**	0.3	3.0	**3.3**
S_FS-05	140-SB-501; 140-CPT-003; 125-SB-501; S_HS-11	9.4	16.8	23.5	1.7	1.8	0.0	9.1	1.1	0.5	14.2	**23.5**	**14.1**	**6.8**	**65%**	**5.0**	0.4	3.0	**3.4**
S_HS-09	115-SB-204; 134-SB-503	8.0	18.8	26.0	2.2	2.8	0.0	8.6	1.8	1.9	17.3	**26.0**	**18.0**	**7.3**	**73%**	**4.0**	0.4	2.2	**2.6**
S_HS-10	115-SB-309; 140-CPT-001	13.4	22.0	25.5	2.2	1.3	0.0	3.0	0.6	1.0	8.0	**25.5**	**12.1**	**3.5**	**78%**	**1.7**	0.3	1.2	**1.5**
S_HS-11	115-SB-310; 115-SB-311; 140--CPT-003; 140-SB-501	9.8	19.5	22.0	2.4	2.5	0.0	3.8	0.6	0.6	9.9	**22.0**	**12.2**	**2.5**	**85%**	**2.9**	0.5	1.2	**1.7**
S_HS-12	134-SB-501; 134-CPT-003; 115-SB-308	8.6	19.8	25.0	2.4	2.1	0.0	9.1	1.3	1.2	16.2	**25.0**	**16.4**	**5.3**	**78%**	**5.8**	0.4	2.5	**2.9**
S_HS-13	125-SB-501; 125-CPT-001; 140-SB-501	9.8	19.0	24.5	2.0	2.3	0.0	8.6	1.0	0.7	14.5	**24.5**	**14.7**	**5.5**	**74%**	**5.0**	0.4	2.5	**2.9**
S_HS-14	134-CPT-003; S_HS-12; 134-SB-500; 134-SB-501	8.7	18.0	25.5	2.1	2.0	0.0	6.2	1.6	0.8	12.7	**25.5**	**16.8**	**7.5**	**68%**	**2.4**	0.4	1.8	**2.2**
S_HS-15	140-SB-500; 140-CPT-002	11.5	22.0	28.0	2.6	1.8	0.0	2.5	0.8	1.0	8.7	**28.0**	**16.5**	**6.0**	**73%**	**1.0**	0.4	0.8	**1.2**

Prepared By/Date: NDL/8-14-14

Checked By/Date:

Attachment 2S-2

February 6, 2015 Mueser Rutledge Correspondence re:
SA-6 South Surcharge Monitoring, Jersey City, NJ
(Previously submitted Report No. 10)

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February 06, 2015

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attention: Mr. Geoff Shallard

Re: Area 2S Surcharge Review
SA-6 North
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of February 06, 2015 AMEC settlement and piezometer monitoring data for Area 2S is summarized below:

AMEC indicated from borings and sampling the Vibrating Wire Piezometers (VWP) were set at the center of the compressible clay layer, which provides the most conservative pore water pressure reading for the effective stress evaluation. All the stress calculations are at the center of the compressible layers.

MRCE used latest measured elevation head dated between January 12-29, 2015 from "Vibrating Wire Piezometer – Data Report" to calculate the post-surcharge pore water pressures. Post-surcharge total stresses were calculated based on the fill thickness measurements from the "Settlement Platform – Data Report" taken at corresponding dates, between January 14-30, 2015. Calculated post-surcharge effective stresses are presented in Table 1. MRCE compared the calculated post-surcharge effective stresses with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of surcharge program was to achieve an effective stress greater than the "Final Post-Development Conditions."

This review finds all Area 2S monitoring locations have met the surcharge program goal as of 01/30/2015.

Very truly yours,
MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

Table 1. MRCE SA-6 Surcharge Monitoring Review for Area 2S

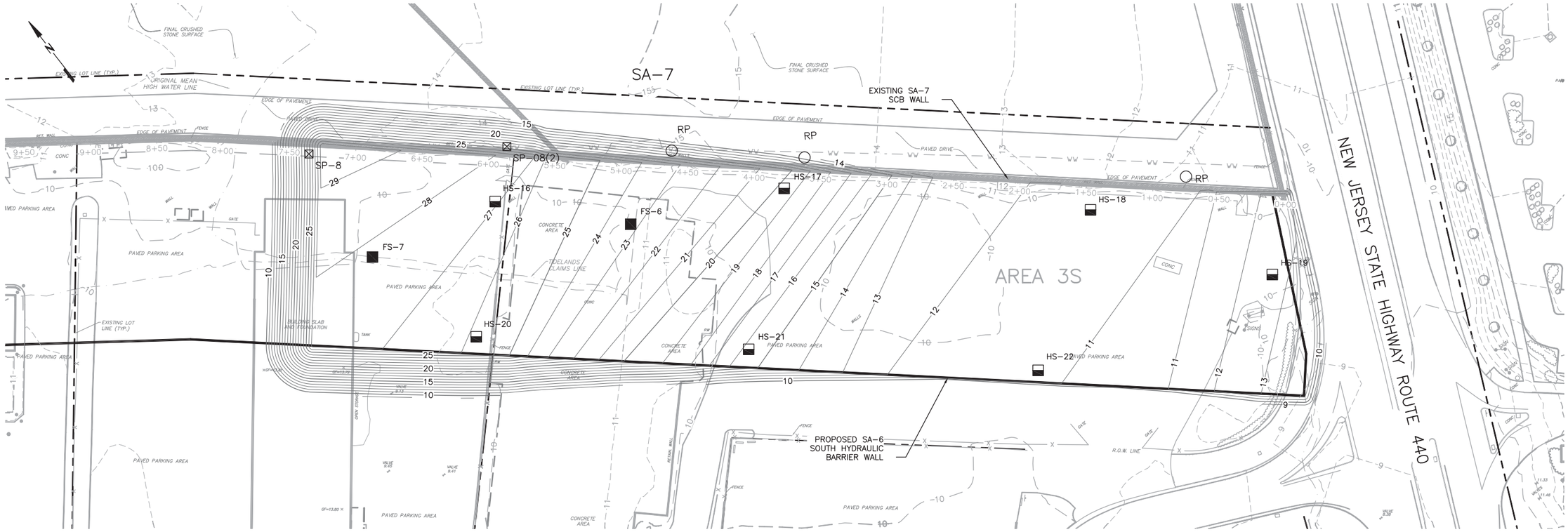
Settlement Monitoring Point	Layer	Existing EL (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
S_FS-03	Center O	-3.3	1332.5	2208.4	1/14/2015	1/12/2015	19.7	9.9	3798.8	823.7	2975.1	135%	-
	Top D	-5.8	1525.0	2291.7			19.7	13.0	3991.3	1172.5	2818.8	123%	-
	Center D	-7.0	1716.3	2342.5			19.7	13.4	4182.6	1273.6	2909.0	124%	145%
	Bottom D	-8.3	1907.5	2393.4			19.7	6.5	4373.8	926.0	3447.7	144%	-
S_FS-04	Center O	-1.5	1204.5	2223.3	1/23/2015	1/18/2015	19.8	7.6	3683.3	566.0	3117.3	140%	-
	Top D	-4.5	1353.0	2287.6			19.8	12.4	3831.8	1050.2	2781.6	122%	-
	Center D	-6.2	1620.8	2358.7			19.8	13.0	4099.6	1196.8	2902.7	123%	134%
	Bottom D	-7.7	1888.5	2429.9			19.8	10.6	4367.3	1143.8	3223.5	133%	-
	RC	-46.5	6613.5	4771.3			19.8	3.9	9092.3	3147.5	5944.8	125%	-
S_FS-05	Center O	-0.6	1185.0	1696.9	1/30/2015	1/29/2015	14.5	5.9	2992.5	406.8	2585.7	152%	-
	Top D	-3.6	1350.0	1768.3			14.5	8.1	3157.5	730.1	2427.4	137%	-
	Center D	-5.1	1617.8	1839.5			14.5	20.3	3425.3	1583.1	1842.2	100%	115%
	Bottom D	-6.6	1885.5	1910.7			14.5	9.8	3693.0	1022.7	2670.3	140%	-
S_HS-09	Center O	-4.0	1272.5	2097.7	1/14/2015	1/12/2015	18.2	9.1	3547.5	818.7	2728.8	130%	-
	Center D	-8.0	1656.3	2231.9			18.2	6.4	3931.3	896.7	3034.6	136%	156%
S_HS-10	Center O	-2.1	1831.3	2384.9	1/14/2015	1/12/2015	12.6	6.6	3406.3	545.4	2860.9	120%	-
	Center D	-4.4	2088.8	2478.6			12.6	10.2	3663.8	912.3	2751.5	111%	131%
S_HS-11	Center O	-5.2	1660.0	2218.6	1/14/2015	1/12/2015	12.8	9.0	3253.8	887.3	2366.4	107%	-
	Center D	-7.5	1986.3	2342.0			12.8	7.4	3580.1	927.9	2652.2	113%	132%
	RC	-50.2	7257.5	4930.1			12.8	3.8	8851.3	3372.7	5478.5	111%	-
S_HS-12	Center O	-3.9	1485.0	2350.9	1/14/2015	1/12/2015	15.9	10.1	3477.5	871.7	2605.8	111%	-
	Center D	-7.9	1875.3	2482.1			15.9	9.4	3867.8	1076.4	2791.4	112%	130%
	RC	-52.4	7238.0	5077.5			15.9	1.8	9230.5	3382.1	5848.4	115%	-
S_HS-13	Center O	-2.0	1261.5	1962.8	1/30/2015	1/292015	16.0	17.0	3255.3	1183.7	2071.5	106%	-
	Center D	-5.2	1664.0	2100.1			16.0	14.9	3657.8	1253.6	2404.1	114%	129%
S_HS-14	Center O	-2.0	1365.0	2023.3	1/14/2015	1/12/2015	17.6	10.6	3563.8	783.7	2780.0	137%	-
	Center D	-6.3	1691.5	2137.6			17.6	10.4	3890.3	1039.6	2850.7	133%	148%
S_HS-15	Center O	-2.8	1858.8	2539.5	1/14/2015	1/12/2015	16.6	11.5	3928.8	889.8	3039.0	120%	-
	Center D	-6.8	2111.9	2636.6			4181.9	964.7	3217.2	122%	3217.2	122%	140%

"Note that the Amec calculations referenced by MRCE were subsequently updated. Please refer to Table 2S-1 for the final values used. The correction does not impact the conclusion."

SURCHARGE AREA 3S
FIGURES & ATTACHMENTS

Figure 3S-1

Instrumentation Location Plan



SETTLEMENT MONITORING POINTS		
DESCRIPTION	NORTHING	EASTING
FS-6	684538	602919
FS-7	684638	602751
HS-16	684614	602849
HS-17	684488	603027
HS-18	684333	603198
HS-19	684211	603277
HS-20	684543	602776
HS-21	684409	602931
HS-22	684263	603093
~~SP-8~~	~~684728~~	~~602761~~
SP-08(2)	684642	602882

NOTES:

1. PRIOR TO SURCHARGING REMOVE SA-7 FENCE AND SA-7 FLOODLIGHTS.
2. GEOTECHNICAL MONITORING INSTRUMENTATION TO BE INSTALLED PRIOR TO SURCHARGE.
3. LOCATION OF SA-7 PERIMETER POOL RISER PIPES ARE APPROXIMATE. RISER PIPES TO BE FIELD VERIFIED AND EXTENDED WITH SURCHARGE AND MONITORED.

VI-2 INCLINOMETER LOCATION

FS-1 SETTLEMENT MONITORING POINT FULL – SET UP

HS-1 SETTLEMENT MONITORING POINT HALF – SET UP

SP-12 SETTLEMENT MONITORING PLATFORM

RP APPROXIMATE LOCATION OF SA-7 PERIMETER POOL RISER PIPE

0 20 40 80
SCALE IN FEET

Prepared/Date: RJR 03/17/15
Checked/Date: TDD 03/17/15

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CHROMIUM REMEDY
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JERSEY CITY, NEW JERSEY

amec

INSTRUMENTATION LOCATION PLAN
AREA 3S
Project 3480-12-0317
Figure H1

Z:\Projects\HONEYWELL\JERSEY CITY\Cap Design-SA6-C3D\CAD\SA6S\Figure - Surcharge Area3 Instrumentation Plan.dwg Tue, 17 Mar 2015 - 8:40am roger.riquier

Attachment 3S-1

Baseline Surcharge Analysis for Monitoring Point

AREA 3S
BASELINE SURCHARGE ANALYSIS FOR MONITORING POINTS

SUMMARY OF EXISTING & PROPOSED GRADING, ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE, DESIGN SURCHARGE, and ESTIMATED SECONDARY COMPRESSION

SURCHARGE MONITORING POINT	REFERENCE/NEARBY GEOTECHNICAL EXPLORATIONS	EXISTING & PROPOSED GRADING (At Surcharge Monitoring Point)			ESTIMATED SETTLEMENT DUE TO PROPOSED GRADE (100% Primary Consolidation)							SURCHARGE ANALYSIS (Targeting Removal of 100% Primary Consolidation Due to Proposed Grades)					ESTIMATED SECONDARY COMPRESSION		
					Soil Stratum						Total	Design			Analysis Results		Soil Stratum		Total
		Existing Grade	Proposed Grade	Top of Surcharge Grade	F	O	F-COPR	D	S1	RC		Top of Surcharge Grade	Surcharge Height Above Existing Grade	Surcharge Height Above Proposed Grade	Estimated Surcharge Consolidation to Achieve 100% of Primary Consolidation Due to Proposed Grade	Estimated Time to Achieve 100% of Primary Consolidation Due to Proposed Grade	O	D	
		(feet)	(feet)	(feet)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(feet)	(feet)	(feet)	(%)	(months)	(inches)	(inches)	(inches)
S_FS-06	115-SB-313; 124-SB-503; 125-SB-500; 125-CPT-002	9.9	18.5	23.5	1.9	0.9	0.0	9.1	0.7	0.6	13.3	**23.5**	**13.7**	**5.0**	**74%**	**5.3**	0.2	2.9	**3.1**
S_FS-07	125-SB-500; 125-CPT-002; 115-SB-312	9.8	21.3	27.5	2.2	2.2	0.0	9.1	1.0	0.7	15.1	**27.5**	**17.8**	**6.3**	**77%**	**4.4**	0.3	2.3	**2.6**
S_HS-16	125-SB-500; 125-CPT-002; 115-SB-312; 115-SB-313	9.7	22.3	27.0	2.3	1.2	0.0	11.8	1.4	0.8	17.5	**27.0**	**17.3**	**4.8**	**82%**	**6.7**	0.2	2.8	**3.0**
S_HS-17	124-SB-503; 115-SB-207	9.2	15.8	19.5	1.4	1.6	0.0	5.3	0.4	0.2	9.0	**19.5**	**10.3**	**3.8**	**73%**	**3.1**	0.4	1.9	**2.3**
S_HS-18	124-SB-503; 115-SB-315; 115-SB-208	9.7	10.0	11.5	0.1	0.0	0.0	0.3	0.0	0.0	0.5	**11.5**	**1.8**	**1.5**	**17%**	**0.1**	0.0	1.9	**1.9**
S_HS-19	124-CPT-003; 124-SB-502; 124-SB-501	9.4	10.3	12.5	0.4	0.0	0.0	0.8	0.1	0.0	1.3	**12.5**	**3.1**	**2.3**	**32%**	**0.2**	0.0	1.4	**1.4**
S_HS-20	125-SB-500; 125-CPT-002	8.8	21.8	25.5	2.4	1.5	0.0	9.8	1.6	0.8	16.1	**25.5**	**16.7**	**3.8**	**86%**	**5.0**	0.2	2.2	**2.4**
S_HS-21	124-SB-500; 124-SB-503; 124-CPT-001	9.7	13.8	16.0	1.3	0.4	0.0	3.6	0.4	0.3	6.0	**16.0**	**6.3**	**2.3**	**71%**	**2.4**	0.2	2.0	**2.2**
S_HS-22	124-SB-501; 124-CPT-002; 124-CPT-001; 124-SB-500	9.9	10.0	11.5	0.1	0.0	0.0	0.1	0.0	0.0	0.2	**11.5**	**1.6**	**1.5**	**9%**	**0.0**	0.1	1.7	**1.8**

Prepared By/Date: NDL/03-18-14

Checked By/Date: TCC/03-20-14

Attachment 3S-2

April 24, 2015 Mueser Rutledge Correspondence re:
SA-6 South Surcharge Monitoring, Jersey City, NJ

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Director of Finance and Administration

Martha J. Huguet
Director of Marketing

April 24, 2015

AMEC Environment & Infrastructure
511 Congress Street
Portland Me 04101

Attention: Mr. Geoff Shallard

Re: Area 3S Surcharge Review
SA-6 South
Jersey City, NJ
MRCE File 11173

Dear Mr. Shallard:

The Mueser Rutledge Consulting Engineers (MRCE) review of March 30, 2015 AMEC settlement and piezometer monitoring data for Area 3S is summarized below:

AMEC indicated from borings and sampling the Vibrating Wire Piezometers (VWP) were set at the center of the compressible clay layer, which provides the most conservative pore water pressure reading for the effective stress evaluation. All the stress calculations are at the center of the compressible layers.

MRCE used latest measured elevation head dated between March 24-13, 2015 from "Vibrating Wire Piezometer – Data Report" to calculate the post-surcharge pore water pressures. Post-surcharge total stresses were calculated based on the fill thickness measurements from the "Settlement Platform – Data Report" taken on March 19, 2015. Calculated post-surcharge effective stresses are presented in Table 1. MRCE compared the calculated post-surcharge effective stresses with the "Final Post-Development Conditions" effective stress estimates provided by AMEC. The defined goal of surcharge program was to achieve an effective stress greater than the "Final Post-Development Conditions."

This review finds all Area 3S monitoring locations have met the surcharge program goal as of 03/30/2015.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming, P.E.

MP:F:\111\11173\2014 Surcharge Removal Review\SA-6_Area 3S\MRCE Review-Area 3S-April15.docx

Table 1. MRCE SA-6 South Surcharge Monitoring Review for Area 3S (April 2015)

Settlement Monitoring Point	Layer	Existing EL. (ft)	Pre-Surcharge Conditions	Proposed Final Development Conditions	Date of Recording used in calculations		Fill Thickness (ft)	Elevation Head (ft)	Post-Surcharge Conditions			MRCE	AMEC
			Total Stress (psf)	Effective Stress (psf)	Fill Thickness	VWP Elevation			Total Stress (psf)	Pore Water Pressure (psf)	Effective Stress (psf)	% Completion	% Completion
S_FS-06	Top D	-2.7	1365.0	2031.3	3/19/2015	3/24/2015	14.3	6.6	3148.8	574.1	2574.7	127%	-
	Center D	-3.9	1620.0	2099.1			14.3	7.2	3403.8	693.3	2710.5	129%	127%
	Bottom D	-5.2	1875.0	2166.9			14.3	9.6	3658.8	919.8	2739.0	126%	-
S_FS-07	Center O	-0.8	1234.0	2256.5	3/19/2015	3/24/2015	16.9	4.8	3346.5	348.9	2997.6	133%	-
	Top D	-3.0	1388.0	2323.2			16.9	5.2	3500.5	510.7	2989.8	129%	-
	Center D	-4.3	1587.8	2376.3			16.9	11.8	3700.3	999.5	2700.8	114%	113%
	Bottom D	-5.5	1787.5	2429.4			16.9	6.9	3900.0	775.1	3124.9	129%	-
	RC	-34.3	5220.0	4145.9			16.9	3.4	7332.5	2352.4	4980.1	120%	-
S_HS-16	Center O	-0.6	1222.5	2420.6	3/19/2015	3/24/2015	18.0	5.3	3472.5	368.2	3104.3	128%	-
	Center D	-4.1	1551.5	2521.8			18.0	14.7	3801.5	1173.1	2628.4	104%	104%
S_HS-17	Center D	-3.8	1460.0	1750.9	3/19/2015	3/24/2015	10.3	7.4	2743.8	697.6	2046.1	117%	117%
S_HS-18	Center D	-2.5	1406.0	969.9	3/19/2015	3/24/2015	3.5	3.6	1841.0	382.5	1458.5	150%	150%
S_HS-19	Center D	-0.6	1207.5	844.5	3/19/2015	3/24/2015	3.0	4.9	1578.8	345.1	1233.7	146%	143%
S_HS-20	Center O	-1.2	1209.5	2392.7	3/19/2015	3/24/2015	15.1	5.3	3093.3	403.7	2689.5	112%	-
	Center D	-4.4	1494.3	2484.0		3/13/2015	15.1	9.7	3378.0	878.6	2499.4	101%	101%
S_HS-21	Center D	-4.3	1581.5	1503.7	3/19/2015	3/24/2015	6.1	1.6	2339.0	367.5	1971.5	131%	132%
S_HS-22	Center D	-2.6	1436.8	966.3	3/19/2015	3/24/2015	1.7	4.6	1651.8	450.5	1201.2	124%	124%

B&B Drilling. Inc.

PO Box 8
Netcong, New Jersey 07857

PH 973 347-2250
FX 973 347-3864
www.hrsdrilling.com

April 26, 2016

Amec Foster Wheeler E&I, Inc.
200 American Metro Boulevard
Hamilton, New Jersey 08619

Attention: Eric Christodoulatos

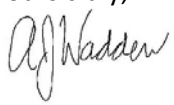
Reference: Settlement Platform Decommissioning
Honeywell Site, Jersey City, New Jersey

Dear Eric,

B&B Drilling, Inc. (B&B) decommissioned settlement platforms at the north and south surcharge areas. Although settlement platforms were not NJDEP-permitted wells they were decommissioned in accordance with the NJDEP regulations for well abandonment (N.J.A.C. 7:9D-3.1). The only difference is that no formal decommissioning report submission to NJDEP was required.

Settlement platforms were constructed with a 1-inch galvanized steel casing inside a 4-inch PVC casing. A portion of the annular space between the 1 and 4-inch pipes was filled with bentonite when originally constructed. The decommissioning consisted of pressure tremie grouting both the 1-inch inner casing and the remaining open annular space in the 4-inch casings at each settlement platform.

Yours truly,



Andrew Wadden
Operations Manager

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317969

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell Sa-6 North

Address: 525 St. Rt. 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602109 Northing (Y): 686123
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: VI-1

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INCLINOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
LATION
DETAIL 11-
11- 2013.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317969

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317970

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell Sa-6 North

Address: 525 St. Rt. 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602049 Northing (Y): 686029
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: VI-2

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INCLINOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
LATION
DETAIL 11-
11- 2013.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317970

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318265

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: SA-6 NORTH

Address: 575 ST RT 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602504 Northing (Y): 685960
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: VI-3

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INCLINOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
LATION
DETAIL 11-
11- 2013.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: December 13, 2013
Expiration Date: December 13, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318265

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201506822

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Bayfront Redevelopment

Address: 575 State Route 440 SA-6 North

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602703 Northing (Y): 685860
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: VI-4

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: INCLINOMETER

Other Use(s):

Diameter (in.): 3.34

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 60

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
LATION DETAIL 11-11- 2013.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: June 18, 2015
Expiration Date: June 17, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201506822

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	This installation is part of an ongoing site remediation activity on which several like Inclinometers have previously been approved. Please see attached, Site Engineer's descriptive documentation.
Unusual Conditions:	The proposed borehole diameter and grout mix do not comply with current NJDEP regulations. Please see attached, Site Engineer's descriptive documentation.
Reason for Deviation:	Please see attached, Site Engineer's descriptive documentation.
Proposed Well Construction	Please see attached, Site Engineer's descriptive documentation.

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317969

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell Sa-6 North

Address: 525 St. Rt. 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602109 Northing (Y): 686123
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: March 14, 2014

DATE WELL COMPLETED: March 17, 2014

WELL USE: INCLINOMETER

Other Use(s):

Local ID: VI-1

WELL CONSTRUCTION

Total Depth Drilled (ft.): 60 Finished Well Depth (ft.): 60 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	60	6		
Casing	0	60	3.34	PVC	INCLINOMETER CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	60	6	3.34	20	860	50
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: M-SCOPE IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 15: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
15 - 20: BRN-GRAY SM - Silty sands, sand-silt mixtures
20 - 25: BRN-BLK OL - Organic silts and organic silty clays of low plasticity
25 - 60: RED - BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Inclinometer Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317970

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell Sa-6 North

Address: 525 St. Rt. 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602049 Northing (Y): 686029
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: March 18, 2014

DATE WELL COMPLETED: March 19, 2014

WELL USE: INCLINOMETER

Other Use(s):

Local ID: VI-2

WELL CONSTRUCTION

Total Depth Drilled (ft.): 50 Finished Well Depth (ft.): 50 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	50	6		
Casing	0	50	3.34	PVC	INCLINOMETER CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	50	6	3.34	1	700	40
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: M-SCOPE IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 20: BRN-BLK SM - Silty sands, sand-silt mixtures
20 - 25: BLK-GRAY OL - Organic silts and organic silty clays of low plasticity
25 - 50: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Inclinometer Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318265

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: SA-6 NORTH

Address: 575 ST RT 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602504 Northing (Y): 685960
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: March 20, 2014

DATE WELL COMPLETED: March 21, 2014

WELL USE: INCLINOMETER

Other Use(s):

Local ID: VI-3

WELL CONSTRUCTION

Total Depth Drilled (ft.): 55 Finished Well Depth (ft.): 55 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	55	6		
Casing	0	55	3.34	PVC	INCLINOMETER CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	55	6	3.34	5	780	45
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: M-SCOPE IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL-B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 17: BRN-BLK SM - Silty sands, sand-silt mixtures
17 - 25: BLK-GRAY OL - Organic silts and organic silty clays of low plasticity
25 - 55: GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Inclinometer Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201506822

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Bayfront Redevelopment

Address: 575 State Route 440 SA-6 North

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602703 Northing (Y): 685860
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 19, 2015

DATE WELL COMPLETED: June 19, 2015

WELL USE: INCLINOMETER

Other Use(s):

Local ID: VI-4

WELL CONSTRUCTION

Total Depth Drilled (ft.): 47 Finished Well Depth (ft.): 47 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	47	6		
Casing	0	47	3.34	PVC	INCLINOMETER CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	47	6	3.34	10	670	38
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 0 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 16: BRN-BLK SM - Silty sands, sand-silt mixtures
16 - 18: BLK-GRAY OL - Organic silts and organic silty clays of low plasticity
18 - 47: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Inclinometer Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317959

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685981
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 8, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 40

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	40	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	40	3.34	0	0	200	11
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317960

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602694 Northing (Y): 685850
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 8, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-3

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 40

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	40	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	40	3.34	0	0	200	11
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317961

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602723 Northing (Y): 685723
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 8, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-4

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 32

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	32	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	3.34	0	0	160	9
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317965

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 575 St. Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602450 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 8, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 55

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	55	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	55	3.34	0	0	275	15
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401546

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602745 Northing (Y): 685595
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-5

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 42

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	42	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	42	3.34	0	0	210	12
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401547

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602890 Northing (Y): 685557
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-6

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 32

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	32	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	3.34	0	0	160	9
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401548

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603001 Northing (Y): 685445
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-7

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 32

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	32	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	3.34	0	0	160	9
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401549

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603094 Northing (Y): 685406
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-8

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 35

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	35	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	35	3.34	0	0	175	10
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401550

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603127 Northing (Y): 685501
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-9

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 33

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	33	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	33	3.34	0	0	164	9
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401551

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603166 Northing (Y): 685858
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-10

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 34

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	34	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	34	3.34	0	0	170	10
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503233

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603339 Northing (Y): 685387
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS11-SD

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 35

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	35	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	35	3.34	0	0	175	10
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503235

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603408 Northing (Y): 685429
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS12-SD

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 30

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	30	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	30	3.34	0	0	150	8.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503236

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603316 Northing (Y): 685253
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS13-SD

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 42

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	42	3.34	PVC	sondex casing
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	42	3.34	0	0	210	12
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317959

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685981
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-1

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex
settlement
system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317959

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317960

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602694 Northing (Y): 685850
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-3

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex
settlement
system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317960

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317961

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602723 Northing (Y): 685723
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-4

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex
settlement
system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317961

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317965

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 575 St. Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602450 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-2

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex
settlement
system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317965

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401546

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602745 Northing (Y): 685595
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-5

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex
Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401546

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401547

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602890 Northing (Y): 685557
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-6

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401547

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401548

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603001 Northing (Y): 685445
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-7

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex
Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401548

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503230

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603094 Northing (Y): 685406
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS8-SD

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex settlement system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503230

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	Please see engineer's design documentation attached.
Unusual Conditions:	Please see engineer's design documentation attached.
Reason for Deviation:	Please see engineer's design documentation attached.
Proposed Well Construction	Please see engineer's design documentation attached.

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401549

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603094 Northing (Y): 685406
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-8

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex
Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401549

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401550

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603127 Northing (Y): 685501
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-9

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex
Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401550

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401551

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603166 Northing (Y): 685858
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: SD-10

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
Sondex Figure A2.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approval Date: February 6, 2014
Expiration Date: February 6, 2015

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401551

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see attached Engineers Design Documentation
Unusual Conditions:	Please see attached Engineers Design Documentation
Reason for Deviation:	Please see attached Engineers Design Documentation
Proposed Well Construction	Please see attached Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
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If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
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In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503233

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603339 Northing (Y): 685387
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS11-SD

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex settlement system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503233

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	Please see engineer's design documentation attached.
Unusual Conditions:	Please see engineer's design documentation attached.
Reason for Deviation:	Please see engineer's design documentation attached.
Proposed Well Construction	Please see engineer's design documentation attached.

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503235

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603408 Northing (Y): 685429
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS12-SD

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex settlement system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503235

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	Please see engineer's design documentation attached
Unusual Conditions:	Please see engineer's design documentation attached
Reason for Deviation:	Please see engineer's design documentation attached
Proposed Well Construction	Please see engineer's design documentation attached

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503236

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603316 Northing (Y): 685253
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS13-SD

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: EXTENSOMETER

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
sondex settlement system.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Terry D. Pilawski

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503236

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	Please see engineer's design documentation attached
Unusual Conditions:	Please see engineer's design documentation attached
Reason for Deviation:	Please see engineer's design documentation attached
Proposed Well Construction	Please see engineer's design documentation attached

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317959

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685981
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: December 23, 2013

DATE WELL COMPLETED: December 24, 2013

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-1

WELL CONSTRUCTION

Total Depth Drilled (ft.): 40 Finished Well Depth (ft.): 40 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	40	4.5		
Casing	0	40	3.34	PVC	Sondex Casing
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	40	4.5	3.34	12	225	13
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: m-scope/in adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobile B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 17: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
17 - 21: BRN SM - Silty sands, sand-silt mixtures
21 - 25: GRAY-BLK PT - Peat, muck, and other highly organic soils
25 - 40: BRN-GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Well was constructed in compliance with an approved NJDEP Deviation request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317960

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602694 Northing (Y): 685850
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 16, 2014

DATE WELL COMPLETED: January 16, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-3

WELL CONSTRUCTION

Total Depth Drilled (ft.): 40 Finished Well Depth (ft.): 40 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	40	4.5		
Casing	0	40	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	40	4.5	3.34	11	215	12
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: m-scope/In adjacent Well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 16.5: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
16.5 - 19: BRN SM - Silty sands, sand-silt mixtures
19 - 23.5: BRN-BLK PT - Peat, muck, and other highly organic soils
23.5 - 33: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines
33 - 40: RED-BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviations as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317961

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 525 St Rt 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602723 Northing (Y): 685723
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: February 21, 2014

DATE WELL COMPLETED: February 24, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-4

WELL CONSTRUCTION

Total Depth Drilled (ft.): 32 Finished Well Depth (ft.): 32 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	32	4.5		
Casing	0	32	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	4.5	3.34	8	150	8.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: M-SCOPE/IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 14.5: BRN GP - Poorly graded gravels and gravel-sand mixtures, little or no fines FILL
14.5 - 18: BRN SM - Silty sands, sand-silt mixtures
18 - 21: BRN-BLK PT - Peat, muck, and other highly organic soils
21 - 25: GRAY SP - Poorly graded sands and gravelly sands, little or no fines
25 - 32: RED-BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviations as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317965

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 575 St. Rt 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602450 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: April 23, 2014

DATE WELL COMPLETED: April 25, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-2

WELL CONSTRUCTION

Total Depth Drilled (ft.): 55 Finished Well Depth (ft.): 55 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	55	4.5		
Casing	0	55	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	55	4.5	3.34	16	300	18
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-SCOPE/IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBILE B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 17: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
17 - 19: BRN SM - Silty sands, sand-silt mixtures
19 - 25: GRAY - BRN PT - Peat, muck, and other highly organic soils
25 - 32.5: GRAY SP - Poorly graded sands and gravelly sands, little or no fines
32.5 - 55: RED-BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION: Well was constructed in compliance with an approved NJDEP Deviation request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401546

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602745 Northing (Y): 685595
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 18, 2014

DATE WELL COMPLETED: June 19, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-5

WELL CONSTRUCTION

Total Depth Drilled (ft.): 42 Finished Well Depth (ft.): 42 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	42	4.5		
Casing	0	42	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	42	4.5	3.34	12	200	14
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-SCOPE/IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 13.5: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
13.5 - 19.5: BRN SM - Silty sands, sand-silt mixtures
19.5 - 21: BLK PT - Peat, muck, and other highly organic soils
21 - 26: GRAY SP - Poorly graded sands and gravelly sands, little or no fines
26 - 38.5: RED-BRN SM - Silty sands, sand-silt mixtures
38.5 - 42: RED-BRN ML - Inorganic silts, very fine sands, rock four, silty or clayey fine sands

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviations as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401547

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602890 Northing (Y): 685557
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 26, 2014

DATE WELL COMPLETED: June 30, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-6

WELL CONSTRUCTION

Total Depth Drilled (ft.): 32 Finished Well Depth (ft.): 32 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	32	4.5		
Casing	0	32	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	4.5	3.34	8	150	8.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 9 ft. below land surface
Water Level Measure Tool: M-SCOPE/IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 14: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
14 - 19: BRN SM - Silty sands, sand-silt mixtures
19 - 21.5: BRN-BLK PT - Peat, muck, and other highly organic soils
21.5 - 32: GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviations as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401548

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603001 Northing (Y): 685445
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: July 1, 2014

DATE WELL COMPLETED: July 3, 2014

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-7

WELL CONSTRUCTION

Total Depth Drilled (ft.): 32 Finished Well Depth (ft.): 32 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	32	4.5		
Casing	0	32	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	4.5	3.34	8	150	8.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-SCOPE/IN ADJACENT WELL
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
10 - 15.5: DRK BRN SP - Poorly graded sands and gravelly sands, little or no fines FILL
15.5 - 19: BRN SM - Silty sands, sand-silt mixtures
19 - 21: BRN - BLK PT - Peat, muck, and other highly organic soils
21 - 23.5: GRAY SW - Well-graded sands and gravelly sands, little or no fines
23.5 - 32: RED BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviations as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401549

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603094 Northing (Y): 685406
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 26, 2015

DATE WELL COMPLETED: May 26, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-8

WELL CONSTRUCTION

Total Depth Drilled (ft.): 35 Finished Well Depth (ft.): 35 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	35	4.5		
Casing	0	35	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	4.5	3.34	8	150	8.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-Scope ina djacent borehole
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
10 - 16: DRK BRN SP - Poorly graded sands and gravelly sands, little or no fines FILL
16 - 19: BRN SM - Silty sands, sand-silt mixtures
19 - 21: BRN PT - Peat, muck, and other highly organic soils
21 - 35: RED-BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION: Well was constructed in compliance with NJDEP approved Deviation as indicated on the Well Permit.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401550

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603127 Northing (Y): 685501
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 15, 2015

DATE WELL COMPLETED: May 18, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-9

WELL CONSTRUCTION

Total Depth Drilled (ft.): 33 Finished Well Depth (ft.): 33 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	33	4.5		
Casing	0	33	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	33	4.5	3.34	8	24	5.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 11 ft. below land surface
Water Level Measure Tool: m-scope in adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 12: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
12 - 16: BRN ML - Inorganic silts, very fine sands, rock four, silty or clayey fine sands
16 - 20: BLK-GRAY PT - Peat, muck, and other highly organic soils
20 - 33: GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: SONDEX Well was installed in Compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401551

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603166 Northing (Y): 685858
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 14, 2015

DATE WELL COMPLETED: May 14, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: SD-10

WELL CONSTRUCTION

Total Depth Drilled (ft.): 34 Finished Well Depth (ft.): 34 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	34	4.5		
Casing	0	34	3.34	PVC	sondex casing
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	34	4.5	3.34	0.7	180	10
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: m-scope in adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
10 - 15: BLACK-GRAY SP - Poorly graded sands and gravelly sands, little or no fines FILL
15 - 20: GRAY - BRN OL - Organic silts and organic silty clays of low plasticity
20 - 21.5: BRN PT - Peat, muck, and other highly organic soils
21.5 - 34: RED-GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: SONDEX Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503230

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603094 Northing (Y): 685406
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 26, 2015

DATE WELL COMPLETED: May 26, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS8-SD

WELL CONSTRUCTION

Total Depth Drilled (ft.): 32 Finished Well Depth (ft.): 32 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	32	4.5		
Casing	0	32	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	32	4.5	3.24	8	6	14
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: m-scope in adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 13: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
13 - 16: BRN SM - Silty sands, sand-silt mixtures FILL W/COPER PRESENT
16 - 18: BRN ML - Inorganic silts, very fine sands, rock four, silty or clayey fine sands
18 - 20.5: GRAY PT - Peat, muck, and other highly organic soils
20.5 - 32: GRAY-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: This SONDEX Well was constructed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503233

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603339 Northing (Y): 685387
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 29, 2015

DATE WELL COMPLETED: June 2, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS11-SD

WELL CONSTRUCTION

Total Depth Drilled (ft.): 35 Finished Well Depth (ft.): 35 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	35	4.5		
Casing	0	35	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	35	4.5	3.34	0.75	60	3.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: m-scope in adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 13: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
13 - 15: ORANGE-BRN SM - Silty sands, sand-silt mixtures COPR PRESENT
15 - 17: BRN ML - Inorganic silts, very fine sands, rock four, silty or clayey fine sands
17 - 20: GRAY-BRN OH - Organic clays of medium to high plasticity
20 - 35: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: SONDEX Well was installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503235

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603408 Northing (Y): 685429
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 4, 2015

DATE WELL COMPLETED: June 6, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS12-SD

WELL CONSTRUCTION

Total Depth Drilled (ft.): 30 Finished Well Depth (ft.): 30 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	30	4.5		
Casing	0	30	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	30	4.5	3.34	8	150	8.5
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 9 ft. below land surface
Water Level Measure Tool: M-Scope from an adjacent well
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobile B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 12: GRAY-BLK SP - Poorly graded sands and gravelly sands, little or no fines FILL
12 - 17: GRAY ML - Inorganic silts, very fine sands, rock four, silty or clayey fine sands FILL
17 - 18: BLK OH - Organic clays of medium to high plasticity
18 - 30: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: This SONDEX Well was constructed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503236

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603316 Northing (Y): 685253
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: April 27, 2015

DATE WELL COMPLETED: April 27, 2015

WELL USE: EXTENSOMETER

Other Use(s):

Local ID: NFS13-SD

WELL CONSTRUCTION

Total Depth Drilled (ft.): 42 Finished Well Depth (ft.): 42 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	42	4.5		
Casing	0	42	3.34	PVC	SONDEX CASING
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	42	4.5	3.34	7	33	9
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: M-SCOPE in adjacent well location
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 15: GRAY SP - Poorly graded sands and gravelly sands, little or no fines FILL
15 - 19.5: BRN - BLK PT - Peat, muck, and other highly organic soils
19.5 - 42: GRAY SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: SONDEX Well was constructed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317955

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685986
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 7, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 20

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	10	1	PVC	sch 40
Screen	10	20	1	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20	1	0	0	9	0.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317956

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602694 Northing (Y): 685855
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 7, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-3

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 20

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	10	1	PVC	
Screen	10	20	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	20	1	0	0	9	0.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317957

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 8 Block: 21901

Easting (X): 602423 Northing (Y): 685728
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 7, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-4

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 12.5

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	7.5	1	PVC	
Screen	7.5	12.5	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	12.5	1	0	0	6	0.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317958

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 575 ST RT 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602453 Northing (Y): 685868
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 7, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-2

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	1	PVC	sch 40
Screen	8	13	1	PVC	0.010"

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	1	0	0	6	0.33
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401536

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602750 Northing (Y): 685600
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-5

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 17

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	12	1	PVC	
Screen	12	17	1	PVC	

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	17	1	0	0	8	0.5
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401537

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602895 Northing (Y): 685562
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-6

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	1	PVC	
Screen	8	13	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	1	0	0	6	0.33
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401538

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603006 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-7

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 15

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	10	1	PVC	
Screen	10	15	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	15	1	0	0	6.7	0.4
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401539

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603099 Northing (Y): 685411
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-8

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 14

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	9	1	PVC	
Screen	9	14	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	14	1	0	0	6	0.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401540

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603132 Northing (Y): 685506
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-9

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 12

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	7	1	PVC	
Screen	7	12	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	12	1	0	0	5	0.25
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401541

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603171 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 28, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-10

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 14

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	9	1	PVC	
Screen	9	14	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	14	1	0	0	6	0.33
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503247

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603340 Northing (Y): 685383
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS11-SP

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	1	PVC	
Screen	8	13	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	1	0	0	6	0.33
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503248

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603419 Northing (Y): 685304
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS12-SP

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 13

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	8	1	PVC	
Screen	8	13	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	13	1	0	0	6	0.33
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503249

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603369 Northing (Y): 686207
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: April 29, 2016

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS13-SP

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 11

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	6	1	PVC	
Screen	6	11	1		

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	11	1	0	0	5	0.3
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Gordon Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0021852

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317955

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685986
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-1

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317955

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317956

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602694 Northing (Y): 685555
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-3

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317956

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317957

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602423 Northing (Y): 685728
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-4

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317957

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317958

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 575 ST RT 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602450 Northing (Y): 685868
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-2

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: December 9, 2013
Expiration Date: December 9, 2014

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317958

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
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The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401536

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602750 Northing (Y): 685600
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-5

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401536

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401537

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602895 Northing (Y): 685562
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-6

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401537

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401538

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603006 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-7

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401538

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401539

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603099 Northing (Y): 685411
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-8

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401539

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401540

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603132 Northing (Y): 685506
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-9

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401540

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401541

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603171 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: STP-10

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: February 4, 2014
Expiration Date: February 4, 2015

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401541

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503247

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603339 Northing (Y): 685387
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS11-SP

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503247

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
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This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503248

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603419 Northing (Y): 685304
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS12-SP

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503248

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503249

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603369 Northing (Y): 685207
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NFS13-SP

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503249

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503250

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603408 Northing (Y): 685429
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NHS12-SP

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Terry D. Pilawski

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

Approved by the authority of:
Bob Martin
Commissioner

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503250

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
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This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503251

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603316 Northing (Y): 685253
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: NHS13-SP

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 20

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: April 8, 2015
Expiration Date: April 7, 2016

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503251

WELL PERMIT

%%:activity_class_well%%

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
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For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317955

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602115 Northing (Y): 685986
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: December 30, 2013

DATE WELL COMPLETED: December 30, 2013

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-1

WELL CONSTRUCTION

Total Depth Drilled (ft.): 20 Finished Well Depth (ft.): 20 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	20	6		
Casing	0	10	1	PVC	SH40
Screen	10	20	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	9	6	1	0	140	8
Gravel Pack	9	20	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBILE B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 20: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317956

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602694 Northing (Y): 685855
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 30, 2014

DATE WELL COMPLETED: January 30, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-3

WELL CONSTRUCTION

Total Depth Drilled (ft.): 20 Finished Well Depth (ft.): 20 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	20	6		
Casing	0	10	1	PVC	SH40
Screen	10	20	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	9	6	1	0	94	5.5
Gravel Pack	9	20	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 16.5: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
16.5 - 20: BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317957

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 525 St. Route 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602423 Northing (Y): 685728
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: February 21, 2014

DATE WELL COMPLETED: February 21, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-4

WELL CONSTRUCTION

Total Depth Drilled (ft.): 12.5 Finished Well Depth (ft.): 12.5 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12.5	6		
Casing	0	7.5	1	PVC	SH40
Screen	7.5	12.5	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	6.5	6	1	0	94	5.5
Gravel Pack	6.5	12.5	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 12.5: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201317958

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 575 ST RT 440

County: Hudson Municipality: Jersey City Lot: 9 Block: 21901

Easting (X): 602453 Northing (Y): 685868
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: April 28, 2014

DATE WELL COMPLETED: April 28, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-2

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	6		
Casing	0	8	1	PVC	SH40
Screen	8	13	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	7	6	1	0	94	5
Gravel Pack	7	13	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 13: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401536

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602750 Northing (Y): 685600
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 20, 2014

DATE WELL COMPLETED: June 20, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-5

WELL CONSTRUCTION

Total Depth Drilled (ft.): 17 Finished Well Depth (ft.): 17 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	17	6		
Casing	0	12	1	PVC	SH40
Screen	12	17	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	11	6	1	0	160	9
Gravel Pack	11	17	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 11 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 13: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL
13 - 17: BRN SM - Silty sands, sand-silt mixtures

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401537

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 602895 Northing (Y): 685562
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 27, 2014

DATE WELL COMPLETED: June 27, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-6

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	6		
Casing	0	8	1	PVC	SH40
Screen	8	13	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	7	6	1	0	94	5.5
Gravel Pack	7	13	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 9 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 13: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401538

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603006 Northing (Y): 685450
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: July 3, 2014

DATE WELL COMPLETED: July 3, 2014

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-7

WELL CONSTRUCTION

Total Depth Drilled (ft.): 15 Finished Well Depth (ft.): 15 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	15	6		
Casing	0	10	1	PVC	SH40
Screen	10	15	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	9	6	1	0	130	7.25
Gravel Pack	9	15	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: NOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 15: BRN GM - Silty gravels, gravel-sand-silt mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401539

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603099 Northing (Y): 685411
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 27, 2015

DATE WELL COMPLETED: May 27, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-8

WELL CONSTRUCTION

Total Depth Drilled (ft.): 14 Finished Well Depth (ft.): 14 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	14	6		
Casing	0	9	1	PVC	SH40
Screen	9	14	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	8	6	1	0	115	6.5
Gravel Pack	8	14	6	1	morie #1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 12 ft. below land surface
Water Level Measure Tool: m-scope
Well Development Period: 1 hrs.
Method of Development: air lift
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Mobil B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 12: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
12 - 14: BRN SP - Poorly graded sands and gravelly sands, little or no fines FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401540

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603132 Northing (Y): 685506
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 18, 2015

DATE WELL COMPLETED: May 18, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-9

WELL CONSTRUCTION

Total Depth Drilled (ft.): 12 Finished Well Depth (ft.): 12 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	12	6		
Casing	0	7	1	PVC	SH40
Screen	7	12	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	6	6	1	0	94	5
Gravel Pack	6	12	6	1	MORIE #1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 12: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201401541

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 10 Block: 21901

Easting (X): 603171 Northing (Y): 685863
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 14, 2015

DATE WELL COMPLETED: May 14, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: STP-10

WELL CONSTRUCTION

Total Depth Drilled (ft.): 14 Finished Well Depth (ft.): 14 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	14	6		
Casing	0	9	1	PVC	SCH40
Screen	9	14	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	8	6	1	0	115	6.5
Gravel Pack	8	13	6	1	MORIE #1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7.5 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBILR B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 14: BLK-GRAY SP - Poorly graded sands and gravelly sands, little or no fines FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503247

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603340 Northing (Y): 685383
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: May 29, 2015

DATE WELL COMPLETED: May 29, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS11-SP

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	6		
Casing	0	8	1	PVC	SH40
Screen	8	13	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	7	6	1	0	94	5
Gravel Pack	7	13	6	1	MORIE #1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 8 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBILE B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 13: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503248

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603419 Northing (Y): 685304
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: June 5, 2015

DATE WELL COMPLETED: June 5, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS12-SP

WELL CONSTRUCTION

Total Depth Drilled (ft.): 13 Finished Well Depth (ft.): 13 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	13	6		
Casing	0	8	1	PVC	SH40
Screen	8	13	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	7	6	1	0	94	5
Gravel Pack	7	13	6	1	MORIE#1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 11 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 13: GRAY - BLK SP - Poorly graded sands and gravelly sands, little or no fines FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201503249

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: HONEYWELL SA-6 NORTH

Address: 501 ROUTE 440 SA-6 NORTH

County: Hudson Municipality: Jersey City Lot: 5 Block: 21901

Easting (X): 603369 Northing (Y): 686207
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: April 28, 2015

DATE WELL COMPLETED: April 28, 2015

WELL USE: PIEZOMETER

Other Use(s):

Local ID: NFS13-SP

WELL CONSTRUCTION

Total Depth Drilled (ft.): 11 Finished Well Depth (ft.): 11 Well Surface: Above Grade

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	11	6		
Casing	0	6	1	PVC	SH40
Screen	6	11	1	PVC	0.010"

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	5	6	1	0	94	5
Gravel Pack	5	11	6	1	MORIE #1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: Yes
Static Water Level: 7 ft. below land surface
Water Level Measure Tool: M-SCOPE
Well Development Period: 1 hrs.
Method of Development: AIR LIFT
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 11: GRAY SP - Poorly graded sands and gravelly sands, little or no fines FILL

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318002

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: H. ROBERT SEYBOLD, JOURNEYMAN LICENSE # 0001348

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: BAYFRONT REDEVELOPMENT, LLC

Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD

City: Morristown State: New Jersey Zip Code: 07962

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 5, 9, 10 Block: 21901

Easting (X): 602450 Northing (Y): 685865
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: VWP-1

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: VIBRATING WIRE PIEZOMETER/SITEWIDE

Other Use(s):

Diameter (in.): 1

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 50

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: Y

Drilling Method: Mud Rotary

Attachments: DEVIATION REQUEST 10-10-13.pdf
llation Detail 08-27-2011.pdf

SPECIFIC CONDITIONS/REQUIREMENTS

Well must be built in accordance with submitted deviation [N.J.A.C. 7.9D-2.8]

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

Approval Date: December 12, 2013
Expiration Date: December 12, 2014

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318002

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	Please see Engineers Design Documentation
Unusual Conditions:	Please see Engineers Design Documentation
Reason for Deviation:	Please see Engineers Design Documentation
Proposed Well Construction	Please see Engineers Design Documentation

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318002

MONITORING WELL RECORD

PROPERTY OWNER: BAYFRONT REDEVELOPMENT, LLC

Company/Organization: BAYFRONT REDEVELOPMENT, LLC

Address: 101 COLUMBIA ROAD Morristown, New Jersey 07962

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 5, 9, 10 Block: 21901

Easting (X): 602450 Northing (Y): 685850
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 14, 2014

DATE WELL COMPLETED: May 14, 2015

WELL USE: VIBRATING WIRE PIEZOMETER/SITEWIDE

Other Use(s):

Local ID: VWP-1

WELL CONSTRUCTION

Total Depth Drilled (ft.): 80 Finished Well Depth (ft.): 80 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	80	6		
Casing	0	80	1	PVC	SCH40
Screen					

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	80	6	1	58	185	40
Gravel Pack							

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Mud Rotary

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: VPI Transducer
Well Development Period: 0 hrs.
Method of Development: NA
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: MOBIL B-61
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 10: BRN GC - Clayey gravels, gravel-sand-clay mixtures FILL
10 - 20: BRN SM - Silty sands, sand-silt mixtures
20 - 25: BLK-GRAY PT - Peat, muck, and other highly organic soils
25 - 80: RED-BRN SP - Poorly graded sands and gravelly sands, little or no fines

ADDITIONAL INFORMATION: Vibrating Wire Piezometers (VIP) were installed in compliance with an approved NJDEP Deviation Request.

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201318002

WELL DECOMMISSIONING REPORT

PROPERTY OWNER: BAYFRONT REDEVELOPMENT C/O THOMPSON REU

Company/Organization: Bayfront Redevelopment

Address: PO Box 4900 Dept 356 Scotsdale, Arizona 85261

WELL LOCATION: Honeywell SA-6 North

Address: Kellogg St. & St. Hwy 440

County: Hudson Municipality: Jersey City Lot: 5, 9, 10 Block: 21901

Easting (X): 602450 Northing (Y): 685850
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL DECOMMISSIONED: March 7, 2016

WELL USE: VIBRATING WIRE PIEZOMETER/SITEWIDE

Other Use(s):

Local ID: VWP-1

Reason for Decommissioning: No longer in use

Finished Well Depth (ft.): 80

Was a New Well Drilled? N

Formation Type: Unconsolidated

New Well Permit Number:

WELL DECOMMISSIONING INFORMATION

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole					
Casing	0	80	1	PVC	sch 40
Screen					

MATERIALS USED

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	80	1	0	0	36	2
Sand/Gravel							

ADDITIONAL INFORMATION

Obstructions: No

Authorization Official:

Obstruction Type:

Authorization Number:

Alternative Decomm. Method? No

Authorization Date:

Method Used

ATTACHMENTS:

Warren Blewett
JOURNEYMAN
Sealing Driller: LICENSE # 0014578

B & B DRILLING INC
BOX 8 RT 206
Company: Netcong (Morris), NJ 07857

APPENDIX Q

CAP COMPONENTS QUALITY CONTROL TESTING REPORTS (CD ONLY)

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Excellence
Practical Experience
Client Responsiveness

Cap Geosynthetic Quality Assurance (QA) Report

Honeywell SA-6 North

SA-6 North
Jersey City, New Jersey
Project Number: 100530001

December 2016

Honeywell

Cap Geosynthetic Quality Assurance (QA) Report (SA-6 North)

for

SA-6 North
Jersey City, New Jersey

Prepared For:

Honeywell International, Inc.
115 Tabor Road
Morris Plains, New Jersey 07950

Prepared By:

Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054

December 2016

Langan Project No. 100530001

LANGAN

CAP GEOSYNTHETIC QUALITY ASSURANCE (QA) REPORT for SA-6 North

Prepared By:
Langan Engineering & Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054

Dan Bosworth
Senior Staff Engineer

Jeffrey Stoicescu, P.E.
Associate
New Jersey Professional Engineer License No. 24GE04504400

LANGAN

ENGINEER'S CONSTRUCTION CERTIFICATION

I certify that the placement of the SA-6 North geosynthetics witnessed by myself, and / or a person under my direct supervision, was completed in compliance with the design documents.

Print Name: Jeffrey Stoicescu, P.E. Title: Senior Associate

Signature: Date: 12/13/16

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LIST OF ACRONYMS

AO – Add-On
AOC – Area of Concern
BO – Burnout
CF – Custom Fit Repairs
CQA – Construction Quality Assurance
DCB – Design Change Bulletin
DO – Damage By Others
DS – Destruct Sample (Fusion)
DSX – Destruct Sample (Extrusion)
EOR – Engineer of Record
EPA – Environmental Protection Agency
FS – Failed Seam
FTB – Film Tearing Bond
GCL – Geosynthetic Clay Liner
GDL – Geocomposite Drainage Layer
GVL – Geocomposite Venting Layer
HB – Hydraulic Barrier
IFC – Issued for Construction
LF – Linear Feet
LLDPE – Linear Low-Density Polyethylene
PB – Pipe Boot
PSI – Pounds per Square Inch
RCRA – Resource Conservation & Recovery Act
RFI – Request for Information
RAR – Remedial Action Report
RIR – Receiving Inspection Report
RP - Repair
SA-6 – Study Area 6
SCB – Soil Cement Bentonite
SI – Subgrade Irregularity
SJ – Seam Joint
QA - Quality Assurance
QA Report – Cap Geosynthetic Quality Assurance Report
QC – Quality Control
WR - Wrinkle

1.0 INTRODUCTION

The purpose of this Cap Geosynthetic Quality Assurance Report (QA Report) is to present the observations made, and data collected during the construction of an engineered cap placed within the Study Area 6 (SA-6) North Open Space Area of Concern (AOC) located in Jersey City, New Jersey (site). The capping activities at SA-6 North included the preparation of the soil subgrade, placement of geocomposite venting layer (GVL), geosynthetic clay liner (GCL), linear low-density polyethylene (LLDPE) geomembrane, and a geocomposite drainage layer (GDL). Langan Engineering & Environmental Services, Inc. (Langan) was contracted by Honeywell International, Inc. (Honeywell) to provide independent Quality Assurance (QA) for the installation of the geosynthetic components of the cap.

The Chromium Remedy *100% Design* Issued for Construction dated June 2013, (*100% Design*) was prepared by AMEC Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) on behalf of Honeywell, to address chromium contamination at SA-6 North. The *100% Design* required installation of a Resource Conservation and Recovery Act (RCRA) – equivalent geosynthetic cap system, including a venting layer for naturally occurring methane, covering approximately ten acres of the designated Open Space AOC. As part of this QA Report, the Record Drawings, which outline the placement and construction of the various geosynthetic components of the cap, have been provided as *Appendix A*. Other design details discussed herein, including the Issued for Construction (IFC) drawings, geosynthetics specifications, and geosynthetic products approved for this site are incorporated by reference only. Refer to Amec Foster Wheeler documents titled "*100% Design*," dated June 2013, and "*Remedial Action Report (RAR) for Chromium*" for these details. Additionally, the Construction Quality Assurance Plan (CQA) Plan prepared by Langan in June 2015 was previously submitted as part of the April 2016 SA-6 South QA Report (*Cap Geosynthetic Quality Assurance (QA) Report – Honeywell SA-6 South)* and is incorporated by reference only. The CQA Plan also outlines the details of the scope conducted by Langan, as well as the roles and responsibilities of the owner, Engineer of Record (EOR), earthwork contractor, and liner contractor.

This QA Report documents the results of the QA Geosynthetic activities conducted during the construction of the cap at SA-6 North by both Langan and Amec Foster Wheeler field personnel. Design Change Bulletins (DCBs) and Requests for Information (RFIs) which were generated subsequent to the *100% Design*, and relevant to the QA scope were reviewed and approved by the EOR, and are further summarized in Amec Foster Wheeler's EOR Closure Report.

This QA Report specifically includes the following documentation of the cap construction activities:

- The Record Drawings;
- Summary of the various phases of the work observed as part of this QA Report;
- Daily Reports summarizing the work activities completed each day and other pertinent information;
- Daily cap construction forms submitted by the Geosynthetic Installer which includes: Repair Reports, Trial Weld Logs, Panel Placement Forms, Seam Control Forms, Destructive & Non-Destructive Test Forms, and Subgrade Approval Forms;

- Field testing results for fusion welds and extrusion welds;
- Laboratory testing results for the destructive samples collected (i.e., fusion & extrusion welds);
- Photographs depicting daily work activities and various phases of the capping activities; and
- Independent QA's certification that the placement of the SA-6 North geosynthetics was implemented in general compliance with the design documents.

This QA Report addresses the cap construction of SA-6 North only. The cap construction at SA-6 South was previously completed in November 2015 and was summarized in the *Cap Geosynthetic Quality Assurance (QA) Report – Honeywell SA-6 South* submitted to Honeywell in April 2016.

2.0 SA-6 NORTH CAP CONSTRUCTION AND DOCUMENTATION

2.1 General

This Section describes the construction methods implemented and the Quality Control (QC) and QA documentation completed as part of the construction of SA-6 North. This Section also provides the results of the QC and QA testing that was performed during field activities by Langan (QA Engineer), Environmental Specialties International (ESI) as the Geosynthetic Installer, and Entact, LLC (Entact) as the Construction Contractor and QC Supervisor.

QA activities commenced on June 21, 2016, with Langan conducting observation of the soil subgrade preparation for the western end of SA-6 North (near the Hackensack River). Geocomposite / geotextile placement began on June 22, 2016 and continued until capping activities were completed on August 15, 2016. Relevant observations and QA/QC testing during this timeframe are defined further in this section. A project Certificate of Completion (completed and verified by Entact) certifying that the SA-6 North cap has been constructed and completed in compliance with the project drawings and technical specifications is attached as *Appendix B*.

2.2 Survey Control / Subgrade Elevations

Entact subcontracted Maser Consulting, P.A. (Maser), a licensed New Jersey land surveyor, who provided surveying services during the construction of the cap. Maser completed surveying of the cap from the initial subgrade preparation phases to the placement of the geomembrane. Maser surveyed the subgrade elevations of the cap prior to material placement and tabulated the survey results as compared to the design elevations on the construction control grid. These survey activities included:

1. Measurement of elevations of the subgrade surface in accordance with a pre-determined Construction Control Grid. Conformance to the design lines and grades was verified by Amec Foster Wheeler and Entact by comparing the actual elevations with the design elevations on the Construction Control Grid. The accepted subgrade elevations, and corresponding Construction Control Grid for SA-6 North are provided within *Appendix C1* and *Appendix C2*, respectively.

2. Measurement of the as-built conditions including the perimeter or termination of the geomembrane and geotextile over the hydraulic barrier (HB), and Soil Cement Bentonite (SCB) wall, as well as, the location of the geomembrane repairs, boots / penetrations, and other pertinent information related to the construction of the cap.
3. The subgrade surface was observed to verify uniformity of grade between the construction control grid points.

This survey information is shown on the final Record Drawings attached in *Appendix A.* Amec Foster Wheeler provided QA review and verification of the Maser survey data.

2.3 Soil Subgrade Preparation

Soil subgrade preparation was required prior to the placement of the geotextile and the geomembrane in the areas to be capped. Soil subgrade preparation for the cap was completed by Entact using the following procedures:

- Step 1: Entact conducted rough grading of the subgrade surfaces with the use of track-mounted dozers to prepare the appropriate grades and to clear the surface of large objects (i.e. rocks, metals, debris, etc.);
- Step 2: The subgrade surface was fine-graded and compacted in accordance with the project specifications presented in the *100% Design* package. Subgrade sections not meeting survey or compaction requirements were re-worked by Entact until specified conditions were achieved. At the conclusion of this step, Entact provided a certification that the surface met the grading and compaction requirements. The certifications included the Construction Control Grid tabulation prepared by Maser (as defined in *Section 2.2*) and issuance of a Certificate of Subgrade Surface Acceptance as defined in further detail below;
- Step 3: When precipitation was forecast, the prepared subgrade surface was temporarily covered with a polyethylene plastic sheet to protect the soil from overnight precipitation; and
- Step 4: The subgrade surface would be prepared in approximate 100 ft. sections (moving from west to east across SA-6), followed by extra fine grading conducted by laborers who cleared the surface of extraneous materials greater than ½-inch in diameter, followed by repair and re-compaction of any areas that became inadvertently wetted.

Entact and ESI also conducted their own observation of the subgrade surface to confirm if the surface was acceptable for the placement of the geosynthetic material. Upon notification by Entact that the grading was acceptable, Langan conducted an independent observation to identify that the subgrade was prepared in general accordance with the *100% Design*. As part of the observation activities, the Langan field engineer walked the subgrade in approximate 8 ft. by 200 ft. to 300 ft. (width of SA-6 North from north to south) transects to observe soil compaction, as well as items requiring removal (>1/2") prior to panel placement.

If the soil subgrade surface was deemed acceptable with no additional re-work required, the Langan QA and Entact QC representative signed and submitted an acceptance form for the approved subgrade. The daily QA subgrade approval forms are provided in *Appendix D*, with the ESI Certificate of Subgrade Surface Acceptance forms provided in *Appendix D1*, and the Langan Certificate of Soil Surface provided in *Appendix D2.* In the event the subgrade surface was not deemed acceptable, Steps 2, 3, and 4 outlined above were repeated until an acceptable subgrade surface was achieved (based on conditions outlined in the Langan Certificate of Soil Surface forms) and confirmed by Langan and Entact.

Figure 1 below shows a typical section of subgrade approved for geomembrane placement. Additional photos and summaries of the subgrade preparation activities conducted each day are presented in the Daily Reports and Daily Photo Logs provided in *Appendix E.*

Figure 1 – Typical Soil Subgrade Approved for Geomembrane Placement

2.4 SA-6 North Cap Components

2.4.1 Geotextiles

The geotextile materials installed at SA-6 North were previously delivered to the site in 2015 during the installation of the cap at SA-6 South. The corresponding Receiving Inspection Reports (RIRs) prepared by Amec Foster Wheeler documenting receipt of the geotextile material were outlined in the *Cap Geosynthetic Quality Assurance (QA) Report – Honeywell SA-6 South (SA-6 South QA Report)* submitted in April 2016. As such the RIRs are incorporated in this report as reference only. Additional details on the delivery, handling, and storage of the geotextile material is outlined in the *SA-6 South QA Report*.

Following approval of the subgrade surface at the various sections of the work area, a 16 oz. geotextile layer was placed over the HB and SCB barrier walls around the perimeter of the

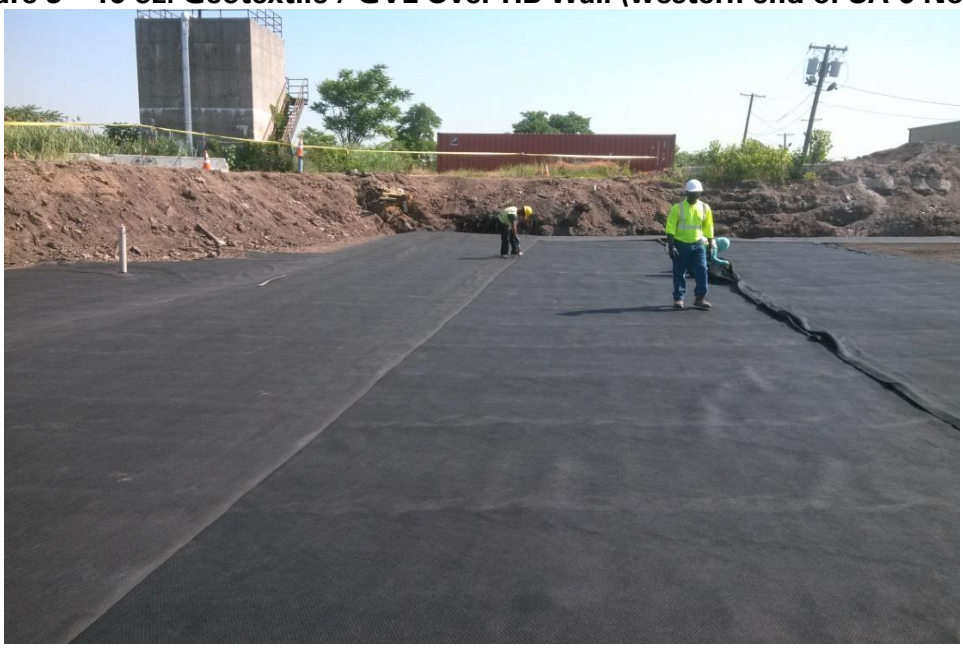
capped area. According to the *100% Design* package, this geotextile layer was designed to protect the 60-mil LLDPE geomembrane from potential puncture damage from the perimeter barriers / walls. The approved 16 oz. non-woven geotextile fabric layer consisted of SKAPS GE-116 (further defined in Amec Foster Wheeler's *EOR Closure Report).*

The 16 oz. geotextile was installed by ESI at locations shown on the Record Drawings (*Appendix A2*). Geotextile was placed along the boundaries of SA-6 North over the HB and SCB wall located along the northern, southern, eastern and western boundaries of the cap. The 15 ft. wide geotextile panels were placed with approximately 14 ft. of the geotextile panel inbound of the perimeter of the HB and SCB walls and with 1 ft. of the geotextile panel extending outbound of the perimeter containment walls. This geotextile was installed in areas where the GVL was placed. For areas where the GCL was installed, the GCL overlapped the HB/SCB wall as shown in *Appendix A2*.

Geotextile panels were overlapped at least 12-inches and seamed using a dual hot wedge welder that melted the two surfaces together to form a bond (also referred to as leistering). The 16 oz. geotextile was placed along the boundary areas of SA-6 North at locations above the Site water table (i.e. locations where geosynthetic clay liner was not required). The geotextile (on the interior of the Cap) overlapped the geocomposite venting layer and was leistered in place following the procedure outlined above. *Figure 2* below shows the 16 oz. geotextile being placed over the SCB wall (southern end of SA-6 North cap), and *Figure 3* shows the geotextile overlapping the GVL Note, the GVL rolls were placed in a general north to south direction across SA-6, while the 16 oz. geotextile rolls were placed in a general east to west direction.

Figure 2 – 16 oz. Geotextile Placed Over SCB Wall (southern end of SA-6 North)

Figure 3 – 16 oz. Geotextile / GVL Over HB Wall (western end of SA-6 North)



2.4.2 Geocomposite Venting Layer (GVL)

Prior to placement of the 60-mil LLDPE geomembrane, GVL was placed over the soil subgrade at locations above the water table to serve as a venting layer for naturally occurring methane that may emanate from below the cap.

The approved GVL (i.e., defined as SKAPS TN-220-2-6 in Amec Foster Wheeler's *EOR Closure Report* consisted of an extruded polyethylene drainage net structure (or geonet) sandwiched between two non-woven geotextile layers. The GVL was placed by ESI, over the approved soil subgrade for areas above the Site water table at locations shown on the Record Drawings (*Appendix A1*).

The GVL rolls were typically oriented in a north to south direction. The leading edge of the GVL panels was held in place by sand bags until the subsequent panels could be placed and seamed. The placement strategy for this material was to limit the amount of GVL to be placed in a day, to an area that could also be covered by the LLDPE geomembrane that same day. This strategy was used to minimize the risk of the GVL and underlying subgrade from becoming wet during overnight rain events. GVL panels were not placed during precipitation events, in the presence of excessive moisture, or during high winds.

GVL panels were placed according to Section 02380 – Gas Venting System as defined in *100% Design* package. GVL was generally placed with the predominant flow direction towards the edge of the cap with GVL panels running parallel to any slopes or elevation changes (i.e. running up/down the slope and not across the slope). For adjacent GVL panels, the following minimum seaming requirements were met:

- Adjacent rolls of GVL were placed so that the geonet overlapped by 2 to 3-inches, and the geotextiles overlapped by at least 4-inches;
- The bottom layer of geotextile (underneath the geonet) was overlapped to ensure that no areas of the soil subgrade were exposed;
- White plastic fasteners were placed at a maximum of every 5 ft. along the seam to connect adjacent pieces of the GVL panels. Additional fasteners were requested by the QA team when the seams extended down slopes or at significant subgrade elevation changes. *Figure 4* below shows placement of the white plastic fasteners; and
- Once the geonet was tied with a sufficient number of fasteners, the top geotextile of the GVL panel was continuously sewn as shown in *Figure 5* below.

Figure 4 – Typical Placement of GVL & Joining of the Net with Plastic Fasteners

Figure 5 – Typical Sewing of GVL (for top layer of geotextile)

During placement of the GVL, butt seams, rips, tears, or other damaged areas of the GVL were repaired by exposing an appropriate area of geonet, placing fasteners as defined in the project specifications, and covering the area with a new piece of geotextile which was leistered in-place. Additional details of the GVL placement are further described in the Langan Daily Reports and Photo Logs provided in *Appendix E*.

2.4.3 Geosynthetic Clay Liner (GCL)

The approved GCL consisted of granular sodium bentonite clay sandwiched between, supported, and encapsulated by two geotextiles, and held together by needled punching. The approved GCL consisted of Cetco Bentomat DN (as further defined in Amec Foster Wheeler's EOR Closure Report.

The approved GCL was deployed by ESI in accordance with Section 02375 – Geosynthetic Clay Liner as defined in the *100% Design* package. GCL was placed directly over the approved soil subgrade, at locations situated below (to 1 ft. above) the site water table. GCL was generally placed along the eastern end of SA-6 North (northern and eastern side of the cap), as the east end of the site was constructed at a lower elevation than the west end. The location of the GCL placement is also shown on the Record Drawings (*Appendix A1*).

During placement of the GCL, granular bentonite was placed along the GCL seams as outlined in the project specifications and shown on *Figure 6* below. No GCL was placed during precipitation, in the presence of excessive moisture, or during high winds.

Figure 6 – ESI Placing Granular Bentonite along GCL Seams

Additional details on the placement of the GCL are further described in the Langan Daily Reports and supporting photo logs provided in *Appendix E*.

2.4.3.1 Bentonite Sand Plug

As outlined in specification Section 02375 – Geosynthetic Clay Liner of the *100% Design* package, a sand bentonite plug was constructed on the inboard side of the HB wall for wall sections below Elevation 7 (below the site groundwater table) along the edges of SA-6 North. This bentonite sand plug was constructed in the field by Entact by mixing clean sand with sodium montmorillonite at a 90% sand to 10% bentonite ratio.

The plug was constructed to a depth of approximately 18-inches below the HB wall elevation, and was approximately 2 ft. wide. Additional details on the edge connection details are provided below in *Section 2.4.3.2*.

2.4.3.2 GCL to Barrier Wall Connection Details

GCL to Barrier Wall Logs are provided within *Appendix F*. As per the approved Langan CQA Plan, Amec Foster Wheeler completed a GCL to Barrier Wall (HB Wall & SCB) Connection Detail form for the low-lying areas of SA-6 North (below the Site water table). This form documented that the bentonite sand plug was appropriately constructed, that the barrier wall was clean and exposed, and that the appropriate GCL overlap (1 ft. minimum) was maintained.

2.4.4 60-mil Low Linear Density Polyethylene (LLDPE) Geomembrane

A textured LLDPE geomembrane manufactured to a nominal 60-mil thickness was placed over the 16 oz geotextile (installed over the HB/SCB wall), GVL and GCL layers at the Site to mitigate groundwater infiltration through the cap. The 60-mil LLDPE geomembrane was placed directly over the GVL and GCL geotextiles. The 60-mil geomembrane was placed in accordance with specification Section 02372 – Cap Geomembrane Liner as defined in the *100% Design* Package. The location and placement of the LLDPE panels is documented on the ESI Panel Placement Logs provided in *Appendix G*.

ESI deployed the geomembrane rolls in a general north to south orientation. Hand clamps were used on the edge of the panels to aid in the final positioning, as required. The leading edge of the LLDPE geomembrane panels were held in place by sand bags until the subsequent panels could be placed and seamed via fusion welding methodology. The number of panels deployed in a single day was limited to the amount that could be field seamed that same day. No panels were placed during precipitation, in the presence of excessive moisture in the subgrade, or during high winds. The minimum ambient temperature for seaming was specified as 32°F, with a maximum ambient temperature of 104°F. No cold or hot weather seaming was conducted as temperatures did not reach below 32°F, or above 104°F during geomembrane installation.

Each individual LLDPE panel was observed for damage by ESI, Entact, and Langan during the installation process. Prior to seaming, the approved geomembrane was observed by Langan to evaluate that the material for defects or damage prior to seaming. Areas observed to be damaged / defective, or areas where the geomembrane had to be custom cut to conform to the subgrade contours, were marked for repair. Repairs were completed in the field by ESI via patching and welding the geomembrane as further described below. All repairs were

documented and recorded on the Record Drawings (*Appendix A2*). Additional details on the repair methodology and types of repairs are further described in *Section 2.4.4.4*.
The LLDPE geomembrane was seamed in the field by one of two welding methods: extrusion and double-fusion. Extrusion welding was used for repairs, short seams, and areas where the double fusion could not operate. Extrusion welding was performed with a hand held extrusion welding gun. The double-fusion seaming (fusion welding) was performed using a self-propelled "wedge welder" which formed an air channel between the two seams. Fusion welding was performed with a minimum of 4-inches overlap as per the project specifications.

The integrity of the welds was monitored by both destructive and non-destructive test methods. The destructive testing consisted of the collection of samples from the completed seams at a minimum frequency of one sample per 500 ft. of weld (for both fusion and extrusion welds) for the first twenty-five (25) samples collected. Based on the results of the first 25 samples, the sampling frequency may be modified as outlined in *Section 2.4.4.3.* A representative of Langan was onsite to confirm the locations of the destructive samples along with a representative of ESI.

The destructive samples were analyzed by Geotechnics, Inc. (Geotechnics) the Contractor's Material Quality Control Laboratory. Langan also collected additional QA samples (approximate 15% of total samples collected) and submitted samples to TRI Environmental, Inc. (TRI) for independent QA testing. Destructive sample locations were repaired in the field and confirmed with vacuum box testing. All destructive sample locations have been recorded and are shown on the Record Drawings (*Appendix A2*). The laboratory results of the destruct samples are discussed further in *Section 2.4.4.3* below.

In addition to the destructive testing, non-destructive testing was completed by ESI during cap construction. Two types of non-destructive tests were used at the Site: air channel tests (pressure tests) and vacuum box tests as defined further below. In addition for all pipe boot / penetrations, spark testing was also completed at the base of the boot and vertical weld (areas not accessible for vacuum box testing) to confirm the integrity of the extrusion weld:

1. Pressure Testing - The pressure tests were conducted on 100% of all the double fusion welded seams where both ends of the seam were clamped and sealed and a pressure needle was inserted into the air channel. The air channel was then pressurized to thirty pounds per square inch (psi) and the pressure was maintained for a minimum of five minutes. If the pressure did not stabilize, or a pressure drop greater than four psi was noted over a five minute span, then the seam was deemed unacceptable and the faulty area was isolated and repaired. Results of the non-destructive testing are discussed further in *Section 2.4.4.2* below.
2. Vacuum Box Testing - For patch / repair work and other areas where extrusion welding was required, the extrusion welds were vacuum box tested by ESI. A soapy solution was applied to the weld area, and a vacuum box was placed over the weld for a minimum of ten seconds and observed for the appearance of soap bubbles. No failed vacuum box tests were encountered during the extrusion weld testing for SA-6 North.

3. Spark Testing – Spark testing was conducted for the vertical weld on the "sleeve" and horizontal weld on the "skirt" (base of boot) weld for the pipe boot / penetrations at the

site. This included piezometers, gas vents, monitoring wells, injection wells, and access manholes. The spark test strategy included installing a copper wire under the extrusion weld, and applying a charged probe to complete the circuit when testing. If any deficiencies were present in the weld, the probe and wire would arc, thus causing a visible spark to identify the location. Individual forms were generated to document the installation of each boot / penetration. Additional details on the pipes / penetrations encountered, as well as the spark testing details, are further described in *Section 2.4.4.5 and Section 2.4.4.5.1*, respectively.

For additional details on the geomembrane placement, destructive and non-destructive testing, patch / repair work, and other geomembrane related construction activities, refer to the Langan Daily Reports and Photo Logs provided in *Appendix E*.

2.4.4.1 Trial Weld Logs

Prior to any seaming of the geomembrane each day, the fusion and/or extrusion welding equipment was used to conduct trial welds (or test strips) to confirm that the material and equipment met the specification requirements. Test strips were collected (using the same 60 mil LLDPE geomembrane placed across the cap) by completing a sample fusion or extrusion weld. This activity included producing several types of seams to qualify that a specific seamer and apparatus would yield the desired specified performance requirements. These seam types included: smooth-to-smooth, smooth-to-texture, and texture-to-texture. It should be noted that the 60 mil geomembrane installed across the cap was textured (60-mil Microspike); however, the manufacturer's product has a smooth edge for welding.

The trial welds were cut and tested on a portable tensiometer by ESI. Langan and Entact observed the trial weld tests to confirm that the minimum peel and shear values were obtained as per specification Section 02372 – Cap Geomembrane Liner defined in the *100% Design* package. These trial welds were completed prior to commencement of seaming at the start of each day, and once every four hours. The results of daily trial weld logs are provided in *Appendix H*.

2.4.4.2 Non-Destructive Testing Results

Non-Destructive Pressure Testing (i.e., using vacuum box testing) was conducted along the geomembrane panels, and the repaired / patched areas by ESI, as per the project specifications. The results of the non-destructive testing for each of the panel seams are provided in the Seam Control Log shown in *Appendix I*. Additionally, the associated repairs and the corresponding vacuum box testing results are presented in the ESI Repair Report attached in *Appendix J*.

During the construction of the cap at SA-6 North, there were no observed non-destructive test failures during the field testing. All vacuum box and pressure tests were in compliance with Section 02372 – Cap Geomembrane Liner.

2.4.4.3 Destructive Testing Results

Destructive testing was conducted for the fusion and extrusion welding that was completed along the edge of the geomembrane panels. Destruct samples were collected at a minimum sampling interval of 500 linear feet (LF) of seaming length for the initial twenty-six (26) samples. The locations of the destruct samples were identified in the field by the Independent QA Engineer (Langan) and are shown on the Record Drawings (*Appendix A2*). Once the destruct sample locations were determined, ESI cut and tested the destruct samples (as per the project specifications).

A total of ten (10) 1-inch wide specimens were cut from the destruct sample for field testing. These samples were then tested by a tensiometer equipped with a drive/pull apparatus rate of 20-inches per minute. Five of the specimens were tested for peel strength, and the remaining five for shear strength. The samples were tested to confirm that the geomembrane met the specified peel and shear strength values outlined in *Table 1* below. Additional details on the test results are provided on the Destructive Sample Information Log attached as *Appendix K*.

Table 1 – LLDPE Geomembrane Seam Property Requirements

Property	Test Method	60-mil LLDPE Value
Shear Strength (min. avg.)	ASTM D 6392	90 lb/in
Peel Strength – Extrusion (min. avg.)	ASTM D 6392	66 lb/in
Peel Strength – Fusion (min. avg.)	ASTM D 6392	75 lb/in

In addition to the field testing completed by ESI, thirty-six (36) fusion weld destruct samples, and seventeen (17) extrusion weld samples were sent to Geotechnics for lab verification.

A total of thirty-six (36) fusion weld destruct samples (DS-1 through DS-36) were collected during the capping of SA-6 North. The first 26 fusion weld destruct samples were collected every 500 LF and all samples met the specified destructive testing requirements outlined in *Table 1* with the exception of sample DS-26 as defined in further detail below. As per the specification, the frequency of fusion weld destruct sampling was reduced from every 500 LF of welded seam to every 1,500 LF of welded seam; however, additional destruct samples were collected (at approximately 500 LF to 600 LF) immediately after sample location DS-26 to confirm that they met the specification requirements. A summary of the peel and shear QA testing conducted for the 36 fusion weld samples collected is summarized in *Appendix L*.

As shown in the fusion weld destruct sample summary, destruct sample DS-26 was reported as EPA Break Classification Code "AD BRK". Although the specimen met the required peel and strength parameters, since the coupons broke at the weld and was not considered a film tearing bond (FTB), the sample was reported as a failed test. As such, additional samples were cut at approximately 10 ft. on either side of DS-26 (DS-26A and DS-26B). Both samples were field tested and the peel and shear criteria were achieved. Additionally, the sample that exhibited the lower peel and shear values (DS-26A) was sent for confirmatory laboratory analysis. The analytical results for sample DS-26A confirmed that the sample met the minimum peel and shear strength values. Additional details on this non-compliance issue are described in further detail in *Section 2.4.6*.

A total of 17 extrusion destruct samples were collected throughout the capping of SA-6 North. *Table 2* below summarizes the results of the extrusion weld destruct samples collected and corresponding laboratory data, peel and shear averages, and compliance with specification Section 02372 – Cap Geomembrane Liner outlined in the *100% Design* package.

Table 2 – Summary of ESI / Langan QA Testing - Extrusion Weld Data

Honeywell SA-6 Capping										
Comparison of ESI / Langan (QA) Destruct Samples - Extrusion Welds										
Sample ID	***Weld Type***	***Submitted By:***	***Test***	***Peel Strength (ppi)***					**Avg. Strength (ppi)**	***Meets Spec Requirement***
DSX-1	Extrusion	Langan	Peel	134	142	137	136	136	**137**	**Yes**
DSX-1		Entact	Peel	140.9	139.6	140.3	138.5	138.5	**139.6**	**Yes**
DSX-1		Langan	Shear	127	130	128	124	126	**127**	**Yes**
DSX-1		Entact	Shear	136.5	137.1	137.1	134.8	134.8	**136.1**	**Yes**
DSX-2	Extrusion	Entact	Peel	128.1	125.7	128.2	126.1	128.5	**127.3**	**Yes**
			Shear	136.2	131.8	132.6	136.1	134.8	**134.3**	**Yes**
DSX-3	Extrusion	Entact	Peel	124.6	124.1	125.2	129.4	125.5	**125.8**	**Yes**
			Shear	128.5	128.9	133.8	127.2	127.8	**129.2**	**Yes**
DSX-4	Extrusion	Entact	Peel	105.1	114	109.8	114.8	112	**111.1**	**Yes**
			Shear	132.5	129.3	136.2	129.2	131	**131.6**	**Yes**
DSX-5	Extrusion	Entact	Peel	120.6	118.6	119.8	118.8	122.8	**120.1**	**Yes**
			Shear	122.3	131.8	120.3	121.7	129.5	**125.1**	**Yes**
DSX-6	Extrusion	Entact	Peel	110.4	117.4	125.7	122.8	120.6	**119.4**	**Yes**
			Shear	127.7	126.1	127.5	127.4	131.5	**128.0**	**Yes**
DSX-7	Extrusion	Entact	Peel	123.4	113.7	115.5	119.5	110.2	**116.5**	**Yes**
			Shear	123.8	127.3	125.5	126.1	122.9	**125.1**	**Yes**
DSX-8	Extrusion	Entact	Peel	93.5	113.2	123.2	102	108.6	**108.1**	**Yes**
			Shear	137.8	141	136.9	135.5	137	**137.6**	**Yes**
DSX-9	Extrusion	Entact	Peel	125.4	129.2	126	122.2	128.9	**126.3**	**Yes**
			Shear	139.5	139.8	145.3	139.6	140.4	**140.9**	**Yes**
DSX-10	Extrusion	Entact	Peel	121.2	118.9	118.5	119.6	113.9	**118.4**	**Yes**
			Shear	124.1	121.4	125.8	122.7	126.1	**124.0**	**Yes**
DSX-11	Extrusion	Entact	Peel	108.7	109.9	110.7	109.4	116.9	**111.1**	**Yes**
			Shear	118.4	118.3	119.5	120.3	124.5	**120.2**	**Yes**
DSX-12	Extrusion	Entact	Peel	102.2	112.6	123.2	118.7	123.8	**116.1**	**No**
			Shear	135.2	134.2	136.6	127.5	134.6	**133.6**	**Yes**
DSX-13	Extrusion	Langan	Peel	140	139	138	155	138	**142**	**Yes**
		Entact	Peel	114.6	112.6	114.7	110.3	112.8	**113.0**	**Yes**
		Langan	Shear	147	149	155	157	151	**152**	**Yes**
		Entact	Shear	115.5	116.8	114.2	114	118.7	**115.8**	**Yes**
DSX-14	Extrusion	Entact	Peel	112.5	111	110.6	113.4	111	**111.7**	**Yes**
			Shear	111.9	113.4	111.5	112	114.6	**112.7**	**Yes**
DSX-15	Extrusion	Entact	Peel	120.7	123	106.2	127.4	121	**119.7**	**Yes**
			Shear	132.2	136	132.7	132	132.1	**133.0**	**Yes**
DSX-16	Extrusion	Entact	Peel	129	127.4	125	125.7	130.7	**127.6**	**Yes**
			Shear	130.3	127.1	129.2	133	133.9	**130.7**	**Yes**
DSX-17	Extrusion	Langan	Peel	118	119	118	119	123	**119**	**Yes**
		Entact	Peel	124	118.5	120.5	126	125	**122.8**	**Yes**
		Langan	Shear	133	130	132	129	130	**131**	**Yes**
		Entact	Shear	129.9	129	129.8	129.2	134	**130.4**	**Yes**

Extrusion weld destruct samples were collected at every 500 LF of weld and as shown on *Table 2*, all extrusion weld samples were in compliance with the project specifications.

In addition, Langan collected a total of six (6) QA samples (4 fusion weld samples and 2 extrusion weld samples) to verify the results of the Geosynthetic Installer's laboratory data. Langan's QA samples were submitted to Texas Research Institute Environmental, Inc. (TRI). The results of the ESI and Langan destruct samples indicated that the peel and shear strength values met the requirements outlined in the project specifications. Furthermore, the additional QA samples collected by Langan yielded values that were in close proximity to the values obtained by ESI (which were generally lower than the values obtained by Langan's QA laboratory). The Laboratory Destruct Test Results are provided in *Appendix L*.

2.4.4.4 Repair Reports

Several different types of repairs were observed and recorded during field activities by ESI. These corresponding repairs are documented in the ESI Repair Report provided in *Appendix J* and depicted on the Record Drawings (*Appendix A2*), and consisted of the following types of repairs:

- Custom Fit Repairs (CF) – Custom Fit Repairs consisted of areas of the geomembrane cap where the geomembrane was cut (and subsequently repaired) to allow the geomembrane to conform to the cap contours. These areas were typically located where there were abrupt elevation changes, such as drainage and utility swales, utility corridors, and planting areas;
- Wrinkles (WR) – Wrinkles consisted of areas where excess geomembrane was observed. Where the size of the wrinkle was determined to be detrimental to the geomembrane (i.e. wrinkles with the potential for folding), the wrinkle was cut, and the excess geomembrane was overlapped and sealed with an extrusion weld in accordance with the project specifications;
- Burnouts (BO) –Wedge burnouts occurred where the wedge became jammed thus causing the welder to burn / melt through the geomembrane seam. These areas were subsequently patched and repaired according to the project specifications;
- Destruct Samples (DS & DSX) – These areas consisted of the geomembrane destruct samples that were cut for laboratory testing. The removal of the sample creates a hole in the seam, thus these areas were subsequently patched according to the project specifications;
- Pipe Boots (PB) – Pipe boots were installed where penetrations of the geomembrane occurred such as at monitoring wells, injection wells, piezometers, gas vents, and access manholes. Additional details regarding the pipe boot construction are provided in *Section 2.4.4.5;*
- Add On (AO) – AO areas consisted of sections of SA-6 North where an additional piece of geomembrane was required to finish a geomembrane run across the cap (from north to south);

- Seam Joints (SJ) – Seam joints consisted of the areas where non-destructive testing (pressure testing) was conducted along a "T" section of the geomembrane;
- Subgrade Irregularities (SI) – Subgrade Irregularities consisted of areas along the geomembrane cap where a rock or object larger than ½-inch in diameter was encountered underneath the geomembrane after the material had been placed. These areas were subsequently cut, the rock/debris removed, and the area patched / repaired according to the project specifications. These SIs were identified as non-compliance issues and are discussed in further detail in *Section 2.4.6* below;
- Damage By Others (DO) – DO areas consisted of a deficiency or cut in the LLDPE geomembrane that required repair. This also included the grounding rod puncture through the LLDPE geomembrane that occurred by an outside contractor after the LLDPE had already been covered with the protective cover soil. This incident was identified as a DO instance and was also considered a non-compliance issue which is discussed in further detail in *Section 2.4.6* below.

Additional details on the geomembrane repairs are provided in *Appendix J* and the non-compliance issues observed during field activities are summarized within *Appendix M*.

2.4.4.5 Geomembrane Penetrations & Pipe Boot Installation

The geomembrane penetration and pipe boot logs are provided in *Appendix N*. The pipe boots were field fabricated by ESI, and the boots were installed at monitoring wells, injection wells, gas vents, piezometers, and access manhole penetrations across the cap.

The geomembrane boots consisted of a vertical (minimum of 2 ft.) section of LLDPE being wrapped around the penetration (i.e. well, gas vent, etc.) from the base to the top of the penetration. Prior to welding, the joints for the pipe boots covering the penetration were equipped with a copper wire to facilitate spark testing as discussed in further detail in *Section 2.4.4.5.1* below. The geomebrane wrap was then heat sealed and an extrusion weld was placed with a vertical seam connecting the two pieces of geomembrane. The end of the boot terminated in a skirt section which was placed over the boot. The skirt and the geomembrane overlapped a minimum of 18-inches and the skirt was welded to the geomembrane.

A neoprene rubber gasket was used between the boot and the penetration and secured with a 1-inch wide stainless steel clamp (or two ½-inch clamps). An LLDPE sacrificial sheet was then placed between the boot and the clamp for protection and a butyl sealant was applied along the top of the boot. *Figure 7* below shows the typical construction of a geomembrane pipe boot in the field by ESI. The welding of each boot was observed by Langan, and each boot fabrication was documented on an individual boot fabrication form provided in *Appendix N*. The seven (7) typical types of penetrations present on the SA-6 North cap are defined below.

Figure 7 – Typical Geomembrane Pipe Boot Construction

Monitoring Wells

A total of four (4) monitoring wells were located within the SA-6 North cap. The monitoring wells were constructed with PVC and were encased within a minimum 4-inch metal casing. Refer to *Appendix N* for the penetration and boot logs for monitoring wells: 115-W1-SO, 115-W6-SO, 115-E4-SO, and 115-E5-SO.

Injection Wells

A total of three (3) injection wells were located within the boundaries of the SA-6 North cap. The injection wells were constructed with PVC and were encased within minimum 4-inch metal casing. Additional details are provided in Appendix N for injection wells 088-IW-01, 088-IW-02, and 088-IW-03 as well as the Record Drawings (*Appendix A2*).

Gas Vents

A total of six (6) gas vents were constructed through the SA-6 North cap. Gas vents were completed in accordance with Section 02380 – Gas Venting System of the *100% Design* Package to allow any naturally occurring methane to vent to the atmosphere. Refer to *Appendix N* for the penetration and boot logs for gas vents GV-1 through GV-6, with the corresponding locations shown on the Record Drawings (*Appendix A2*).

Piezometers

A total of five (5) piezometers were installed through the cap to allow the project team to compare the groundwater within capped area to the groundwater immediately outside of the cap. Piezometers were encased within a minimum of 4-inch steel casing. Refer to *Appendix N* for the penetration and boots logs for piezometers PZ-2, PZ-4, PZ-6, PZ-8, and PZ-10, and to the Record Drawings (*Appendix A2*) for the corresponding piezometer locations.

Cleanout Structures

A total of two (2) cleanout stations were installed at SA-6 North to provide access to the groundwater treatment piping for areas where access manholes were not practical. Additional details are provided in *Appendix N* for the penetration and boot logs completed for Cleanout 1

and Cleanout 2. Refer to the Record Drawings (*Appendix A2*) for the corresponding cleanout locations.

Horizontal Drain Pipe
One horizontal drainage pipe was installed along the southern end of the cap within the bottom of the SA-6 North D-Street utility corridor. This pipe is aligned with the perimeter pool clay plug located between the N1 pool and N2 pool. The drain penetrates the SCB wall and clay plug and drains to the interior of SA-7. The drain allows for gravity flow from the bottom of the utility corridor to the exterior of the cap. Additional details are provided within *Appendix N*, and the Record Drawings (*Appendix A2*).

Pump Station and Access Manholes
A total of two pump stations and two access manholes were completed with field fabricated geomembrane boots. Refer to *Appendix N* for the penetration and boot logs for Access Manhole Sta. 1+00, Extraction Pump Station 1, Extraction Pump Station 2, and Access Manhole Sta. 18+00 with the corresponding locations shown on the Record Drawings (*Appendix A2).*

2.4.4.5.1 Spark Testing

Prior to spark testing, Amec Foster Wheeler conducted methane testing at each pipe boot location to determine the percentage of methane present below the geomembrane boot. In the event that methane was greater than 1%, spark testing was not completed and the weld was visually observed for any deficiencies. If methane testing was less than 1%, spark testing was conducted by ESI and if no sparks were observed the spark test passed. If sparks were observed, then the weld was reported as a failed weld. Failed spark tests were also identified as non-compliance issues as further described in *Section 2.4.6*.

Design Change 2015-12-14 added the spark testing provisions for the SA-6 North cap. Spark testing was completed at the site at the pipe boot / penetration locations across SA-6 North, and was conducted to test the integrity of the vertical weld and base weld of the boot, as these areas could not be tested via vacuum box testing. To complete the spark test, a thin copper wire (approximately 20 gauge) was placed along the base of the boot and vertical weld prior to extrusion welding. The extrusion welding was conducted over the vertical seam and base of the boot where the copper wire was placed. A handheld probe was then utilized to attempt to complete a arc, thus causing the probe and wire to visibly spark. If any sparks were observed, the area was grinded, rewelded, and re-tested. Additional details are provided in the Spark Test Logs provided in *Appendix O*. *Figure 8* below shows ESI conducting spark testing along the base of a boot.

Figure 8 – ESI Conducting Spark Test at Base of Boot

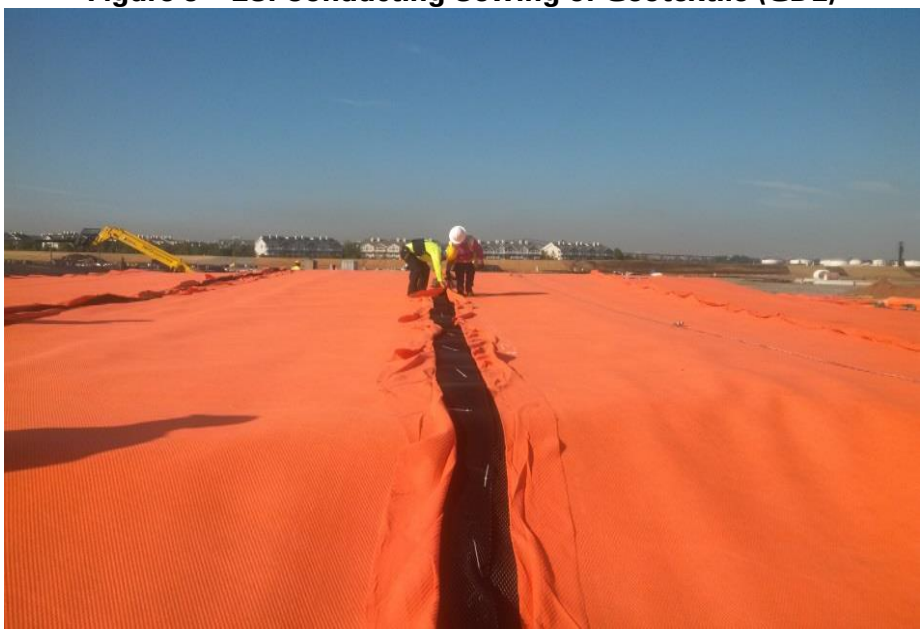
2.4.5 Geocomposite Drainage Layer (GDL)

To facilitate drainage and transport of infiltrated surface water off the cap, a geocomposite drainage layer (GDL) consisting of a geonet with a non-woven geotextile bonded to both sides (i.e., defined as SKAPS TN 330-2-6) was deployed across SA-6 North. The GDL was placed at the site by ESI and was placed directly over the geomembrane cap as shown on the Record Drawings (*Appendix A3*).

GDL panels were placed according to the specification Section 02374 – Geocomposite Drainage Layer as defined in the *100% Design* package. For adjacent GDL panels, the following minimum seaming requirements were met:

- Adjacent rolls of GDL were overlapped so that the geonet overlapped by 2 to 3-inches, and the geotextiles overlapped by at least 4-inches;
- The bottom layer of geotextile (underneath the geonet) was overlapped so that no areas of the underlying geomembrane were exposed;
- White plastic fasteners were placed at a maximum of every 5 ft. along the seam. Additional fasteners were requested by the QA team when the seams extended down the slopes or elevation changes were noted; and
- Once the geonet was tied with a sufficient number of fasteners, the top geotextile of the GDL was continuously sewn as shown in *Figure 9* below.

Figure 9 – ESI Conducting Sewing of Geotextile (GDL)



During placement of the GDL, butt seams, rips, tears, or other damaged areas of the GDL were repaired by exposing an appropriate area of geonet, placing fasteners as defined in the project specifications, and covering the area with a new piece of orange geotextile (same as the GDL geotextile) which was heat sealed in place.

Once the GDL was placed, Entact placed protective cover soil (i.e., 1 ft. layer of material) directly over the GDL. In addition, yellow caution tape was placed every 55-inches over the GDL prior to protective cover soil placement. The caution type had bold type which indicated "Danger Do Not Dig – Peligro No Excavar" in English and Spanish. Additional details on the GDL placement are provided in the Langan Daily Reports and Photo Logs provided in *Appendix E*.

2.4.6 Non-Compliance Issues

Summaries of Non-Compliance & Corrective Action Sheets are provided in *Appendix M*. During the SA-6 North capping activities, any QA field tests, observations, or failed samples that did not comply with the project specifications were documented and recorded as a non-compliance issue followed by repair or correction of these issues in accordance with the specifications. A total of fourteen (14) non-compliance issues were identified and repaired throughout the capping of SA-6 North and are summarized below:

1. Subgrade Irregularities – Refer to Sheet Numbers 1, 2, 5, 6, 7, 8, and 13 of the Non-Compliance & Corrective Action Sheets (*Appendix M)*. In general, the subgrade irregularities consisted of stones or other material greater than ½-inch in size encountered below the geomembrane cap after the material had been placed and secured. These objects were removed by cutting the geomembrane, removing the object, and patching the geomembrane in accordance with the project specifications. The subgrade showed no indication of these items at the time of subgrade approval,

and it is postulated that these items were dislodged from the subgrade as the GVL was drawn across the subgrade surface;

2. Failed Destruct Sample – Refer to Sheet Number 9 (*Appendix M*). Fusion weld destruct sample DS-26, which was collected from Panel Seam P-72 / P-74 was reported as EPA Break Classification Code "AD BRK". Although the peel and shear strength requirements were met, since the coupons broke at the weld and were not considered film tearing bond (FTB), the sample was reported as a failed sample. Two field samples (DS-26A and DS-26B) were cut approximately 10 ft. on each side of the DS-26 seam and field tested. Both samples met the peel and shear strength requirements. Additionally, sample DS-26B (lesser peel and shear strength values than 26-A) was sent for confirmatory laboratory analysis, which indicated peel and shear strength values were in compliance with project specifications.
3. Failed Spark Tests – Refer to Sheet Number 3, 4, 11, 12 and 14. During spark testing of boots Well 115-E4-SO, a spark was observed during testing along the base of the boot and/or vertical weld for Piezometer PZ4, Gas Vent GV-5, Well 115-W1-SO, Well 115-E4-SO, and Well 115-E5-WO. For each of the failed areas where a spark was observed, the area was grinded, re-welded, and retested with the spark retest passing (i.e. no sparks observed); and
4. Geomembrane Puncture (Equipment) – Refer to Sheet Number 10 (*Appendix M*). During outside construction activities at the site, an equipment puncture through SA-6 North on Panel P-36 (north end) was observed as a grounding rod was driven through the membrane. This puncture was subsequently repaired / patched, welded, and vacuum box tested by ESI, according to the project specifications. The repair associated with the puncture was identified as repair RP-418, and was listed as Damage by Others (DO) on the Non-Compliance Log.

Additional details on the non-compliance issues encountered, as well as the subsequent repair activities, are further described in the Langan Daily Reports and Photo Logs provided in *Appendix E*.

3.0 DECLARATIONS

3.1 General

Langan personnel have monitored the construction and field activities completed for the capping of SA-6 North specific to the subgrade preparation and placement of the geotextile and geocomposite materials as defined herein. Based on the field observations made by Langan along with the field and laboratory test data collected by the Contractor and Subcontractors, it is our professional opinion that the construction observed at SA-6 North complied with the approved *100% Design* package. Additional details on the work and approval of materials is outlined in the *EOR Closure Report*.

3.2 Limitations

This Cap Geosynthetic Quality Assurance Report (QA Report) was prepared by Langan (in conjunction with Amec Foster Wheeler) for the exclusive use of Honeywell. This QA Report

applies specifically to the subgrade preparation and construction of the geosynthetics components of the SA-6 North cap only.

The construction observations and monitoring were conducted under the conditions stated. Conclusions made in this report were based on these observations and data obtained from field and laboratory tests conducted on the QA samples collected.

The topographic survey measurements were completed by Entact and their licensed surveyor Maser and were subject to review and approval by Amec Foster Wheeler. Langan did not independently verify the accuracy of this data.

Acceptance of the geosynthetic materials used for the SA-6 North cap construction was completed by Amec Foster Wheeler. Furthermore, the QC laboratory testing was completed by Geotechnics (under the direction of Entact) and QA laboratory testing was completed by TRI (under the direction of Langan).

The approval of all materials used for this project was completed by Amec Foster Wheeler in the *EOR Closure Report*. The geosynthetic production quality testing was completed by AGRU America, Inc. and their subcontracted companies working on their behalf. Langan did not independently verify the accuracy of the conformance test data.

Appendix A : Record Drawings

A1. GVL / GCL Record Drawing
A2. LLDPE Geomembrane Record Drawing
A3. GDL Record Drawing

A1. GVL / GCL Record Drawing

N

HACKENSACK RIVER

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

0 40 80 Feet

SCALE

LEGEND

- CLASS A/16 OZ GEOTEXTILE
- GEOCOMPOSITE GAS VENT LAYER (GVL)
- GEOSYNTHETIC CLAY LINER (GCL)
- GAS VENT (NOT TO SCALE)
- GAS VENT PIPE
- SCB WALL
- HB WALL (Inner Edge)

NOTE: Drawing is schematic in nature. Actual seam locations may vary due to the geomembrane grading.

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME

SA6 NORTH CAP GVL/GCL Layout
Class A Geotextile/Gas Vent Layer/Geosynthetic Clay Liner
11/04/16

PROJECT NAME & LOCATION

HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

A2. LLDPE Geomembrane Record Drawing

HACKENSACK RIVER

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13 P-14 P-14A P-15 P-16 P-17 P-18 P-19 P-20 P-21 P-22 P-23 P-24 P-25 P-26 P-27 P-28 P-29 P-30 P-31 P-32 P-33 P-34 P-35 P-36 P-37 P-38 P-39 P-40 P-41 P-42 P-43 P-44 P-44A P-44B P-45 P-46 P-47 P-48 P-49 P-50 P-51 P-52 P-53

P-54 P-55 P-56 P-57 P-58 P-59 P-60 P-61 P-62 P-63 P-64 P-65 P-66 P-67 P-68 P-69 P-70 P-71 P-72 P-73 P-74 P-75 P-76 P-77 P-78 P-79 P-80 P-81 P-82 P-83 P-84 P-85 P-86 P-87 P-88 P-89 P-90 P-91 P-92 P-93 P-94 P-95 P-96 P-97 P-98 P-99 P-100 P-101 P-102 P-103 P-104 P-105 P-106 P-107 P-108 P-109 P-110 P-111 P-112 P-113 P-114 P-115 P-116 P-117 P-118 P-119

0 40 80 Feet

SCALE

LEGEND

R-1 (Repair Number)

LINER SEAM/EDGE

SCB WALL

HB WALL (Inner Edge)

R: Repair

DSX: Destructive Extrusion Weld Test

DS: Destructive Fusion Weld Test

P: Panel

NOTE: Drawing details are schematic in nature. Actual seam locations and repair dimensions may vary due to the geomembrane grading. Repair locations are recorded in the repair logs.

NOTE: Refer to ESI Repair Report for repair details

REV	DATE	BY	CHK'D	APPRV'D	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING
2	11/18/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME

SA6 NORTH CAP PANEL LAYOUT
60 mil Textured LLDPE Geomembrane
11/18/16

PROJECT NAME & LOCATION

HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

A3. GDL Record Drawing

HACKENSACK RIVER

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

0 40 80 Feet

SCALE

LEGEND

- GEOCOMPOSITE DRAINAGE LAYER (GDL)
- CAP SUBGRADE CONTOUR
- SCB WALL
- HB WALL (Inner Edge)

NOTE: Drawing is schematic in nature. Actual seam locations may vary due to geomembrane grading.

REV	DATE	BY	CHK'D	APPR'VD	DESCRIPTION
0	10/27/16	EP	CP	CP	RECORD DRAWING
1	11/04/16	EP	CP	CP	RECORD DRAWING

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME

SA6 NORTH CAP PANEL LAYOUT
GEOCOMPOSITE DRAINAGE LAYER
11/04/16

PROJECT NAME & LOCATION

HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Appendix B
SA-6 North Certificate of Completion

PROJECT COMPLETION REPORT

Project Name: Honeywell Chromium Area

Job Number: 12-11-1399

Date Completed:

Project Manager: Kevin Simms

Superintendent: Tony Ung

Item Number	Item Description	Completed Quantity
1	60 Mil LLPE Text	494,086 s/f
2	DS Composite 22-2-6 (Gas)	378,950 s/f
3	DS Composite 300-2 6 (Drain)	494,086 s/f
4	16 Oz. NW Geotextile	58,845
5	GCL	25,350
6	60" Manholes	4
	Total Linear Feet of Anchor Trench	
	Vertical Feet of Liner in Trench (per Detail)	

Item Number	Item Description	Completed Quantity
7	4" Pipe Boots	5
8	6" Pipe Boots	4
9	8" Pipe Boots	12
	Total Linear Feet of Tie in to Existing	
	Total Linear Feet of Tie in Slope to Floor	

The Quantities Listed Above Are Based On The Following :

- [x] Field measurements
- [ ] Quantities are agreed to at this time
- [ ] Quantities listed include geosynthetics in anchor trench
- [x] Job 100% complete
- [x] Field change orders were Issued — How Many? 1
- [x] The project has been left, by ESI, in a clean and orderly fashion acceptable to customer.
- [x] All work has been found satisfactorily completed and the work satisfies the Project plans and specifications

Check All Applicable Boxes Below:

- [ ] Quantities listed include tie in / run out details
- [ ] Quantities to be verified by survey
- [ ] Quantities listed are per completed survey
- [ ] Job is partially complete.
- [ ] Anticipated remob date is: _____

Initial by Customer / Rep

Initial by Customer / Rep

ESI Owned Materials Left On Site

Material Description	Roll Count	Total Square Feet	Notes

ESI Superintendent Signature

Tony Ung
Print Name

8-16-16
Date

Authorized Signature

Keith Gosse
Print Name

Superv. / Eatact
Title / Company

8-16-16
Date

Appendix C: Survey Construction Details

C1. Final Maser Subgrade Tables
C2. Subgrade Construction Control Grid

C1. Final Maser Subgrade Tables

Engineers
Planners
Surveyors
Landscape Architects
Environmental Scientists

156 Stagecoach Road
Marmora, NJ 08223
T: 609.390.1927
F: 609.390.0040
www.maserconsulting.com

SA-6 North Cap Subgrade: Grid Points (Table 1.0)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1	686039.50	602096.13	10.6	GRID	6/20/2016	10.6	0.0	Point surveyed within Tolerance
2	686061.08	602108.76	10.6	GRID	6/20/2016	10.5	-0.1	Point surveyed within Tolerance
3	686091.59	602155.60	11.4	GRID	6/20/2016	11.3	-0.1	Point surveyed within Tolerance
4	686070.02	602142.97	10.8	GRID	6/20/2016	10.8	0.0	Point surveyed within Tolerance
5	686048.45	602130.34	10.6	GRID	6/20/2016	10.6	0.0	Point surveyed within Tolerance
6	686026.87	602117.70	10.9	GRID	6/20/2016	11.0	0.1	Point surveyed within Tolerance
7	686005.30	602105.07	11.6	GRID	6/20/2016	11.5	-0.1	Point surveyed within Tolerance
8	685983.72	602092.44	11.6	GRID	6/20/2016	11.6	0.0	Point surveyed within Tolerance
9	685971.09	602114.02	11.9	GRID	6/20/2016	11.8	-0.1	Point surveyed within Tolerance
10	685992.67	602126.65	11.8	GRID	6/20/2016	11.8	0.0	Point surveyed within Tolerance
11	686014.24	602139.28	11.8	GRID	6/20/2016	11.7	-0.1	Point surveyed within Tolerance
12	686035.82	602151.91	11.7	GRID	6/20/2016	11.6	-0.1	Point surveyed within Tolerance
13	686057.39	602164.54	11.6	GRID	6/20/2016	11.6	0.0	Point surveyed within Tolerance
14	686078.96	602177.17	11.4	GRID	6/20/2016	11.4	0.0	Point surveyed within Tolerance
15	686066.33	602198.75	11.0	GRID	6/20/2016	11.0	0.0	Point surveyed within Tolerance
16	686044.76	602186.12	11.3	GRID	6/20/2016	11.3	0.0	Point surveyed within Tolerance
17	686023.18	602173.48	11.9	GRID	6/20/2016	11.8	-0.1	Point surveyed within Tolerance
18	686001.61	602160.85	14.6	GRID	6/20/2016	14.5	-0.1	Point surveyed within Tolerance
19	685980.04	602148.22	12.4	GRID	6/20/2016	12.3	-0.1	Point surveyed within Tolerance
20	685958.46	602135.59	12.1	GRID	6/20/2016	12.1	0.0	Point surveyed within Tolerance
21	685945.83	602157.16	12.4	GRID	6/20/2016	12.4	0.0	Point surveyed within Tolerance
22	685967.40	602169.80	12.8	GRID	6/20/2016	12.8	0.0	Point surveyed within Tolerance
23	685988.98	602182.43	12.1	GRID	6/20/2016	12.1	0.0	Point surveyed within Tolerance
24	686010.55	602195.06	14.5	GRID	6/20/2016	14.4	-0.1	Point surveyed within Tolerance
25	686032.13	602207.69	11.4	GRID	6/20/2016	11.3	-0.1	Point surveyed within Tolerance
26	686053.70	602220.32	10.4	GRID	6/20/2016	10.4	0.0	Point surveyed within Tolerance
27	686041.07	602241.90	10.8	GRID	6/20/2016	10.7	-0.1	Point surveyed within Tolerance
28	686019.49	602229.26	11.6	GRID	6/20/2016	11.5	-0.1	Point surveyed within Tolerance
29	685997.92	602216.63	14.7	GRID	6/20/2016	14.6	-0.1	Point surveyed within Tolerance
30	685976.35	602204.00	12.3	GRID	6/20/2016	12.2	-0.1	Point surveyed within Tolerance
31	685954.77	602191.37	15.7	GRID	6/20/2016	15.7	0.0	Point surveyed within Tolerance
32	685933.20	602178.74	12.7	GRID	6/20/2016	12.6	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.1)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
33	685920.57	602200.31	12.8	GRID	6/20/2016	12.8	0.0	Point surveyed within Tolerance
34	685942.14	602212.94	15.2	GRID	6/20/2016	15.2	0.0	Point surveyed within Tolerance
35	685985.29	602238.21	14.9	GRID	6/20/2016	14.8	-0.1	Point surveyed within Tolerance
36	686006.86	602250.84	12.0	GRID	6/20/2016	12.0	0.0	Point surveyed within Tolerance
37	686028.44	602263.47	11.3	GRID	6/20/2016	11.2	-0.1	Point surveyed within Tolerance
38	686037.38	602297.68	12.0	GRID	6/20/2016	11.9	-0.1	Point surveyed within Tolerance
39	686015.81	602285.04	11.5	GRID	6/20/2016	11.4	-0.1	Point surveyed within Tolerance
40	685972.66	602259.78	15.1	GRID	6/20/2016	15.0	-0.1	Point surveyed within Tolerance
41	685951.08	602247.15	15.0	GRID	6/20/2016	15.0	0.0	Point surveyed within Tolerance
42	685929.51	602234.52	12.9	GRID	6/20/2016	12.8	-0.1	Point surveyed within Tolerance
43	685907.93	602221.89	13.1	GRID	6/20/2016	13.1	0.0	Point surveyed within Tolerance
44	685895.30	602243.46	13.5	GRID	6/20/2016	13.5	0.0	Point surveyed within Tolerance
45	685916.88	602256.09	13.2	GRID	6/20/2016	13.1	-0.1	Point surveyed within Tolerance
46	685960.03	602281.36	15.4	GRID	6/20/2016	15.3	-0.1	Point surveyed within Tolerance
47	686003.17	602306.62	11.7	GRID	6/20/2016	11.7	0.0	Point surveyed within Tolerance
48	686024.75	602319.25	12.2	GRID	6/20/2016	12.1	-0.1	Point surveyed within Tolerance
49	686012.12	602340.82	12.4	GRID	6/23/2016	12.3	-0.1	Point surveyed within Tolerance
50	685990.54	602328.19	12.0	GRID	6/23/2016	12.0	0.0	Point surveyed within Tolerance
51	685968.97	602315.56	15.5	GRID	6/23/2016	15.5	0.0	Point surveyed within Tolerance
52	685947.39	602302.93	15.6	GRID	6/23/2016	15.6	0.0	Point surveyed within Tolerance
53	685925.82	602290.30	13.4	GRID	6/23/2016	13.4	0.0	Point surveyed within Tolerance
54	685904.25	602277.67	14.3	GRID	6/23/2016	14.3	0.0	Point surveyed within Tolerance
55	685882.67	602265.03	13.9	GRID	6/23/2016	13.9	0.0	Point surveyed within Tolerance
56	685870.04	602286.61	14.0	GRID	6/23/2016	14.0	0.0	Point surveyed within Tolerance
57	685891.61	602299.24	14.5	GRID	6/23/2016	14.4	-0.1	Point surveyed within Tolerance
58	685913.19	602311.87	13.7	GRID	6/23/2016	13.7	0.0	Point surveyed within Tolerance
59	685956.34	602337.14	15.8	GRID	6/23/2016	15.8	0.0	Point surveyed within Tolerance
60	685977.91	602349.77	12.2	GRID	6/23/2016	12.3	0.1	Point surveyed within Tolerance
61	685999.49	602362.40	12.6	GRID	6/23/2016	12.5	-0.1	Point surveyed within Tolerance
62	685986.85	602383.97	12.8	GRID	6/23/2016	12.7	-0.1	Point surveyed within Tolerance
63	685965.28	602371.34	12.6	GRID	6/23/2016	12.6	0.0	Point surveyed within Tolerance
64	685943.71	602358.71	13.6	GRID	6/23/2016	13.7	0.1	Point surveyed within Tolerance
65	685900.56	602333.45	14.0	GRID	6/23/2016	13.9	-0.1	Point surveyed within Tolerance
66	685878.98	602320.81	14.8	GRID	6/23/2016	14.7	-0.1	Point surveyed within Tolerance
67	685866.35	602342.39	17.5	GRID	6/23/2016	17.5	0.0	Point surveyed within Tolerance
68	685887.93	602355.02	16.7	GRID	6/23/2016	16.7	0.0	Point surveyed within Tolerance
69	685909.50	602367.65	16.5	GRID	6/23/2016	16.4	-0.1	Point surveyed within Tolerance
70	685931.07	602380.28	13.7	GRID	6/23/2016	13.7	0.0	Point surveyed within Tolerance
71	685952.65	602392.91	12.9	GRID	6/23/2016	12.9	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.2)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
72	685974.22	602405.55	13.0	GRID	6/23/2016	12.9	-0.1	Point surveyed within Tolerance
73	685961.59	602427.12	13.2	GRID	6/23/2016	13.1	-0.1	Point surveyed within Tolerance
74	685940.02	602414.49	13.4	GRID	6/23/2016	13.3	-0.1	Point surveyed within Tolerance
75	685918.44	602401.86	14.1	GRID	6/23/2016	14.0	-0.1	Point surveyed within Tolerance
76	685896.87	602389.23	16.7	GRID	6/23/2016	16.7	0.0	Point surveyed within Tolerance
77	685875.29	602376.59	17.1	GRID	6/23/2016	17.1	0.0	Point surveyed within Tolerance
78	685853.72	602363.96	17.8	GRID	6/23/2016	17.7	-0.1	Point surveyed within Tolerance
79	685832.15	602351.33	14.7	GRID	6/23/2016	14.8	0.1	Point surveyed within Tolerance
80	685819.51	602372.91	15.0	GRID	6/27/2016	15.0	0.0	Point surveyed within Tolerance
81	685841.09	602385.54	17.7	GRID	6/27/2016	17.6	-0.1	Point surveyed within Tolerance
82	685862.66	602398.17	17.2	GRID	6/27/2016	17.2	0.0	Point surveyed within Tolerance
83	685884.24	602410.80	14.5	GRID	6/27/2016	14.4	-0.1	Point surveyed within Tolerance
84	685905.81	602423.43	14.2	GRID	6/27/2016	14.2	0.0	Point surveyed within Tolerance
85	685927.39	602436.06	13.7	GRID	6/27/2016	13.7	0.0	Point surveyed within Tolerance
86	685948.96	602448.69	13.4	GRID	6/27/2016	13.4	0.0	Point surveyed within Tolerance
87	685936.33	602470.27	13.6	GRID	6/27/2016	13.5	-0.1	Point surveyed within Tolerance
88	685914.75	602457.64	14.2	GRID	6/27/2016	14.1	-0.1	Point surveyed within Tolerance
89	685893.18	602445.01	14.6	GRID	6/27/2016	14.6	0.0	Point surveyed within Tolerance
90	685871.61	602432.37	14.8	GRID	6/27/2016	14.7	-0.1	Point surveyed within Tolerance
91	685828.46	602407.11	15.7	GRID	6/27/2016	15.6	-0.1	Point surveyed within Tolerance
92	685806.88	602394.48	15.2	GRID	6/27/2016	15.2	0.0	Point surveyed within Tolerance
93	685794.25	602416.05	15.4	GRID	6/27/2016	15.4	0.0	Point surveyed within Tolerance
94	685815.83	602428.69	15.8	GRID	6/27/2016	15.7	-0.1	Point surveyed within Tolerance
95	685837.40	602441.32	15.5	GRID	6/27/2016	15.4	-0.1	Point surveyed within Tolerance
96	685858.97	602453.95	15.0	GRID	6/27/2016	15.0	0.0	Point surveyed within Tolerance
97	685880.55	602466.58	14.9	GRID	6/27/2016	14.8	-0.1	Point surveyed within Tolerance
98	685902.12	602479.21	14.7	GRID	6/27/2016	14.6	-0.1	Point surveyed within Tolerance
99	685923.70	602491.84	13.7	GRID	6/27/2016	13.7	0.0	Point surveyed within Tolerance
100	685889.49	602500.79	17.5	GRID	6/27/2016	17.4	-0.1	Point surveyed within Tolerance
101	685867.92	602488.15	15.1	GRID	6/27/2016	15.1	0.0	Point surveyed within Tolerance
102	685846.34	602475.52	15.3	GRID	6/27/2016	15.2	-0.1	Point surveyed within Tolerance
103	685803.19	602450.26	18.9	GRID	6/27/2016	18.8	-0.1	Point surveyed within Tolerance
104	685781.62	602437.63	15.7	GRID	6/27/2016	15.7	0.0	Point surveyed within Tolerance
105	685768.99	602459.20	16.0	GRID	6/27/2016	16.0	0.0	Point surveyed within Tolerance
106	685812.14	602484.47	18.7	GRID	6/27/2016	18.6	-0.1	Point surveyed within Tolerance
107	685833.71	602497.10	18.1	GRID	6/27/2016	18.0	-0.1	Point surveyed within Tolerance
108	685855.28	602509.73	17.9	GRID	6/27/2016	17.9	0.0	Point surveyed within Tolerance
109	685876.86	602522.36	17.8	GRID	6/27/2016	17.7	-0.1	Point surveyed within Tolerance
110	685898.43	602534.99	14.4	GRID	6/27/2016	14.3	-0.1	Point surveyed within Tolerance
111	685885.80	602556.57	14.8	GRID	6/27/2016	14.8	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.3)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
112	685864.23	602543.93	18.1	GRID	6/27/2016	18.0	-0.1	Point surveyed within Tolerance
113	685842.65	602531.30	18.2	GRID	6/27/2016	18.1	-0.1	Point surveyed within Tolerance
114	685821.08	602518.67	18.4	GRID	6/27/2016	18.3	-0.1	Point surveyed within Tolerance
115	685799.50	602506.04	18.8	GRID	6/27/2016	18.7	-0.1	Point surveyed within Tolerance
116	685756.36	602480.78	16.2	GRID	6/27/2016	16.2	0.0	Point surveyed within Tolerance
117	685743.73	602502.35	16.5	GRID	6/27/2016	16.5	0.0	Point surveyed within Tolerance
118	685765.30	602514.98	16.8	GRID	6/27/2016	16.7	-0.1	Point surveyed within Tolerance
119	685786.87	602527.61	18.9	GRID	6/27/2016	18.9	0.0	Point surveyed within Tolerance
120	685808.45	602540.25	18.5	GRID	6/27/2016	18.5	0.0	Point surveyed within Tolerance
121	685830.02	602552.88	18.3	GRID	6/27/2016	18.3	0.0	Point surveyed within Tolerance
122	685873.17	602578.14	15.4	GRID	6/27/2016	15.3	-0.1	Point surveyed within Tolerance
123	685894.74	602590.77	14.8	GRID	6/27/2016	14.8	0.0	Point surveyed within Tolerance
124	685882.10	602612.30	15.0	GRID	6/29/2016	15.0	0.0	Point surveyed within Tolerance
125	685860.50	602599.70	16.0	GRID	6/29/2016	15.9	-0.1	Point surveyed within Tolerance
126	685817.40	602574.50	18.4	GRID	6/29/2016	18.4	0.0	Point surveyed within Tolerance
127	685774.20	602549.20	16.5	GRID	6/29/2016	16.4	-0.1	Point surveyed within Tolerance
128	685752.70	602536.60	16.8	GRID	6/29/2016	16.8	0.0	Point surveyed within Tolerance
129	685731.10	602523.90	16.7	GRID	6/29/2016	16.8	0.1	Point surveyed within Tolerance
130	685718.50	602545.50	16.8	GRID	6/29/2016	16.8	0.0	Point surveyed within Tolerance
131	685740.00	602558.10	16.3	GRID	6/29/2016	16.3	0.0	Point surveyed within Tolerance
132	685761.60	602570.80	15.9	GRID	6/29/2016	15.9	0.0	Point surveyed within Tolerance
133	685783.20	602583.40	15.8	GRID	6/29/2016	15.8	0.0	Point surveyed within Tolerance
134	685804.80	602596.00	15.8	GRID	6/29/2016	15.8	0.0	Point surveyed within Tolerance
135	685826.30	602608.70	16.0	GRID	6/29/2016	15.9	-0.1	Point surveyed within Tolerance
136	685847.90	602621.30	16.3	GRID	6/29/2016	16.2	-0.1	Point surveyed within Tolerance
137	685869.50	602633.90	15.2	GRID	6/29/2016	15.3	0.1	Point surveyed within Tolerance
138	685856.80	602655.50	15.6	GRID	6/29/2016	15.7	0.1	Point surveyed within Tolerance
139	685792.10	602617.60	14.0	GRID	6/29/2016	13.9	-0.1	Point surveyed within Tolerance
140	685770.60	602605.00	14.2	GRID	6/29/2016	14.1	-0.1	Point surveyed within Tolerance
141	685749.00	602592.30	14.6	GRID	6/29/2016	14.6	0.0	Point surveyed within Tolerance
142	685727.40	602579.70	15.2	GRID	6/29/2016	15.1	-0.1	Point surveyed within Tolerance
143	685705.80	602567.10	15.9	GRID	6/29/2016	15.9	0.0	Point surveyed within Tolerance
144	685693.20	602588.60	17.3	GRID	6/29/2016	17.3	0.0	Point surveyed within Tolerance
145	685714.80	602601.30	16.1	GRID	6/29/2016	16.1	0.0	Point surveyed within Tolerance
146	685736.30	602613.90	15.8	GRID	6/29/2016	15.7	-0.1	Point surveyed within Tolerance
147	685757.90	602626.50	15.4	GRID	6/29/2016	15.5	0.1	Point surveyed within Tolerance
148	685779.50	602639.20	15.3	GRID	6/29/2016	15.3	0.0	Point surveyed within Tolerance
149	685844.20	602677.10	13.3	GRID	6/29/2016	13.4	0.1	Point surveyed within Tolerance
150	685810.00	602686.00	16.7	GRID	6/29/2016	16.6	-0.1	Point surveyed within Tolerance
151	685788.40	602673.40	16.4	GRID	6/29/2016	16.4	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.4)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
152	685766.90	602660.70	16.4	GRID	6/29/2016	16.4	0.0	Point surveyed within Tolerance
153	685723.70	602635.50	16.7	GRID	6/29/2016	16.6	-0.1	Point surveyed within Tolerance
154	685702.10	602622.90	17.1	GRID	6/29/2016	17.0	-0.1	Point surveyed within Tolerance
155	685680.60	602610.20	17.5	GRID	6/29/2016	17.5	0.0	Point surveyed within Tolerance
156	685667.90	602631.80	17.8	GRID	7/1/2016	17.9	0.1	Point surveyed within Tolerance
157	685689.50	602644.40	18.1	GRID	7/1/2016	18.2	0.1	Point surveyed within Tolerance
158	685732.70	602669.70	20.0	GRID	7/1/2016	20.0	0.0	Point surveyed within Tolerance
159	685797.40	602707.60	19.7	GRID	7/1/2016	19.6	-0.1	Point surveyed within Tolerance
160	685806.30	602741.80	17.4	GRID	7/1/2016	17.4	0.0	Point surveyed within Tolerance
161	685784.70	602729.20	17.4	GRID	7/1/2016	17.4	0.0	Point surveyed within Tolerance
162	685741.60	602703.90	20.9	GRID	7/1/2016	20.9	0.0	Point surveyed within Tolerance
163	685720.00	602691.30	18.5	GRID	7/1/2016	18.4	-0.1	Point surveyed within Tolerance
164	685676.90	602666.00	18.7	GRID	7/1/2016	18.8	0.1	Point surveyed within Tolerance
165	685655.30	602653.40	17.9	GRID	7/1/2016	18.0	0.1	Point surveyed within Tolerance
166	685642.70	602674.90	18.1	GRID	7/1/2016	18.1	0.0	Point surveyed within Tolerance
167	685664.20	602687.60	18.7	GRID	7/1/2016	18.7	0.0	Point surveyed within Tolerance
168	685685.80	602700.20	21.0	GRID	7/1/2016	21.1	0.1	Point surveyed within Tolerance
169	685750.50	602738.10	21.5	GRID	7/1/2016	21.5	0.0	Point surveyed within Tolerance
170	685772.10	602750.70	18.5	GRID	7/1/2016	18.4	-0.1	Point surveyed within Tolerance
171	685824.20	602810.20	17.2	GRID	7/7/2016	17.2	0.0	Point surveyed within Tolerance
172	685759.50	602772.30	21.6	GRID	7/1/2016	21.5	-0.1	Point surveyed within Tolerance
173	685737.90	602759.70	21.9	GRID	7/1/2016	21.9	0.0	Point surveyed within Tolerance
174	685716.30	602747.00	21.9	GRID	7/1/2016	21.9	0.0	Point surveyed within Tolerance
175	685694.80	602734.40	21.5	GRID	7/1/2016	21.6	0.1	Point surveyed within Tolerance
176	685673.20	602721.80	21.0	GRID	7/1/2016	20.9	-0.1	Point surveyed within Tolerance
177	685651.60	602709.10	18.7	GRID	7/1/2016	18.7	0.0	Point surveyed within Tolerance
178	685630.00	602696.50	18.1	GRID	7/1/2016	18.2	0.1	Point surveyed within Tolerance
179	685617.40	602718.10	18.2	GRID	7/7/2016	18.3	0.1	Point surveyed within Tolerance
180	685639.00	602730.70	18.7	GRID	7/7/2016	18.7	0.0	Point surveyed within Tolerance
181	685660.60	602743.40	21.0	GRID	7/7/2016	21.0	0.0	Point surveyed within Tolerance
182	685682.10	602756.00	21.5	GRID	7/7/2016	21.5	0.0	Point surveyed within Tolerance
183	685703.70	602768.60	22.0	GRID	7/7/2016	22.0	0.0	Point surveyed within Tolerance
184	685725.30	602781.20	22.2	GRID	7/7/2016	22.2	0.0	Point surveyed within Tolerance
185	685746.90	602793.90	22.1	GRID	7/7/2016	22.1	0.0	Point surveyed within Tolerance
186	685768.40	602806.50	21.4	GRID	7/7/2016	21.4	0.0	Point surveyed within Tolerance
187	685790.00	602819.10	17.9	GRID	7/7/2016	17.9	0.0	Point surveyed within Tolerance
188	685811.60	602831.80	17.4	GRID	7/7/2016	17.4	0.0	Point surveyed within Tolerance
189	685798.90	602853.40	17.6	GRID	7/7/2016	17.7	0.1	Point surveyed within Tolerance
190	685777.40	602840.70	18.3	GRID	7/7/2016	18.3	0.0	Point surveyed within Tolerance
191	685755.80	602828.10	21.8	GRID	7/7/2016	21.9	0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.5)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
192	685734.20	602815.50	22.5	GRID	7/7/2016	22.5	0.0	Point surveyed within Tolerance
193	685712.60	602802.80	20.1	GRID	7/7/2016	20.1	0.0	Point surveyed within Tolerance
194	685691.10	602790.20	19.6	GRID	7/7/2016	19.5	-0.1	Point surveyed within Tolerance
195	685647.90	602764.90	21.0	GRID	7/7/2016	21.0	0.0	Point surveyed within Tolerance
196	685626.40	602752.30	18.8	GRID	7/7/2016	18.7	-0.1	Point surveyed within Tolerance
197	685604.80	602739.70	18.2	GRID	7/7/2016	18.2	0.0	Point surveyed within Tolerance
198	685592.10	602761.20	18.2	GRID	7/7/2016	18.2	0.0	Point surveyed within Tolerance
199	685613.70	602773.90	18.8	GRID	7/7/2016	18.7	-0.1	Point surveyed within Tolerance
200	685635.30	602786.50	21.0	GRID	7/7/2016	21.0	0.0	Point surveyed within Tolerance
201	685678.40	602811.80	19.6	GRID	7/7/2016	19.6	0.0	Point surveyed within Tolerance
202	685700.00	602824.40	20.0	GRID	7/7/2016	20.0	0.0	Point surveyed within Tolerance
203	685721.60	602837.00	22.7	GRID	7/7/2016	22.7	0.0	Point surveyed within Tolerance
204	685743.20	602849.70	22.1	GRID	7/7/2016	22.1	0.0	Point surveyed within Tolerance
205	685764.70	602862.30	18.8	GRID	7/7/2016	18.8	0.0	Point surveyed within Tolerance
206	685786.30	602874.90	17.9	GRID	7/7/2016	17.8	-0.1	Point surveyed within Tolerance
207	685773.70	602896.50	18.1	GRID	7/7/2016	18.1	0.0	Point surveyed within Tolerance
208	685752.10	602883.90	19.0	GRID	7/7/2016	19.0	0.0	Point surveyed within Tolerance
209	685687.40	602846.00	20.0	GRID	7/7/2016	20.0	0.0	Point surveyed within Tolerance
210	685665.80	602833.30	19.5	GRID	7/7/2016	19.6	0.1	Point surveyed within Tolerance
211	685644.20	602820.70	19.0	GRID	7/7/2016	19.1	0.1	Point surveyed within Tolerance
212	685622.70	602808.10	18.6	GRID	7/7/2016	18.6	0.0	Point surveyed within Tolerance
213	685601.10	602795.40	18.8	GRID	7/7/2016	18.7	-0.1	Point surveyed within Tolerance
214	685579.50	602782.80	18.2	GRID	7/7/2016	18.2	0.0	Point surveyed within Tolerance
215	685566.90	602804.40	18.1	GRID	7/8/2016	18.1	0.0	Point surveyed within Tolerance
216	685588.50	602817.00	18.8	GRID	7/8/2016	18.7	-0.1	Point surveyed within Tolerance
217	685610.00	602829.70	18.6	GRID	7/8/2016	18.5	-0.1	Point surveyed within Tolerance
218	685631.60	602842.30	19.0	GRID	7/8/2016	19.0	0.0	Point surveyed within Tolerance
219	685653.20	602854.90	19.5	GRID	7/8/2016	19.6	0.1	Point surveyed within Tolerance
220	685674.80	602867.50	20.0	GRID	7/8/2016	20.0	0.0	Point surveyed within Tolerance
221	685696.30	602880.20	20.2	GRID	7/8/2016	20.2	0.0	Point surveyed within Tolerance
222	685717.90	602892.80	19.6	GRID	7/8/2016	19.7	0.1	Point surveyed within Tolerance
223	685739.50	602905.40	19.0	GRID	7/8/2016	18.9	-0.1	Point surveyed within Tolerance
224	685761.10	602918.10	18.3	GRID	7/8/2016	18.3	0.0	Point surveyed within Tolerance
225	685748.40	602939.60	18.4	GRID	7/8/2016	18.5	0.1	Point surveyed within Tolerance
226	685726.80	602927.00	19.0	GRID	7/8/2016	19.0	0.0	Point surveyed within Tolerance
227	685705.30	602914.40	19.6	GRID	7/8/2016	19.5	-0.1	Point surveyed within Tolerance
228	685683.70	602901.80	20.2	GRID	7/8/2016	20.1	-0.1	Point surveyed within Tolerance
229	685662.10	602889.10	20.0	GRID	7/8/2016	20.0	0.0	Point surveyed within Tolerance
230	685640.50	602876.50	19.5	GRID	7/8/2016	19.5	0.0	Point surveyed within Tolerance
231	685619.00	602863.90	19.0	GRID	7/8/2016	19.1	0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.6)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
232	685597.40	602851.20	18.6	GRID	7/8/2016	18.6	0.0	Point surveyed within Tolerance
233	685575.80	602838.60	18.8	GRID	7/8/2016	18.8	0.0	Point surveyed within Tolerance
234	685554.30	602826.00	18.0	GRID	7/8/2016	18.1	0.1	Point surveyed within Tolerance
235	685541.60	602847.50	17.9	GRID	7/8/2016	17.9	0.0	Point surveyed within Tolerance
236	685563.20	602860.20	18.7	GRID	7/8/2016	18.7	0.0	Point surveyed within Tolerance
237	685584.80	602872.80	18.6	GRID	7/8/2016	18.6	0.0	Point surveyed within Tolerance
238	685606.30	602885.40	19.0	GRID	7/8/2016	19.0	0.0	Point surveyed within Tolerance
239	685627.90	602898.10	19.5	GRID	7/8/2016	19.5	0.0	Point surveyed within Tolerance
240	685649.50	602910.70	20.0	GRID	7/8/2016	20.0	0.0	Point surveyed within Tolerance
241	685671.10	602923.30	20.2	GRID	7/8/2016	20.2	0.0	Point surveyed within Tolerance
242	685692.60	602936.00	19.6	GRID	7/8/2016	19.6	0.0	Point surveyed within Tolerance
243	685714.20	602948.60	19.0	GRID	7/8/2016	19.0	0.0	Point surveyed within Tolerance
244	685735.80	602961.20	18.5	GRID	7/8/2016	18.5	0.0	Point surveyed within Tolerance
245	685723.20	602982.80	18.5	GRID	7/8/2016	18.5	0.0	Point surveyed within Tolerance
246	685701.60	602970.20	19.0	GRID	7/8/2016	19.1	0.1	Point surveyed within Tolerance
247	685680.00	602957.50	19.6	GRID	7/8/2016	19.6	0.0	Point surveyed within Tolerance
248	685658.40	602944.90	20.2	GRID	7/8/2016	20.1	-0.1	Point surveyed within Tolerance
249	685636.90	602932.30	20.0	GRID	7/8/2016	19.9	-0.1	Point surveyed within Tolerance
250	685615.30	602919.60	19.5	GRID	7/8/2016	19.6	0.1	Point surveyed within Tolerance
251	685593.70	602907.00	19.0	GRID	7/8/2016	19.1	0.1	Point surveyed within Tolerance
252	685572.10	602894.40	18.6	GRID	7/8/2016	18.6	0.0	Point surveyed within Tolerance
253	685550.60	602881.70	18.6	GRID	7/8/2016	18.5	-0.1	Point surveyed within Tolerance
254	685529.00	602869.10	17.7	GRID	7/8/2016	17.7	0.0	Point surveyed within Tolerance
255	685516.40	602890.70	17.6	GRID	7/12/2016	17.6	0.0	Point surveyed within Tolerance
256	685537.90	602903.30	18.6	GRID	7/12/2016	18.5	-0.1	Point surveyed within Tolerance
257	685559.50	602915.90	18.7	GRID	7/12/2016	18.6	-0.1	Point surveyed within Tolerance
258	685581.10	602928.60	19.0	GRID	7/12/2016	19.0	0.0	Point surveyed within Tolerance
259	685602.70	602941.20	19.5	GRID	7/12/2016	19.5	0.0	Point surveyed within Tolerance
260	685624.20	602953.80	20.0	GRID	7/12/2016	20.0	0.0	Point surveyed within Tolerance
261	685645.80	602966.50	20.1	GRID	7/12/2016	20.2	0.1	Point surveyed within Tolerance
262	685667.40	602979.10	19.5	GRID	7/12/2016	19.5	0.0	Point surveyed within Tolerance
263	685689.00	602991.70	18.8	GRID	7/12/2016	18.8	0.0	Point surveyed within Tolerance
264	685710.50	603004.40	18.5	GRID	7/12/2016	18.5	0.0	Point surveyed within Tolerance
265	685697.90	603025.90	18.4	GRID	7/12/2016	18.5	0.1	Point surveyed within Tolerance
266	685676.30	603013.30	18.6	GRID	7/12/2016	18.5	-0.1	Point surveyed within Tolerance
267	685654.70	603000.70	19.5	GRID	7/12/2016	19.5	0.0	Point surveyed within Tolerance
268	685633.20	602988.00	20.1	GRID	7/12/2016	20.0	-0.1	Point surveyed within Tolerance
269	685611.60	602975.40	20.0	GRID	7/12/2016	20.0	0.0	Point surveyed within Tolerance
270	685590.00	602962.80	19.5	GRID	7/12/2016	19.5	0.0	Point surveyed within Tolerance
271	685568.40	602950.20	19.0	GRID	7/12/2016	19.0	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.7)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
272	685546.90	602937.50	18.6	GRID	7/12/2016	18.6	0.0	Point surveyed within Tolerance
273	685525.30	602924.90	18.1	GRID	7/12/2016	18.1	0.0	Point surveyed within Tolerance
274	685503.70	602912.30	17.4	GRID	7/12/2016	17.4	0.0	Point surveyed within Tolerance
275	685491.10	602933.80	17.2	GRID	7/12/2016	17.2	0.0	Point surveyed within Tolerance
276	685512.70	602946.50	18.2	GRID	7/12/2016	18.2	0.0	Point surveyed within Tolerance
277	685577.40	602984.40	19.5	GRID	7/12/2016	19.5	0.0	Point surveyed within Tolerance
278	685599.00	602997.00	20.0	GRID	7/12/2016	19.9	-0.1	Point surveyed within Tolerance
279	685620.50	603009.60	20.0	GRID	7/12/2016	20.0	0.0	Point surveyed within Tolerance
280	685642.10	603022.30	19.4	GRID	7/12/2016	19.5	0.1	Point surveyed within Tolerance
281	685663.70	603034.90	18.2	GRID	7/12/2016	18.2	0.0	Point surveyed within Tolerance
282	685685.30	603047.50	18.3	GRID	7/12/2016	18.3	0.0	Point surveyed within Tolerance
283	685672.60	603069.10	18.1	GRID	7/13/2016	18.1	0.0	Point surveyed within Tolerance
284	685651.10	603056.50	17.9	GRID	7/13/2016	18.0	0.1	Point surveyed within Tolerance
285	685629.50	603043.80	21.7	GRID	7/13/2016	21.6	-0.1	Point surveyed within Tolerance
286	685607.90	603031.20	19.8	GRID	7/13/2016	19.8	0.0	Point surveyed within Tolerance
287	685586.30	603018.60	19.9	GRID	7/13/2016	19.8	-0.1	Point surveyed within Tolerance
288	685564.80	603005.90	19.3	GRID	7/13/2016	19.4	0.1	Point surveyed within Tolerance
289	685543.20	602993.30	21.5	GRID	7/13/2016	21.5	0.0	Point surveyed within Tolerance
290	685521.60	602980.70	21.0	GRID	7/13/2016	21.0	0.0	Point surveyed within Tolerance
291	685478.50	602955.40	16.9	GRID	7/13/2016	17.0	0.1	Point surveyed within Tolerance
292	685500.00	602968.00	18.0	GRID	7/13/2016	18.0	0.0	Point surveyed within Tolerance
293	685465.80	602977.00	16.7	GRID	7/13/2016	16.7	0.0	Point surveyed within Tolerance
294	685487.40	602989.60	17.8	GRID	7/13/2016	17.9	0.1	Point surveyed within Tolerance
295	685509.00	603002.20	20.8	GRID	7/13/2016	20.9	0.1	Point surveyed within Tolerance
296	685552.10	603027.50	18.9	GRID	7/13/2016	19.0	0.1	Point surveyed within Tolerance
297	685573.70	603040.10	18.9	GRID	7/13/2016	19.0	0.1	Point surveyed within Tolerance
298	685595.30	603052.80	21.4	GRID	7/13/2016	21.3	-0.1	Point surveyed within Tolerance
299	685616.90	603065.40	21.2	GRID	7/13/2016	21.3	0.1	Point surveyed within Tolerance
300	685638.40	603078.00	17.7	GRID	7/13/2016	17.7	0.0	Point surveyed within Tolerance
301	685660.00	603090.70	17.8	GRID	7/13/2016	17.9	0.1	Point surveyed within Tolerance
302	685647.40	603112.20	17.5	GRID	7/13/2016	17.4	-0.1	Point surveyed within Tolerance
303	685625.80	603099.60	17.3	GRID	7/13/2016	17.3	0.0	Point surveyed within Tolerance
304	685604.20	603087.00	17.9	GRID	7/13/2016	17.9	0.0	Point surveyed within Tolerance
305	685582.60	603074.30	20.5	GRID	7/13/2016	20.5	0.0	Point surveyed within Tolerance
306	685561.10	603061.70	18.3	GRID	7/13/2016	18.4	0.1	Point surveyed within Tolerance
307	685539.50	603049.10	18.5	GRID	7/13/2016	18.5	0.0	Point surveyed within Tolerance
308	685517.90	603036.50	18.4	GRID	7/13/2016	18.5	0.1	Point surveyed within Tolerance
309	685496.30	603023.80	20.5	GRID	7/13/2016	20.5	0.0	Point surveyed within Tolerance
310	685474.80	603011.20	17.5	GRID	7/13/2016	17.5	0.0	Point surveyed within Tolerance
311	685453.20	602998.60	16.4	GRID	7/13/2016	16.5	0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.8)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
312	685440.60	603020.10	16.2	GRID	7/13/2016	16.3	0.1	Point surveyed within Tolerance
313	685462.10	603032.80	17.0	GRID	7/13/2016	17.0	0.0	Point surveyed within Tolerance
314	685483.70	603045.40	19.7	GRID	7/13/2016	19.8	0.1	Point surveyed within Tolerance
315	685526.90	603070.70	19.9	GRID	7/13/2016	19.9	0.0	Point surveyed within Tolerance
316	685548.40	603083.30	19.7	GRID	7/13/2016	19.8	0.1	Point surveyed within Tolerance
317	685570.00	603095.90	19.5	GRID	7/13/2016	19.5	0.0	Point surveyed within Tolerance
318	685591.60	603108.60	17.0	GRID	7/13/2016	17.0	0.0	Point surveyed within Tolerance
319	685613.20	603121.20	16.9	GRID	7/13/2016	16.9	0.0	Point surveyed within Tolerance
320	685634.70	603133.80	17.2	GRID	7/13/2016	17.1	-0.1	Point surveyed within Tolerance
321	685622.10	603155.40	16.9	GRID	7/15/2016	16.9	0.0	Point surveyed within Tolerance
322	685600.50	603142.80	16.4	GRID	7/15/2016	16.5	0.1	Point surveyed within Tolerance
323	685579.00	603130.10	18.9	GRID	7/15/2016	18.8	-0.1	Point surveyed within Tolerance
324	685557.40	603117.50	18.6	GRID	7/15/2016	18.7	0.1	Point surveyed within Tolerance
325	685535.80	603104.90	18.7	GRID	7/15/2016	18.8	0.1	Point surveyed within Tolerance
326	685514.20	603092.20	18.9	GRID	7/15/2016	18.9	0.0	Point surveyed within Tolerance
327	685492.70	603079.60	16.6	GRID	7/15/2016	16.7	0.1	Point surveyed within Tolerance
328	685449.50	603054.30	19.1	GRID	7/15/2016	19.1	0.0	Point surveyed within Tolerance
329	685427.90	603041.70	15.9	GRID	7/15/2016	16.0	0.1	Point surveyed within Tolerance
330	685415.30	603063.30	15.7	GRID	7/15/2016	15.7	0.0	Point surveyed within Tolerance
331	685436.90	603075.90	15.9	GRID	7/15/2016	15.9	0.0	Point surveyed within Tolerance
332	685458.50	603088.50	15.7	GRID	7/15/2016	15.7	0.0	Point surveyed within Tolerance
333	685480.00	603101.20	15.2	GRID	7/15/2016	15.2	0.0	Point surveyed within Tolerance
334	685501.60	603113.80	15.1	GRID	7/15/2016	15.2	0.1	Point surveyed within Tolerance
335	685523.20	603126.40	15.0	GRID	7/15/2016	15.0	0.0	Point surveyed within Tolerance
336	685544.80	603139.10	15.1	GRID	7/15/2016	15.2	0.1	Point surveyed within Tolerance
337	685566.30	603151.70	15.8	GRID	7/15/2016	15.9	0.1	Point surveyed within Tolerance
338	685587.90	603164.30	15.4	GRID	7/18/2016	15.5	0.1	Point surveyed within Tolerance
339	685609.50	603177.00	16.5	GRID	7/18/2016	16.6	0.1	Point surveyed within Tolerance
340	685575.30	603185.90	11.8	GRID	7/21/2016	11.8	0.0	Point surveyed within Tolerance
341	685553.70	603173.30	10.4	GRID	7/21/2016	10.5	0.1	Point surveyed within Tolerance
342	685532.10	603160.60	10.1	GRID	7/21/2016	10.0	-0.1	Point surveyed within Tolerance
343	685510.50	603148.00	9.9	GRID	7/21/2016	9.9	0.0	Point surveyed within Tolerance
344	685424.20	603097.50	15.1	GRID	7/18/2016	15.2	0.1	Point surveyed within Tolerance
345	685390.00	603106.40	9.1	GRID	7/21/2016	9.1	0.0	Point surveyed within Tolerance
346	685411.60	603119.10	9.2	GRID	7/21/2016	9.2	0.0	Point surveyed within Tolerance
347	685433.20	603131.70	9.4	GRID	7/21/2016	9.3	-0.1	Point surveyed within Tolerance
348	685454.80	603144.30	9.5	GRID	7/21/2016	9.4	-0.1	Point surveyed within Tolerance
349	685476.30	603157.00	9.6	GRID	7/21/2016	9.6	0.0	Point surveyed within Tolerance
350	685497.90	603169.60	13.2	GRID	7/21/2016	13.3	0.1	Point surveyed within Tolerance
351	685519.50	603182.20	13.8	GRID	7/21/2016	13.9	0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.9)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
352	685541.10	603194.80	14.2	GRID	7/21/2016	14.2	0.0	Point surveyed within Tolerance
353	685562.60	603207.50	14.9	GRID	7/21/2016	14.9	0.0	Point surveyed within Tolerance
354	685584.20	603220.10	15.5	GRID	7/21/2016	15.5	0.0	Point surveyed within Tolerance
355	685571.60	603241.70	14.5	GRID	7/21/2016	14.5	0.0	Point surveyed within Tolerance
356	685550.00	603229.10	14.3	GRID	7/21/2016	14.3	0.0	Point surveyed within Tolerance
357	685506.90	603203.80	17.1	GRID	7/25/2016	17.1	0.0	Point surveyed within Tolerance
358	685485.30	603191.20	14.9	GRID	7/21/2016	14.8	-0.1	Point surveyed within Tolerance
359	685442.10	603165.90	14.4	GRID	7/21/2016	14.5	0.1	Point surveyed within Tolerance
360	685377.40	603128.00	9.1	GRID	7/21/2016	9.0	-0.1	Point surveyed within Tolerance
361	685364.80	603149.60	14.7	GRID	7/21/2016	14.6	-0.1	Point surveyed within Tolerance
362	685386.40	603162.20	15.1	GRID	7/21/2016	15.1	0.0	Point surveyed within Tolerance
363	685407.90	603174.80	14.8	GRID	7/21/2016	14.8	0.0	Point surveyed within Tolerance
364	685429.50	603187.50	14.9	GRID	7/21/2016	14.9	0.0	Point surveyed within Tolerance
365	685451.10	603200.10	14.7	GRID	7/21/2016	14.8	0.1	Point surveyed within Tolerance
366	685494.20	603225.40	17.1	GRID	7/25/2016	17.1	0.0	Point surveyed within Tolerance
367	685515.80	603238.00	14.0	GRID	7/25/2016	14.0	0.0	Point surveyed within Tolerance
368	685537.40	603250.60	13.8	GRID	7/21/2016	13.8	0.0	Point surveyed within Tolerance
369	685524.70	603272.20	13.1	GRID	7/25/2016	13.2	0.1	Point surveyed within Tolerance
370	685503.20	603259.60	13.3	GRID	7/25/2016	13.3	0.0	Point surveyed within Tolerance
371	685481.60	603246.90	14.0	GRID	7/25/2016	14.1	0.1	Point surveyed within Tolerance
372	685460.00	603234.30	14.2	GRID	7/25/2016	14.3	0.1	Point surveyed within Tolerance
373	685438.40	603221.70	17.0	GRID	7/25/2016	16.9	-0.1	Point surveyed within Tolerance
374	685416.90	603209.00	17.2	GRID	7/25/2016	17.2	0.0	Point surveyed within Tolerance
375	685395.30	603196.40	17.4	GRID	7/25/2016	17.4	0.0	Point surveyed within Tolerance
376	685373.70	603183.80	17.7	GRID	7/25/2016	17.6	-0.1	Point surveyed within Tolerance
377	685352.10	603171.10	14.4	GRID	7/25/2016	14.4	0.0	Point surveyed within Tolerance
378	685339.50	603192.70	14.2	GRID	7/25/2016	14.2	0.0	Point surveyed within Tolerance
379	685361.10	603205.40	17.4	GRID	7/25/2016	17.3	-0.1	Point surveyed within Tolerance
380	685382.70	603218.00	17.1	GRID	7/25/2016	17.1	0.0	Point surveyed within Tolerance
381	685404.20	603230.60	16.8	GRID	7/25/2016	16.8	0.0	Point surveyed within Tolerance
382	685425.80	603243.20	16.6	GRID	7/25/2016	16.5	-0.1	Point surveyed within Tolerance
383	685447.40	603255.90	13.8	GRID	7/25/2016	13.7	-0.1	Point surveyed within Tolerance
384	685469.00	603268.50	13.4	GRID	7/25/2016	13.4	0.0	Point surveyed within Tolerance
385	685490.50	603281.10	12.4	GRID	7/25/2016	12.4	0.0	Point surveyed within Tolerance
386	685512.10	603293.80	12.5	GRID	7/25/2016	12.6	0.1	Point surveyed within Tolerance
387	685477.90	603302.70	7.4	GRID	7/25/2016	7.4	0.0	Point surveyed within Tolerance
388	685456.30	603290.10	12.8	GRID	7/25/2016	12.7	-0.1	Point surveyed within Tolerance
389	685434.80	603277.50	13.2	GRID	7/25/2016	13.2	0.0	Point surveyed within Tolerance
390	685413.20	603264.80	16.1	GRID	7/25/2016	16.1	0.0	Point surveyed within Tolerance
391	685391.60	603252.20	16.4	GRID	7/25/2016	16.3	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.10)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
392	685326.90	603214.30	13.9	GRID	7/25/2016	13.9	0.0	Point surveyed within Tolerance
393	685314.30	603235.90	13.7	GRID	7/25/2016	13.7	0.0	Point surveyed within Tolerance
394	685335.80	603248.50	14.2	GRID	7/25/2016	14.1	-0.1	Point surveyed within Tolerance
395	685357.40	603261.10	13.7	GRID	7/25/2016	13.6	-0.1	Point surveyed within Tolerance
396	685379.00	603273.80	13.3	GRID	7/25/2016	13.2	-0.1	Point surveyed within Tolerance
397	685400.50	603286.40	13.0	GRID	7/25/2016	12.9	-0.1	Point surveyed within Tolerance
398	685422.10	603299.00	12.6	GRID	7/25/2016	12.5	-0.1	Point surveyed within Tolerance
399	685443.70	603311.70	12.1	GRID	7/25/2016	12.1	0.0	Point surveyed within Tolerance
400	685465.30	603324.30	11.0	GRID	7/25/2016	11.0	0.0	Point surveyed within Tolerance
401	685486.80	603336.90	11.4	GRID	7/25/2016	11.4	0.0	Point surveyed within Tolerance
402	685474.20	603358.50	10.9	GRID	7/27/2016	10.8	-0.1	Point surveyed within Tolerance
403	685452.60	603345.90	10.4	GRID	7/27/2016	10.4	0.0	Point surveyed within Tolerance
404	685431.10	603333.20	11.4	GRID	7/27/2016	11.4	0.0	Point surveyed within Tolerance
405	685409.50	603320.60	11.9	GRID	7/27/2016	11.9	0.0	Point surveyed within Tolerance
406	685387.90	603308.00	12.3	GRID	7/27/2016	12.3	0.0	Point surveyed within Tolerance
407	685366.30	603295.30	15.2	GRID	7/27/2016	15.1	-0.1	Point surveyed within Tolerance
408	685344.80	603282.70	15.6	GRID	7/27/2016	15.5	-0.1	Point surveyed within Tolerance
409	685323.20	603270.10	16.4	GRID	7/27/2016	16.3	-0.1	Point surveyed within Tolerance
410	685301.60	603257.40	13.4	GRID	7/27/2016	13.5	0.1	Point surveyed within Tolerance
411	685289.00	603279.00	13.3	GRID	7/27/2016	13.2	-0.1	Point surveyed within Tolerance
412	685310.60	603291.70	16.0	GRID	7/27/2016	15.9	-0.1	Point surveyed within Tolerance
413	685332.10	603304.30	15.2	GRID	7/27/2016	15.2	0.0	Point surveyed within Tolerance
414	685353.70	603316.90	14.5	GRID	7/27/2016	14.6	0.1	Point surveyed within Tolerance
415	685375.30	603329.50	11.6	GRID	7/27/2016	11.6	0.0	Point surveyed within Tolerance
416	685440.00	603367.40	9.8	GRID	7/27/2016	9.8	0.0	Point surveyed within Tolerance
417	685461.60	603380.10	10.4	GRID	7/27/2016	10.4	0.0	Point surveyed within Tolerance
418	685427.40	603389.00	9.3	GRID	7/27/2016	9.3	0.0	Point surveyed within Tolerance
419	685405.80	603376.40	9.8	GRID	7/27/2016	9.7	-0.1	Point surveyed within Tolerance
420	685384.20	603363.80	13.0	GRID	7/27/2016	13.0	0.0	Point surveyed within Tolerance
421	685362.70	603351.10	13.5	GRID	7/27/2016	13.4	-0.1	Point surveyed within Tolerance
422	685341.10	603338.50	14.2	GRID	7/27/2016	14.1	-0.1	Point surveyed within Tolerance
423	685319.50	603325.90	14.8	GRID	7/27/2016	14.7	-0.1	Point surveyed within Tolerance
424	685297.90	603313.20	15.6	GRID	7/27/2016	15.6	0.0	Point surveyed within Tolerance
425	685276.40	603300.60	13.2	GRID	7/27/2016	13.2	0.0	Point surveyed within Tolerance
426	685254.80	603288.00	13.2	GRID	7/27/2016	13.1	-0.1	Point surveyed within Tolerance
427	685242.20	603309.50	12.8	GRID	7/27/2016	12.8	0.0	Point surveyed within Tolerance
428	685263.70	603322.20	13.0	GRID	7/27/2016	13.0	0.0	Point surveyed within Tolerance
429	685285.30	603334.80	15.1	GRID	7/27/2016	15.1	0.0	Point surveyed within Tolerance
430	685306.90	603347.40	14.4	GRID	7/27/2016	14.4	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.11)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
431	685328.40	603360.10	13.8	GRID	7/27/2016	13.7	-0.1	Point surveyed within Tolerance
432	685350.00	603372.70	13.1	GRID	7/27/2016	13.1	0.0	Point surveyed within Tolerance
433	685371.60	603385.30	12.5	GRID	7/27/2016	12.4	-0.1	Point surveyed within Tolerance
434	685393.20	603398.00	9.0	GRID	7/27/2016	8.9	-0.1	Point surveyed within Tolerance
435	685414.70	603410.60	8.8	GRID	7/27/2016	8.8	0.0	Point surveyed within Tolerance
436	685402.10	603432.20	8.3	GRID	7/27/2016	8.3	0.0	Point surveyed within Tolerance
437	685380.50	603419.50	8.2	GRID	7/27/2016	8.3	0.1	Point surveyed within Tolerance
438	685359.00	603406.90	12.0	GRID	7/27/2016	11.9	-0.1	Point surveyed within Tolerance
439	685337.40	603394.30	12.8	GRID	7/27/2016	12.7	-0.1	Point surveyed within Tolerance
440	685294.20	603369.00	14.1	GRID	7/27/2016	14.0	-0.1	Point surveyed within Tolerance
441	685272.70	603356.40	14.7	GRID	7/27/2016	14.7	0.0	Point surveyed within Tolerance
442	685251.10	603343.70	12.9	GRID	7/27/2016	12.9	0.0	Point surveyed within Tolerance
443	685229.50	603331.10	12.5	GRID	7/27/2016	12.5	0.0	Point surveyed within Tolerance
444	685216.90	603352.70	12.1	GRID	7/27/2016	12.1	0.0	Point surveyed within Tolerance
445	685260.00	603377.90	14.3	GRID	7/27/2016	14.3	0.0	Point surveyed within Tolerance
446	685281.60	603390.60	11.0	GRID	7/27/2016	10.9	-0.1	Point surveyed within Tolerance
447	685303.20	603403.20	10.5	GRID	7/27/2016	10.6	0.1	Point surveyed within Tolerance
448	685324.80	603415.80	12.3	GRID	7/27/2016	12.3	0.0	Point surveyed within Tolerance
449	685346.30	603428.50	11.4	GRID	7/27/2016	11.3	-0.1	Point surveyed within Tolerance
450	685367.90	603441.10	7.5	GRID	7/27/2016	7.6	0.1	Point surveyed within Tolerance
451	685389.50	603453.70	7.9	GRID	8/3/2016	7.8	-0.1	Point surveyed within Tolerance
452	685376.90	603475.30	5.9	GRID	8/3/2016	6.0	0.1	Point surveyed within Tolerance
453	685355.30	603462.70	6.1	GRID	8/3/2016	6.2	0.1	Point surveyed within Tolerance
454	685333.70	603450.00	8.3	GRID	7/27/2016	8.4	0.1	Point surveyed within Tolerance
455	685312.10	603437.40	9.0	GRID	7/27/2016	9.0	0.0	Point surveyed within Tolerance
456	685290.60	603424.80	9.4	GRID	7/27/2016	9.4	0.0	Point surveyed within Tolerance
457	685269.00	603412.20	9.9	GRID	7/27/2016	9.9	0.0	Point surveyed within Tolerance
458	685247.40	603399.50	10.5	GRID	7/27/2016	10.5	0.0	Point surveyed within Tolerance
459	685225.80	603386.90	11.2	GRID	7/27/2016	11.2	0.0	Point surveyed within Tolerance
460	685204.30	603374.30	11.4	GRID	7/27/2016	11.4	0.0	Point surveyed within Tolerance
461	685170.10	603383.20	11.4	GRID	8/3/2016	11.4	0.0	Point surveyed within Tolerance
462	685191.60	603395.80	10.5	GRID	8/3/2016	10.5	0.0	Point surveyed within Tolerance
463	685213.20	603408.50	9.7	GRID	8/3/2016	9.6	-0.1	Point surveyed within Tolerance
464	685234.80	603421.10	8.9	GRID	8/3/2016	8.9	0.0	Point surveyed within Tolerance
465	685256.30	603433.70	8.2	GRID	8/3/2016	8.2	0.0	Point surveyed within Tolerance
466	685277.90	603446.40	7.6	GRID	8/3/2016	7.5	-0.1	Point surveyed within Tolerance
467	685299.50	603459.00	6.9	GRID	8/3/2016	6.9	0.0	Point surveyed within Tolerance
468	685321.10	603471.60	6.7	GRID	8/3/2016	6.7	0.0	Point surveyed within Tolerance
469	685342.60	603484.30	6.2	GRID	8/3/2016	6.2	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.12)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
470	685364.20	603496.90	7.2	GRID	8/3/2016	7.1	-0.1	Point surveyed within Tolerance
471	685330.00	603505.80	6.7	GRID	8/5/2016	6.6	-0.1	Point surveyed within Tolerance
472	685308.40	603493.20	6.7	GRID	8/5/2016	6.7	0.0	Point surveyed within Tolerance
473	685286.90	603480.60	6.7	GRID	8/5/2016	6.6	-0.1	Point surveyed within Tolerance
474	685265.30	603467.90	7.1	GRID	8/5/2016	7.0	-0.1	Point surveyed within Tolerance
475	685243.70	603455.30	7.9	GRID	8/5/2016	7.9	0.0	Point surveyed within Tolerance
476	685222.10	603442.70	8.8	GRID	8/5/2016	8.7	-0.1	Point surveyed within Tolerance
477	685200.60	603430.00	9.6	GRID	8/5/2016	9.5	-0.1	Point surveyed within Tolerance
478	685179.00	603417.40	10.4	GRID	8/5/2016	10.5	0.1	Point surveyed within Tolerance
479	685157.40	603404.80	11.2	GRID	8/5/2016	11.3	0.1	Point surveyed within Tolerance
480	685144.80	603426.40	11.3	GRID	8/5/2016	11.2	-0.1	Point surveyed within Tolerance
481	685166.40	603439.00	11.1	GRID	8/5/2016	11.2	0.1	Point surveyed within Tolerance
482	685187.90	603451.60	10.2	GRID	8/5/2016	10.2	0.0	Point surveyed within Tolerance
483	685209.50	603464.20	9.6	GRID	8/5/2016	9.5	-0.1	Point surveyed within Tolerance
484	685231.10	603476.90	8.4	GRID	8/5/2016	8.5	0.1	Point surveyed within Tolerance
485	685252.70	603489.50	7.4	GRID	8/5/2016	7.4	0.0	Point surveyed within Tolerance
486	685274.20	603502.10	6.7	GRID	8/5/2016	6.6	-0.1	Point surveyed within Tolerance
487	685295.80	603514.80	6.6	GRID	8/5/2016	6.5	-0.1	Point surveyed within Tolerance
488	685317.40	603527.40	6.8	GRID	8/5/2016	6.7	-0.1	Point surveyed within Tolerance
489	685304.80	603549.00	6.6	GRID	8/5/2016	6.5	-0.1	Point surveyed within Tolerance
490	685283.20	603536.30	6.4	GRID	8/5/2016	6.3	-0.1	Point surveyed within Tolerance
491	685261.60	603523.70	7.9	GRID	8/5/2016	7.8	-0.1	Point surveyed within Tolerance
492	685240.00	603511.10	8.5	GRID	8/5/2016	8.5	0.0	Point surveyed within Tolerance
493	685218.50	603498.50	11.6	GRID	8/5/2016	11.5	-0.1	Point surveyed within Tolerance
494	685196.90	603485.80	12.1	GRID	8/5/2016	12.1	0.0	Point surveyed within Tolerance
495	685175.30	603473.20	10.5	GRID	8/5/2016	10.5	0.0	Point surveyed within Tolerance
496	685153.80	603460.40	11.7	GRID	8/5/2016	11.6	-0.1	Point surveyed within Tolerance
497	685132.20	603447.90	10.9	GRID	8/5/2016	10.9	0.0	Point surveyed within Tolerance
498	685119.50	603469.50	10.6	GRID	8/5/2016	10.5	-0.1	Point surveyed within Tolerance
499	685141.10	603482.10	11.0	GRID	8/5/2016	11.0	0.0	Point surveyed within Tolerance
500	685162.70	603494.80	13.3	GRID	8/5/2016	13.2	-0.1	Point surveyed within Tolerance
501	685184.20	603507.40	12.7	GRID	8/5/2016	12.6	-0.1	Point surveyed within Tolerance
502	685205.80	603520.00	12.2	GRID	8/5/2016	12.1	-0.1	Point surveyed within Tolerance
503	685249.00	603545.30	7.4	GRID	8/5/2016	7.3	-0.1	Point surveyed within Tolerance
504	685270.50	603557.90	6.0	GRID	8/5/2016	5.9	-0.1	Point surveyed within Tolerance
505	685292.10	603570.60	6.6	GRID	8/5/2016	6.5	-0.1	Point surveyed within Tolerance
506	685279.50	603592.10	5.8	GRID	8/9/2016	5.8	0.0	Point surveyed within Tolerance
507	685257.90	603579.50	5.2	GRID	8/9/2016	5.2	0.0	Point surveyed within Tolerance
508	685236.30	603566.90	6.8	GRID	8/9/2016	6.7	-0.1	Point surveyed within Tolerance
509	685193.20	603541.60	12.1	GRID	8/9/2016	12.0	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.13)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
510	685171.60	603529.00	12.6	GRID	8/9/2016	12.5	-0.1	Point surveyed within Tolerance
511	685150.00	603516.30	13.2	GRID	8/9/2016	13.1	-0.1	Point surveyed within Tolerance
512	685128.50	603503.70	13.7	GRID	8/9/2016	13.6	-0.1	Point surveyed within Tolerance
513	685106.90	603491.10	10.5	GRID	8/9/2016	10.4	-0.1	Point surveyed within Tolerance
514	685072.70	603500.00	10.4	GRID	8/9/2016	10.3	-0.1	Point surveyed within Tolerance
515	685094.30	603512.60	10.5	GRID	8/9/2016	10.4	-0.1	Point surveyed within Tolerance
516	685115.80	603525.30	13.3	GRID	8/9/2016	13.2	-0.1	Point surveyed within Tolerance
517	685137.40	603537.90	12.9	GRID	8/9/2016	12.8	-0.1	Point surveyed within Tolerance
518	685159.00	603550.50	12.4	GRID	8/9/2016	12.4	0.0	Point surveyed within Tolerance
519	685180.60	603563.20	11.5	GRID	8/9/2016	11.4	-0.1	Point surveyed within Tolerance
520	685202.10	603575.80	7.9	GRID	8/9/2016	7.8	-0.1	Point surveyed within Tolerance
521	685223.70	603588.40	5.9	GRID	8/9/2016	5.9	0.0	Point surveyed within Tolerance
522	685245.30	603601.10	5.1	GRID	8/9/2016	5.0	-0.1	Point surveyed within Tolerance
523	685266.90	603613.70	6.2	GRID	8/9/2016	6.2	0.0	Point surveyed within Tolerance
524	685232.70	603622.60	5.0	GRID	8/9/2016	5.0	0.0	Point surveyed within Tolerance
525	685211.10	603610.00	5.5	GRID	8/9/2016	5.4	-0.1	Point surveyed within Tolerance
526	685189.50	603597.40	7.4	GRID	8/9/2016	7.4	0.0	Point surveyed within Tolerance
527	685167.90	603584.70	8.6	GRID	8/9/2016	8.5	-0.1	Point surveyed within Tolerance
528	685124.80	603559.50	12.6	GRID	8/9/2016	12.5	-0.1	Point surveyed within Tolerance
529	685103.20	603546.90	13.0	GRID	8/9/2016	12.9	-0.1	Point surveyed within Tolerance
530	685081.60	603534.20	10.5	GRID	8/9/2016	10.4	-0.1	Point surveyed within Tolerance
531	685060.10	603521.60	10.0	GRID	8/9/2016	9.9	-0.1	Point surveyed within Tolerance
532	685047.40	603543.20	9.7	GRID	8/9/2016	9.6	-0.1	Point surveyed within Tolerance
533	685090.60	603568.40	10.2	GRID	8/10/2016	10.9	0.7	Material Added to Facilitate Drainage
534	685112.10	603581.10	12.1	GRID	8/9/2016	12.1	0.0	Point surveyed within Tolerance
535	685133.70	603593.70	11.8	GRID	8/9/2016	11.7	-0.1	Point surveyed within Tolerance
536	685176.90	603619.00	7.0	GRID	8/9/2016	7.1	0.1	Point surveyed within Tolerance
537	685198.40	603631.60	5.1	GRID	8/9/2016	5.1	0.0	Point surveyed within Tolerance
538	685220.00	603644.20	5.1	GRID	8/9/2016	5.0	-0.1	Point surveyed within Tolerance
539	685207.40	603665.80	5.1	GRID	8/10/2016	5.0	-0.1	Point surveyed within Tolerance
540	685185.80	603653.20	4.9	GRID	8/10/2016	4.8	-0.1	Point surveyed within Tolerance
541	685164.20	603640.50	6.4	GRID	8/10/2016	6.4	0.0	Point surveyed within Tolerance
542	685121.10	603615.30	11.4	GRID	8/10/2016	11.4	0.0	Point surveyed within Tolerance
543	685099.50	603602.60	11.4	GRID	8/10/2016	11.3	-0.1	Point surveyed within Tolerance
544	685077.90	603590.00	11.9	GRID	8/10/2016	11.9	0.0	Point surveyed within Tolerance
545	685056.40	603577.40	12.7	GRID	8/10/2016	12.6	-0.1	Point surveyed within Tolerance
546	685034.80	603564.70	9.4	GRID	8/10/2016	9.4	0.0	Point surveyed within Tolerance
547	685022.20	603586.30	9.2	GRID	8/10/2016	9.3	0.1	Point surveyed within Tolerance
548	685043.70	603598.90	9.3	GRID	8/10/2016	9.2	-0.1	Point surveyed within Tolerance
549	685065.30	603611.60	8.5	GRID	8/10/2016	8.4	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Grid Points (Table 1.14)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
550	685086.90	603624.20	8.0	GRID	8/10/2016	8.0	0.0	Point surveyed within Tolerance
551	685108.50	603636.80	7.3	GRID	8/10/2016	7.2	-0.1	Point surveyed within Tolerance
552	685130.00	603649.50	6.7	GRID	8/10/2016	6.6	-0.1	Point surveyed within Tolerance
553	685151.60	603662.10	6.0	GRID	8/10/2016	6.0	0.0	Point surveyed within Tolerance
554	685173.20	603674.70	4.9	GRID	8/10/2016	4.8	-0.1	Point surveyed within Tolerance
555	685194.80	603687.40	4.7	GRID	8/10/2016	4.8	0.1	Point surveyed within Tolerance
556	685182.10	603708.90	5.9	GRID	8/10/2016	6.0	0.1	Point surveyed within Tolerance
557	685160.60	603696.30	4.8	GRID	8/12/2016	4.8	0.0	Point surveyed within Tolerance
558	685139.00	603683.70	4.9	GRID	8/10/2016	4.8	-0.1	Point surveyed within Tolerance
559	685117.40	603671.00	5.4	GRID	8/10/2016	5.3	-0.1	Point surveyed within Tolerance
560	685095.80	603658.40	6.0	GRID	8/10/2016	5.9	-0.1	Point surveyed within Tolerance
561	685074.30	603645.80	6.5	GRID	8/10/2016	6.5	0.0	Point surveyed within Tolerance
562	685052.70	603633.10	7.0	GRID	8/10/2016	7.1	0.1	Point surveyed within Tolerance
563	685031.10	603620.50	7.8	GRID	8/10/2016	7.7	-0.1	Point surveyed within Tolerance
564	685009.50	603607.90	8.5	GRID	8/10/2016	8.4	-0.1	Point surveyed within Tolerance
565	684988.00	603595.30	8.9	GRID	8/12/2016	8.9	0.0	Point surveyed within Tolerance
566	684975.30	603616.80	8.3	GRID	8/12/2016	8.2	-0.1	Point surveyed within Tolerance
567	684996.90	603629.50	7.8	GRID	8/12/2016	7.8	0.0	Point surveyed within Tolerance
568	685018.50	603642.10	7.4	GRID	8/12/2016	7.3	-0.1	Point surveyed within Tolerance
569	685040.00	603654.70	6.9	GRID	8/12/2016	6.9	0.0	Point surveyed within Tolerance
570	685061.60	603667.40	6.4	GRID	8/12/2016	6.3	-0.1	Point surveyed within Tolerance
571	685083.20	603680.00	5.9	GRID	8/12/2016	5.8	-0.1	Point surveyed within Tolerance
572	685104.80	603692.60	5.5	GRID	8/13/2016	5.4	-0.1	Point surveyed within Tolerance
573	685126.30	603705.20	5.0	GRID	8/13/2016	4.9	-0.1	Point surveyed within Tolerance
574	685147.90	603717.90	4.8	GRID	8/13/2016	4.7	-0.1	Point surveyed within Tolerance
576	685005.80	603663.70	7.3	GRID	8/12/2016	7.2	-0.1	Point surveyed within Tolerance
577	684984.30	603651.00	7.8	GRID	8/12/2016	7.8	0.0	Point surveyed within Tolerance
578	684962.70	603638.40	8.3	GRID	8/12/2016	8.3	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Break Points (Table 2.0)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
2000	685963.50	602222.90	12.5	BRK	6/20/2016	12.6	0.1	Point surveyed within Tolerance
2001	685959.20	602225.00	15.0	BRK	6/20/2016	14.9	-0.1	Point surveyed within Tolerance
2002	686044.60	602255.10	11.4	BRK	6/20/2016	11.3	-0.1	Point surveyed within Tolerance
2003	685995.00	602272.90	12.5	BRK	6/20/2016	12.6	0.1	Point surveyed within Tolerance
2004	685991.80	602271.00	15.0	BRK	6/20/2016	14.9	-0.1	Point surveyed within Tolerance
2005	685981.30	602293.80	15.3	BRK	6/20/2016	15.2	-0.1	Point surveyed within Tolerance
2006	685984.60	602295.70	12.8	BRK	6/20/2016	12.7	-0.1	Point surveyed within Tolerance
2007	685937.00	602325.80	15.9	BRK	6/23/2016	15.9	0.0	Point surveyed within Tolerance
2008	685933.30	602323.70	13.5	BRK	6/23/2016	13.5	0.0	Point surveyed within Tolerance
2009	685852.20	602416.10	17.7	BRK	6/27/2016	17.6	-0.1	Point surveyed within Tolerance
2010	685936.60	602267.70	13.0	BRK	6/20/2016	13.1	0.1	Point surveyed within Tolerance
2011	685940.00	602269.70	15.5	BRK	6/20/2016	15.4	-0.1	Point surveyed within Tolerance
2012	685849.90	602420.00	15.3	BRK	6/27/2016	15.3	0.0	Point surveyed within Tolerance
2013	685796.10	602561.30	18.5	BRK	6/29/2016	18.5	0.0	Point surveyed within Tolerance
2014	685794.20	602564.60	16.0	BRK	6/29/2016	16.1	0.1	Point surveyed within Tolerance
2015	685850.40	602564.80	18.3	BRK	6/27/2016	18.2	-0.1	Point surveyed within Tolerance
2016	685854.00	602566.90	15.7	BRK	6/27/2016	15.8	0.1	Point surveyed within Tolerance
2017	685836.80	602585.80	18.4	BRK	6/29/2016	18.3	-0.1	Point surveyed within Tolerance
2018	685840.10	602587.70	15.9	BRK	6/29/2016	15.9	0.0	Point surveyed within Tolerance
2019	685920.10	602349.50	16.2	BRK	6/23/2016	16.2	0.0	Point surveyed within Tolerance
2020	685922.60	602345.30	13.7	BRK	6/23/2016	13.7	0.0	Point surveyed within Tolerance
2021	685856.30	602313.50	8.6	BRK	6/23/2016	8.6	0.0	Point surveyed within Tolerance
2022	685851.30	602322.10	8.6	BRK	6/23/2016	8.7	0.1	Point surveyed within Tolerance
2023	685843.50	602327.60	14.4	BRK	6/23/2016	14.3	-0.1	Point surveyed within Tolerance
2024	685860.60	602306.10	14.3	BRK	6/23/2016	14.2	-0.1	Point surveyed within Tolerance
2025	685912.10	602513.80	10.0	BRK	6/27/2016	9.9	-0.1	Point surveyed within Tolerance
2026	685914.00	602508.20	13.9	BRK	6/27/2016	13.9	0.0	Point surveyed within Tolerance
2027	685826.00	602460.70	15.8	BRK	6/27/2016	15.8	0.0	Point surveyed within Tolerance
2028	685824.00	602464.20	18.4	BRK	6/27/2016	18.5	0.1	Point surveyed within Tolerance
2029	685833.70	602645.50	13.5	BRK	6/29/2016	13.6	0.1	Point surveyed within Tolerance
2030	685815.80	602627.70	15.3	BRK	6/29/2016	15.4	0.1	Point surveyed within Tolerance
2031	685813.90	602630.20	13.8	BRK	6/29/2016	13.8	0.0	Point surveyed within Tolerance
2032	685705.00	602711.40	18.9	BRK	7/1/2016	18.8	-0.1	Point surveyed within Tolerance
2033	685708.50	602713.50	21.5	BRK	7/1/2016	21.4	-0.1	Point surveyed within Tolerance
2034	685697.20	602677.90	20.8	BRK	7/1/2016	20.9	0.1	Point surveyed within Tolerance
2035	685701.40	602680.40	18.4	BRK	7/1/2016	18.3	-0.1	Point surveyed within Tolerance
2036	685711.80	602657.50	20.1	BRK	7/1/2016	20.0	-0.1	Point surveyed within Tolerance
2037	685756.40	602678.80	17.2	BRK	7/1/2016	17.2	0.0	Point surveyed within Tolerance
2038	685754.00	602682.00	19.9	BRK	7/1/2016	20.0	0.1	Point surveyed within Tolerance
2039	685732.00	602720.30	17.5	BRK	7/1/2016	17.5	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Break Points (Table 2.1)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
2040	685728.90	602725.70	21.7	BRK	7/1/2016	21.7	0.0	Point surveyed within Tolerance
2041	685707.80	602655.10	17.6	BRK	7/1/2016	17.7	0.1	Point surveyed within Tolerance
2042	685764.90	602717.50	18.0	BRK	7/1/2016	18.0	0.0	Point surveyed within Tolerance
2043	685761.00	602715.30	20.7	BRK	7/1/2016	20.7	0.0	Point surveyed within Tolerance
2044	685822.00	602722.00	14.7	BRK	7/1/2016	14.7	0.0	Point surveyed within Tolerance
2045	685818.70	602720.10	17.2	BRK	7/1/2016	17.3	0.1	Point surveyed within Tolerance
2046	685829.80	602697.60	17.0	BRK	7/1/2016	17.0	0.0	Point surveyed within Tolerance
2047	685833.00	602699.50	14.5	BRK	6/29/2016	14.5	0.0	Point surveyed within Tolerance
2048	685746.80	602645.60	16.5	BRK	6/29/2016	16.5	0.0	Point surveyed within Tolerance
2049	685835.80	602641.50	15.8	BRK	6/29/2016	15.8	0.0	Point surveyed within Tolerance
2050	685783.50	602786.40	18.4	BRK	7/1/2016	18.4	0.0	Point surveyed within Tolerance
2051	685780.10	602784.40	21.0	BRK	7/1/2016	21.0	0.0	Point surveyed within Tolerance
2052	685805.30	602793.00	14.9	BRK	7/7/2016	14.9	0.0	Point surveyed within Tolerance
2053	685802.50	602795.10	17.0	BRK	7/7/2016	17.0	0.0	Point surveyed within Tolerance
2054	685827.20	602831.00	17.0	BRK	7/7/2016	17.1	0.1	Point surveyed within Tolerance
2055	685744.20	602650.00	19.2	BRK	7/1/2016	19.2	0.0	Point surveyed within Tolerance
2056	685800.50	602883.20	18.2	BRK	7/7/2016	18.2	0.0	Point surveyed within Tolerance
2057	685789.50	602905.80	18.5	BRK	7/7/2016	18.4	-0.1	Point surveyed within Tolerance
2058	685822.90	602664.90	13.5	BRK	6/29/2016	13.6	0.1	Point surveyed within Tolerance
2059	685820.20	602668.40	15.7	BRK	6/29/2016	15.7	0.0	Point surveyed within Tolerance
2060	685800.10	602651.00	15.0	BRK	6/29/2016	15.0	0.0	Point surveyed within Tolerance
2061	685801.80	602648.60	13.7	BRK	6/29/2016	13.7	0.0	Point surveyed within Tolerance
2062	685776.30	602694.10	17.2	BRK	7/1/2016	17.3	0.1	Point surveyed within Tolerance
2063	685774.30	602697.60	19.9	BRK	7/1/2016	19.8	-0.1	Point surveyed within Tolerance
2064	685811.40	602860.70	17.9	BRK	7/7/2016	17.9	0.0	Point surveyed within Tolerance
2065	685790.60	602471.80	19.2	BRK	6/27/2016	19.1	-0.1	Point surveyed within Tolerance
2066	685787.30	602469.90	16.8	BRK	6/27/2016	16.8	0.0	Point surveyed within Tolerance
2067	685775.20	602491.80	16.8	BRK	6/27/2016	16.8	0.0	Point surveyed within Tolerance
2068	685778.40	602493.70	19.3	BRK	6/27/2016	19.2	-0.1	Point surveyed within Tolerance
2069	685657.70	602799.60	19.1	BRK	7/7/2016	19.0	-0.1	Point surveyed within Tolerance
2070	685654.60	602797.80	21.5	BRK	7/7/2016	21.4	-0.1	Point surveyed within Tolerance
2071	685671.10	602778.50	19.1	BRK	7/7/2016	19.2	0.1	Point surveyed within Tolerance
2072	685667.90	602776.60	21.5	BRK	7/7/2016	21.5	0.0	Point surveyed within Tolerance
2073	685709.40	602857.90	20.1	BRK	7/7/2016	20.2	0.1	Point surveyed within Tolerance
2074	685711.30	602854.60	22.6	BRK	7/7/2016	22.6	0.0	Point surveyed within Tolerance
2075	685729.70	602872.60	19.7	BRK	7/7/2016	19.7	0.0	Point surveyed within Tolerance
2076	685731.80	602869.10	22.2	BRK	7/7/2016	22.2	0.0	Point surveyed within Tolerance
2077	685795.70	602764.50	18.0	BRK	7/1/2016	18.0	0.0	Point surveyed within Tolerance
2078	685800.00	602767.10	14.7	BRK	7/1/2016	14.7	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

Points in 0.1 - 0.5 ft. tolerance are due to a slight overcut in the top of slopes where it wouldn't be suitable for backfill due to compaction difficulties.

SA-6 North Cap Subgrade: Break Points (Table 2.2)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
2079	685792.80	602762.90	18.1	BRK	7/1/2016	18.1	0.0	Point surveyed within Tolerance
2080	685789.40	602760.90	20.7	BRK	7/1/2016	20.7	0.0	Point surveyed within Tolerance
2081	685557.30	602969.20	19.0	BRK	7/13/2016	19.0	0.0	Point surveyed within Tolerance
2082	685555.40	602972.40	21.5	BRK	7/13/2016	21.4	-0.1	Point surveyed within Tolerance
2083	685468.20	603121.30	13.6	BRK	7/15/2016	13.6	0.0	Point surveyed within Tolerance
2084	685465.10	603126.70	9.5	BRK	7/18/2016	9.5	0.0	Point surveyed within Tolerance
2085	685475.10	603069.30	16.6	BRK	7/15/2016	16.6	0.0	Point surveyed within Tolerance
2086	685471.50	603067.20	19.0	BRK	7/15/2016	19.0	0.0	Point surveyed within Tolerance
2087	685533.60	603016.70	18.9	BRK	7/13/2016	19.0	0.1	Point surveyed within Tolerance
2088	685530.40	603014.80	21.4	BRK	7/13/2016	21.3	-0.1	Point surveyed within Tolerance
2089	685536.30	602955.60	18.6	BRK	7/13/2016	18.6	0.0	Point surveyed within Tolerance
2090	685534.30	602959.00	21.1	BRK	7/13/2016	21.0	-0.1	Point surveyed within Tolerance
2091	685507.60	603059.40	20.1	BRK	7/13/2016	20.0	-0.1	Point surveyed within Tolerance
2092	685504.40	603057.50	17.6	BRK	7/13/2016	17.6	0.0	Point surveyed within Tolerance
2093	685594.50	603202.50	16.1	BRK	7/21/2016	16.1	0.0	Point surveyed within Tolerance
2094	685596.80	603198.60	13.2	BRK	7/21/2016	13.1	-0.1	Point surveyed within Tolerance
2095	685405.10	603081.80	15.5	BRK	7/15/2016	15.5	0.0	Point surveyed within Tolerance
2096	685395.60	603083.30	9.1	BRK	7/18/2016	9.2	0.1	Point surveyed within Tolerance
2097	685399.60	603139.50	9.2	BRK	7/21/2016	9.3	0.1	Point surveyed within Tolerance
2098	685395.00	603147.40	15.1	BRK	7/21/2016	15.0	-0.1	Point surveyed within Tolerance
2099	685423.70	603148.00	9.4	BRK	7/21/2016	9.4	0.0	Point surveyed within Tolerance
2100	685441.60	603117.40	9.4	BRK	7/18/2016	9.5	0.1	Point surveyed within Tolerance
2101	685420.00	603154.10	14.0	BRK	7/21/2016	14.1	0.1	Point surveyed within Tolerance
2102	685445.00	603111.60	13.8	BRK	7/15/2016	13.9	0.1	Point surveyed within Tolerance
2103	685491.70	603130.70	13.6	BRK	7/15/2016	13.7	0.1	Point surveyed within Tolerance
2104	685488.70	603135.90	9.7	BRK	7/18/2016	9.7	0.0	Point surveyed within Tolerance
2105	685470.80	603211.60	14.8	BRK	7/25/2016	14.9	0.1	Point surveyed within Tolerance
2106	685468.50	603181.50	10.8	BRK	7/21/2016	10.9	0.1	Point surveyed within Tolerance
2107	685463.60	603179.40	14.4	BRK	7/21/2016	14.4	0.0	Point surveyed within Tolerance
2108	685616.60	603185.80	13.5	BRK	7/18/2016	13.5	0.0	Point surveyed within Tolerance
2109	685614.80	603180.20	16.5	BRK	7/15/2016	16.6	0.1	Point surveyed within Tolerance
2110	685473.50	603213.20	17.0	BRK	7/25/2016	17.0	0.0	Point surveyed within Tolerance
2111	685663.50	603121.70	12.5	BRK	7/13/2016	12.6	0.1	Point surveyed within Tolerance
2112	685647.90	603127.60	17.5	BRK	7/13/2016	17.4	-0.1	Point surveyed within Tolerance
2113	685675.50	603099.70	12.8	BRK	7/13/2016	12.8	0.0	Point surveyed within Tolerance
2114	685660.10	603105.60	17.8	BRK	7/13/2016	17.8	0.0	Point surveyed within Tolerance
2115	685722.70	603040.50	13.0	BRK	7/12/2016	13.0	0.0	Point surveyed within Tolerance
2116	685712.80	603034.70	18.7	BRK	7/12/2016	18.8	0.1	Point surveyed within Tolerance
2117	685693.80	603081.50	13.0	BRK	7/13/2016	13.0	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Break Points (Table 2.3)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
2118	685684.50	603076.10	18.4	BRK	7/13/2016	18.4	0.0	Point surveyed within Tolerance
2119	685708.50	603061.10	13.0	BRK	7/12/2016	13.1	0.1	Point surveyed within Tolerance
2120	685698.80	603055.40	18.6	BRK	7/12/2016	18.5	-0.1	Point surveyed within Tolerance
2121	685773.30	602954.20	13.0	BRK	7/8/2016	13.0	0.0	Point surveyed within Tolerance
2122	685763.40	602948.40	18.7	BRK	7/8/2016	18.8	0.1	Point surveyed within Tolerance
2123	685736.50	603019.60	13.0	BRK	7/12/2016	13.1	0.1	Point surveyed within Tolerance
2124	685726.40	603013.70	18.8	BRK	7/12/2016	18.8	0.0	Point surveyed within Tolerance
2125	685749.70	602998.40	13.0	BRK	7/8/2016	13.1	0.1	Point surveyed within Tolerance
2126	685739.60	602992.40	18.9	BRK	7/8/2016	18.9	0.0	Point surveyed within Tolerance
2127	685762.20	602976.70	13.0	BRK	7/8/2016	13.0	0.0	Point surveyed within Tolerance
2128	685752.10	602970.80	18.9	BRK	7/8/2016	18.8	-0.1	Point surveyed within Tolerance
2129	685784.70	602933.00	13.0	BRK	7/8/2016	13.1	0.1	Point surveyed within Tolerance
2130	685776.70	602925.80	18.7	BRK	7/8/2016	18.7	0.0	Point surveyed within Tolerance
2131	685530.40	603217.60	14.7	BRK	7/25/2016	14.7	0.0	Point surveyed within Tolerance
2132	685527.40	603215.80	17.5	BRK	7/25/2016	17.5	0.0	Point surveyed within Tolerance
2133	685368.50	603242.20	14.1	BRK	7/25/2016	14.2	0.1	Point surveyed within Tolerance
2134	685370.50	603238.70	16.7	BRK	7/25/2016	16.6	-0.1	Point surveyed within Tolerance
2135	685350.10	603224.10	17.0	BRK	7/25/2016	16.9	-0.1	Point surveyed within Tolerance
2136	685348.20	603227.40	14.5	BRK	7/25/2016	14.6	0.1	Point surveyed within Tolerance
2137	685398.30	603339.70	11.3	BRK	7/27/2016	11.4	0.1	Point surveyed within Tolerance
2138	685396.20	603343.20	13.7	BRK	7/27/2016	13.6	-0.1	Point surveyed within Tolerance
2139	685420.60	603353.70	10.7	BRK	7/27/2016	10.8	0.1	Point surveyed within Tolerance
2140	685415.10	603354.10	13.3	BRK	7/27/2016	13.3	0.0	Point surveyed within Tolerance
2141	685497.90	603316.30	7.3	BRK	7/25/2016	7.3	0.0	Point surveyed within Tolerance
2142	685502.30	603310.60	12.1	BRK	7/25/2016	12.2	0.1	Point surveyed within Tolerance
2143	685313.20	603384.50	10.9	BRK	7/27/2016	10.9	0.0	Point surveyed within Tolerance
2144	685315.90	603381.60	13.4	BRK	7/27/2016	13.5	0.1	Point surveyed within Tolerance
2145	685073.60	603554.90	13.1	BRK	8/9/2016	13.0	-0.1	Point surveyed within Tolerance
2146	685066.30	603557.80	10.6	BRK	8/9/2016	10.5	-0.1	Point surveyed within Tolerance
2147	685216.30	603555.10	8.1	BRK	8/9/2016	8.1	0.0	Point surveyed within Tolerance
2148	685212.80	603553.10	10.8	BRK	8/9/2016	10.7	-0.1	Point surveyed within Tolerance
2149	685223.70	603530.50	11.0	BRK	8/5/2016	10.9	-0.1	Point surveyed within Tolerance
2150	685227.20	603532.50	8.5	BRK	8/5/2016	8.5	0.0	Point surveyed within Tolerance
2151	685148.10	603569.80	12.3	BRK	8/9/2016	12.2	-0.1	Point surveyed within Tolerance
2152	685146.90	603573.50	9.7	BRK	8/9/2016	9.7	0.0	Point surveyed within Tolerance
2153	685143.40	603571.70	12.3	BRK	8/9/2016	12.2	-0.1	Point surveyed within Tolerance
2154	685155.60	603606.50	10.8	BRK	8/9/2016	10.7	-0.1	Point surveyed within Tolerance
2155	685159.10	603608.60	8.1	BRK	8/9/2016	8.2	0.1	Point surveyed within Tolerance
2156	685143.40	603628.30	7.9	BRK	8/10/2016	7.8	-0.1	Point surveyed within Tolerance
2157	685139.90	603626.30	10.6	BRK	8/10/2016	10.5	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Break Points (Table 2.4)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
2158	685236.50	603364.20	12.9	BRK	7/27/2016	12.8	-0.1	Point surveyed within Tolerance
2159	685239.30	603365.80	15.0	BRK	7/27/2016	14.9	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Boundary Points (Table 3.0)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1000	685974.80	602058.20	11.8	BNDY	6/20/2016	11.8	0.0	Point surveyed within Tolerance
1001	685996.40	602070.70	11.1	BNDY	6/20/2016	11.1	0.0	Point surveyed within Tolerance
1002	686018.10	602083.20	10.6	BNDY	6/20/2016	10.6	0.0	Point surveyed within Tolerance
1003	686034.30	602092.60	10.6	BNDY	6/20/2016	10.6	0.0	Point surveyed within Tolerance
1004	686042.90	602090.30	10.6	BNDY	6/20/2016	10.6	0.0	Point surveyed within Tolerance
1005	686053.70	602087.50	10.6	BNDY	6/20/2016	10.6	0.0	Point surveyed within Tolerance
1006	686070.10	602097.00	10.8	BNDY	6/20/2016	10.9	0.1	Point surveyed within Tolerance
1007	686075.10	602116.10	10.7	BNDY	6/20/2016	10.7	0.0	Point surveyed within Tolerance
1008	686083.10	602120.70	10.8	BNDY	6/20/2016	10.9	0.1	Point surveyed within Tolerance
1009	686107.60	602134.80	7.9	BNDY	6/20/2016	7.9	0.0	Point surveyed within Tolerance
1010	686096.70	602158.60	8.0	BNDY	6/20/2016	8.0	0.0	Point surveyed within Tolerance
1012	686086.20	602181.40	8.1	BNDY	6/20/2016	8.1	0.0	Point surveyed within Tolerance
1013	686075.80	602204.30	8.2	BNDY	6/20/2016	8.2	0.0	Point surveyed within Tolerance
1014	686065.30	602227.10	8.3	BNDY	6/20/2016	8.4	0.1	Point surveyed within Tolerance
1015	686054.90	602250.00	8.4	BNDY	6/20/2016	8.5	0.1	Point surveyed within Tolerance
1016	686051.10	602258.10	6.6	BNDY	6/20/2016	6.6	0.0	Point surveyed within Tolerance
1017	686043.70	602274.40	11.7	BNDY	6/20/2016	11.6	-0.1	Point surveyed within Tolerance
1018	686052.80	602278.50	11.9	BNDY	6/20/2016	11.9	0.0	Point surveyed within Tolerance
1019	686041.80	602300.30	12.1	BNDY	6/20/2016	12.1	0.0	Point surveyed within Tolerance
1020	686030.50	602322.60	12.4	BNDY	6/20/2016	12.4	0.0	Point surveyed within Tolerance
1021	686019.20	602344.90	12.6	BNDY	6/23/2016	12.6	0.0	Point surveyed within Tolerance
1022	686007.80	602367.30	12.9	BNDY	6/23/2016	12.9	0.0	Point surveyed within Tolerance
1023	685996.50	602389.60	13.1	BNDY	6/23/2016	13.1	0.0	Point surveyed within Tolerance
1024	685985.20	602412.00	13.4	BNDY	6/23/2016	13.3	-0.1	Point surveyed within Tolerance
1025	685973.90	602434.30	13.6	BNDY	6/23/2016	13.6	0.0	Point surveyed within Tolerance
1026	685962.60	602456.70	13.7	BNDY	6/27/2016	13.7	0.0	Point surveyed within Tolerance
1027	685951.80	602479.30	13.9	BNDY	6/27/2016	13.9	0.0	Point surveyed within Tolerance
1028	685941.00	602502.00	14.1	BNDY	6/27/2016	14.1	0.0	Point surveyed within Tolerance
1029	685930.20	602524.60	9.9	BNDY	6/27/2016	9.8	-0.1	Point surveyed within Tolerance
1030	685919.40	602547.30	14.5	BNDY	6/27/2016	14.5	0.0	Point surveyed within Tolerance
1031	685908.60	602569.90	14.7	BNDY	6/27/2016	14.7	0.0	Point surveyed within Tolerance
1032	685897.80	602592.60	14.9	BNDY	6/27/2016	14.9	0.0	Point surveyed within Tolerance
1033	685887.00	602615.20	15.1	BNDY	6/29/2016	15.1	0.0	Point surveyed within Tolerance
1034	685876.20	602637.90	15.3	BNDY	6/29/2016	15.3	0.0	Point surveyed within Tolerance
1035	685865.40	602660.50	15.5	BNDY	6/29/2016	15.5	0.0	Point surveyed within Tolerance
1036	685854.40	602683.00	13.5	BNDY	6/29/2016	13.4	-0.1	Point surveyed within Tolerance
1037	685843.40	602705.60	14.5	BNDY	6/29/2016	14.6	0.1	Point surveyed within Tolerance
1038	685832.40	602728.10	14.7	BNDY	7/1/2016	14.6	-0.1	Point surveyed within Tolerance
1039	685821.40	602750.60	14.7	BNDY	7/1/2016	14.7	0.0	Point surveyed within Tolerance
1040	685808.80	602776.40	14.7	BNDY	7/1/2016	14.7	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Boundary Points (Table 3.1)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1041	685836.50	602789.20	12.9	BNDY	7/1/2016	13.0	0.1	Point surveyed within Tolerance
1042	685852.60	602796.70	12.8	BNDY	7/1/2016	12.8	0.0	Point surveyed within Tolerance
1043	685850.80	602802.10	12.8	BNDY	7/1/2016	12.8	0.0	Point surveyed within Tolerance
1044	685842.60	602821.00	18.0	BNDY	7/7/2016	16.6	-1.4	Out of Tolerance due to HB Wall Lower than Design Elevation
1045	685838.20	602831.10	18.3	BNDY	7/7/2016	18.2	-0.1	Point surveyed within Tolerance
1046	685836.40	602830.30	18.1	BNDY	7/7/2016	18.1	0.0	Point surveyed within Tolerance
1047	685832.30	602839.50	14.2	BNDY	7/7/2016	14.2	0.0	Point surveyed within Tolerance
1048	685830.30	602838.50	14.0	BNDY	7/7/2016	14.1	0.1	Point surveyed within Tolerance
1049	685818.30	602864.70	14.0	BNDY	7/7/2016	14.1	0.1	Point surveyed within Tolerance
1050	685807.80	602887.50	14.0	BNDY	7/7/2016	14.0	0.0	Point surveyed within Tolerance
1051	685797.30	602910.30	14.0	BNDY	7/7/2016	13.9	-0.1	Point surveyed within Tolerance
1052	685786.80	602933.10	12.0	BNDY	7/8/2016	12.0	0.0	Point surveyed within Tolerance
1053	685776.20	602955.90	12.0	BNDY	7/8/2016	12.0	0.0	Point surveyed within Tolerance
1054	685765.80	602978.80	12.0	BNDY	7/8/2016	12.1	0.1	Point surveyed within Tolerance
1055	685755.30	603001.60	11.8	BNDY	7/8/2016	11.4	-0.4	Out of Tolerance due to HB Wall Lower than Design Elevation
1056	685744.80	603024.40	11.5	BNDY	7/12/2016	11.5	0.0	Point surveyed within Tolerance
1057	685734.20	603047.20	11.5	BNDY	7/12/2016	11.5	0.0	Point surveyed within Tolerance
1058	685723.70	603070.00	11.5	BNDY	7/12/2016	11.6	0.1	Point surveyed within Tolerance
1059	685713.10	603092.80	11.5	BNDY	7/13/2016	11.5	0.0	Point surveyed within Tolerance
1060	685704.90	603110.60	11.5	BNDY	7/13/2016	11.5	0.0	Point surveyed within Tolerance
1061	685679.60	603098.80	11.5	BNDY	7/13/2016	11.6	0.1	Point surveyed within Tolerance
1062	685667.90	603124.20	11.5	BNDY	7/13/2016	11.4	-0.1	Point surveyed within Tolerance
1063	685658.70	603143.90	12.0	BNDY	7/18/2016	12.1	0.1	Point surveyed within Tolerance
1064	685651.30	603140.50	12.7	BNDY	7/18/2016	12.7	0.0	Point surveyed within Tolerance
1065	685634.80	603162.80	13.3	BNDY	7/18/2016	13.3	0.0	Point surveyed within Tolerance
1066	685619.90	603183.00	13.7	BNDY	7/18/2016	13.8	0.1	Point surveyed within Tolerance
1067	685604.80	603203.20	14.3	BNDY	7/21/2016	14.3	0.0	Point surveyed within Tolerance
1068	685589.70	603223.30	15.6	BNDY	7/21/2016	15.6	0.0	Point surveyed within Tolerance
1069	685574.10	603243.20	14.6	BNDY	7/21/2016	14.6	0.0	Point surveyed within Tolerance
1070	685558.90	603263.20	14.8	BNDY	7/21/2016	13.8	-1.0	Out of Tolerance due to HB Wall Lower than Design Elevation
1071	685549.20	603276.30	14.3	BNDY	7/21/2016	14.0	-0.3	Out of Tolerance due to HB Wall Lower than Design Elevation
1072	685536.50	603288.70	13.3	BNDY	7/25/2016	13.3	0.0	Point surveyed within Tolerance
1073	685533.80	603292.00	13.2	BNDY	7/25/2016	13.2	0.0	Point surveyed within Tolerance
1074	685528.20	603303.30	12.9	BNDY	7/25/2016	12.8	-0.1	Point surveyed within Tolerance
1075	685512.70	603323.10	9.8	BNDY	7/25/2016	9.8	0.0	Point surveyed within Tolerance
1076	685497.10	603342.90	11.9	BNDY	7/25/2016	11.9	0.0	Point surveyed within Tolerance
1077	685481.30	603362.70	11.1	BNDY	7/27/2016	11.2	0.1	Point surveyed within Tolerance
1078	685465.50	603382.40	10.5	BNDY	7/27/2016	10.4	-0.1	Point surveyed within Tolerance
1079	685449.60	603402.00	9.9	BNDY	7/27/2016	9.9	0.0	Point surveyed within Tolerance
1080	685433.60	603421.60	9.2	BNDY	8/3/2016	9.3	0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Boundary Points (Table 3.2)								
Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1081	685417.50	603441.20	8.7	BNDY	8/3/2016	8.8	0.1	Point surveyed within Tolerance
1082	685401.30	603460.70	8.2	BNDY	8/3/2016	8.3	0.1	Point surveyed within Tolerance
1083	685385.00	603480.10	5.9	BNDY	8/3/2016	6.0	0.1	Point surveyed within Tolerance
1084	685368.70	603499.50	7.3	BNDY	8/5/2016	7.2	-0.1	Point surveyed within Tolerance
1085	685352.20	603518.80	7.0	BNDY	8/5/2016	6.9	-0.1	Point surveyed within Tolerance
1086	685335.70	603538.10	7.0	BNDY	8/5/2016	7.0	0.0	Point surveyed within Tolerance
1087	685319.10	603557.40	7.0	BNDY	8/5/2016	6.9	-0.1	Point surveyed within Tolerance
1088	685302.60	603576.70	7.0	BNDY	8/5/2016	7.0	0.0	Point surveyed within Tolerance
1089	685286.00	603596.00	7.0	BNDY	8/9/2016	6.9	-0.1	Point surveyed within Tolerance
1090	685269.50	603615.30	7.0	BNDY	8/9/2016	6.9	-0.1	Point surveyed within Tolerance
1091	685253.00	603634.50	7.0	BNDY	8/9/2016	6.9	-0.1	Point surveyed within Tolerance
1092	685236.40	603653.80	7.0	BNDY	8/9/2016	6.9	-0.1	Point surveyed within Tolerance
1093	685219.90	603673.10	7.0	BNDY	8/10/2016	7.0	0.0	Point surveyed within Tolerance
1094	685203.30	603692.40	4.8	BNDY	8/12/2016	4.7	-0.1	Point surveyed within Tolerance
1095	685186.80	603711.70	7.0	BNDY	8/12/2016	6.9	-0.1	Point surveyed within Tolerance
1096	685170.20	603731.00	7.0	BNDY	8/12/2016	7.0	0.0	Point surveyed within Tolerance
1097	685161.70	603740.90	7.0	BNDY	8/13/2016	7.0	0.0	Point surveyed within Tolerance
1098	685140.30	603731.00	7.0	BNDY	8/13/2016	7.0	0.0	Point surveyed within Tolerance
1099	685117.50	603720.40	7.0	BNDY	8/13/2016	7.0	0.0	Point surveyed within Tolerance
1100	685094.70	603709.90	7.0	BNDY	8/13/2016	7.0	0.0	Point surveyed within Tolerance
1101	685071.80	603699.40	7.0	BNDY	8/13/2016	7.0	0.0	Point surveyed within Tolerance
1102	685049.00	603688.80	7.0	BNDY	8/12/2016	7.0	0.0	Point surveyed within Tolerance
1103	685026.20	603678.30	7.1	BNDY	8/12/2016	7.1	0.0	Point surveyed within Tolerance
1104	685003.40	603667.80	7.3	BNDY	8/12/2016	7.2	-0.1	Point surveyed within Tolerance
1105	684980.60	603657.30	8.0	BNDY	8/12/2016	8.0	0.0	Point surveyed within Tolerance
1106	684957.80	603646.70	8.5	BNDY	8/12/2016	8.5	0.0	Point surveyed within Tolerance
1107	684945.00	603640.20	8.6	BNDY	8/12/2016	10.7	2.1	Out of Tolerance due to SCB Wall Higher than Design Elevation
1108	684968.60	603612.90	8.5	BNDY	8/12/2016	8.5	0.0	Point surveyed within Tolerance
1109	684985.30	603593.70	8.9	BNDY	8/12/2016	8.9	0.0	Point surveyed within Tolerance
1110	685001.90	603574.50	9.6	BNDY	8/10/2016	9.7	0.1	Point surveyed within Tolerance
1111	685018.60	603555.20	9.8	BNDY	8/10/2016	9.7	-0.1	Point surveyed within Tolerance
1112	685035.20	603536.00	9.9	BNDY	8/10/2016	10.0	0.1	Point surveyed within Tolerance
1113	685051.90	603516.80	10.2	BNDY	8/9/2016	10.3	0.1	Point surveyed within Tolerance
1114	685068.50	603497.60	10.4	BNDY	8/9/2016	10.5	0.1	Point surveyed within Tolerance
1115	685085.20	603478.30	10.7	BNDY	8/9/2016	10.7	0.0	Point surveyed within Tolerance
1116	685101.80	603459.10	10.9	BNDY	8/5/2016	10.9	0.0	Point surveyed within Tolerance
1117	685118.50	603439.90	11.2	BNDY	8/5/2016	11.2	0.0	Point surveyed within Tolerance
1118	685135.10	603420.70	11.4	BNDY	8/5/2016	11.4	0.0	Point surveyed within Tolerance
1119	685151.70	603401.50	11.4	BNDY	8/5/2016	11.4	0.0	Point surveyed within Tolerance
1120	685168.40	603382.20	11.5	BNDY	8/3/2016	11.5	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Boundary Points (Table 3.3)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1121	685185.00	603363.00	11.5	BNDY	8/3/2016	11.5	0.0	Point surveyed within Tolerance
1122	685201.70	603343.80	12.4	BNDY	8/3/2016	12.4	0.0	Point surveyed within Tolerance
1123	685218.30	603324.60	12.7	BNDY	7/27/2016	12.7	0.0	Point surveyed within Tolerance
1124	685235.00	603305.30	13.0	BNDY	7/27/2016	13.0	0.0	Point surveyed within Tolerance
1125	685251.60	603286.10	13.2	BNDY	7/27/2016	13.3	0.1	Point surveyed within Tolerance
1126	685264.60	603271.10	13.4	BNDY	7/27/2016	13.5	0.1	Point surveyed within Tolerance
1127	685280.00	603244.80	13.7	BNDY	7/27/2016	13.8	0.1	Point surveyed within Tolerance
1128	685292.70	603223.20	14.0	BNDY	7/25/2016	14.0	0.0	Point surveyed within Tolerance
1129	685305.30	603201.70	14.2	BNDY	7/25/2016	14.3	0.1	Point surveyed within Tolerance
1130	685317.90	603180.10	14.5	BNDY	7/25/2016	14.5	0.0	Point surveyed within Tolerance
1131	685330.60	603158.50	14.6	BNDY	7/25/2016	14.6	0.0	Point surveyed within Tolerance
1132	685343.20	603136.90	14.3	BNDY	7/21/2016	14.4	0.1	Point surveyed within Tolerance
1133	685355.80	603115.40	9.0	BNDY	7/21/2016	9.0	0.0	Point surveyed within Tolerance
1134	685368.50	603093.80	9.0	BNDY	7/21/2016	8.9	-0.1	Point surveyed within Tolerance
1135	685381.10	603072.20	9.0	BNDY	7/21/2016	9.1	0.1	Point surveyed within Tolerance
1136	685391.10	603055.10	9.0	BNDY	7/18/2016	9.1	0.1	Point surveyed within Tolerance
1137	685406.40	603029.10	13.4	BNDY	7/15/2016	13.4	0.0	Point surveyed within Tolerance
1138	685419.00	603007.50	13.3	BNDY	7/13/2016	13.4	0.1	Point surveyed within Tolerance
1139	685431.60	602985.90	13.3	BNDY	7/13/2016	13.3	0.0	Point surveyed within Tolerance
1140	685444.30	602964.40	13.3	BNDY	7/13/2016	13.4	0.1	Point surveyed within Tolerance
1141	685456.90	602942.80	13.4	BNDY	7/13/2016	13.4	0.0	Point surveyed within Tolerance
1142	685469.50	602921.20	13.4	BNDY	7/12/2016	13.5	0.1	Point surveyed within Tolerance
1143	685482.20	602899.60	13.5	BNDY	7/12/2016	13.5	0.0	Point surveyed within Tolerance
1144	685494.80	602878.10	13.5	BNDY	7/12/2016	13.5	0.0	Point surveyed within Tolerance
1145	685507.40	602856.50	13.5	BNDY	7/8/2016	13.5	0.0	Point surveyed within Tolerance
1146	685520.00	602834.90	13.5	BNDY	7/8/2016	13.5	0.0	Point surveyed within Tolerance
1147	685532.70	602813.30	13.5	BNDY	7/8/2016	13.6	0.1	Point surveyed within Tolerance
1148	685545.30	602791.80	13.8	BNDY	7/8/2016	13.8	0.0	Point surveyed within Tolerance
1149	685557.90	602770.20	13.8	BNDY	7/7/2016	13.8	0.0	Point surveyed within Tolerance
1150	685570.60	602748.60	13.7	BNDY	7/7/2016	13.7	0.0	Point surveyed within Tolerance
1151	685583.20	602727.00	13.7	BNDY	7/7/2016	13.6	-0.1	Point surveyed within Tolerance
1152	685595.80	602705.50	13.6	BNDY	7/7/2016	13.6	0.0	Point surveyed within Tolerance
1153	685608.50	602683.90	13.4	BNDY	7/1/2016	13.5	0.1	Point surveyed within Tolerance
1154	685621.10	602662.30	13.1	BNDY	7/1/2016	13.2	0.1	Point surveyed within Tolerance
1155	685633.70	602640.70	12.8	BNDY	7/1/2016	12.9	0.1	Point surveyed within Tolerance
1156	685646.40	602619.20	12.6	BNDY	7/1/2016	12.6	0.0	Point surveyed within Tolerance
1157	685659.00	602597.60	12.3	BNDY	6/29/2016	12.3	0.0	Point surveyed within Tolerance
1158	685671.60	602576.00	12.2	BNDY	6/29/2016	12.2	0.0	Point surveyed within Tolerance
1159	685684.30	602554.40	12.1	BNDY	6/29/2016	12.1	0.0	Point surveyed within Tolerance
1160	685696.90	602532.90	12.1	BNDY	6/29/2016	12.1	0.0	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

SA-6 North Cap Subgrade: Boundary Points (Table 3.4)

Bottom Target Coordinates (based on TIN surface)					As-built Elevations			
Point #	Northing	Easting	Elevation 1	Description	Date Obtained	Elevation	Deviation 2	Comments
1161	685709.50	602511.30	12.2	BNDY	6/29/2016	12.2	0.0	Point surveyed within Tolerance
1162	685722.20	602489.70	12.5	BNDY	6/27/2016	12.4	-0.1	Point surveyed within Tolerance
1163	685734.80	602468.10	12.7	BNDY	6/27/2016	12.7	0.0	Point surveyed within Tolerance
1164	685747.40	602446.60	12.9	BNDY	6/27/2016	12.8	-0.1	Point surveyed within Tolerance
1165	685760.00	602425.00	13.0	BNDY	6/27/2016	13.0	0.0	Point surveyed within Tolerance
1166	685772.70	602403.40	13.2	BNDY	6/27/2016	13.3	0.1	Point surveyed within Tolerance
1167	685785.30	602381.80	13.5	BNDY	6/27/2016	13.5	0.0	Point surveyed within Tolerance
1168	685797.90	602360.30	13.7	BNDY	6/27/2016	13.7	0.0	Point surveyed within Tolerance
1169	685810.60	602338.70	13.9	BNDY	6/23/2016	13.9	0.0	Point surveyed within Tolerance
1170	685823.20	602317.10	13.9	BNDY	6/23/2016	13.9	0.0	Point surveyed within Tolerance
1171	685833.20	602300.00	8.5	BNDY	6/23/2016	8.5	0.0	Point surveyed within Tolerance
1172	685837.80	602292.20	13.9	BNDY	6/23/2016	13.9	0.0	Point surveyed within Tolerance
1173	685848.40	602274.00	14.3	BNDY	6/23/2016	14.2	-0.1	Point surveyed within Tolerance
1174	685861.10	602252.40	14.0	BNDY	6/23/2016	14.0	0.0	Point surveyed within Tolerance
1175	685873.70	602230.80	13.8	BNDY	6/20/2016	13.8	0.0	Point surveyed within Tolerance
1176	685886.40	602209.30	13.5	BNDY	6/20/2016	13.5	0.0	Point surveyed within Tolerance
1177	685899.00	602187.70	13.3	BNDY	6/20/2016	13.2	-0.1	Point surveyed within Tolerance
1178	685911.60	602166.10	13.0	BNDY	6/20/2016	13.0	0.0	Point surveyed within Tolerance
1179	685924.30	602144.50	12.8	BNDY	6/20/2016	12.8	0.0	Point surveyed within Tolerance
1180	685936.90	602123.00	12.5	BNDY	6/20/2016	12.5	0.0	Point surveyed within Tolerance
1181	685949.50	602101.40	12.3	BNDY	6/20/2016	12.3	0.0	Point surveyed within Tolerance
1182	685962.20	602079.80	12.1	BNDY	6/20/2016	12.2	0.1	Point surveyed within Tolerance
1183	685396.50	603046.00	13.0	BNDY	7/18/2016	13.0	0.0	Point surveyed within Tolerance
1184	684952.00	603632.10	8.5	BNDY	8/12/2016	8.4	-0.1	Point surveyed within Tolerance

1 This is the design elevation at Construction Control Grid Points.

2 Deviation = Surveyed Elevation - Design Elevation

Per SPECIFICATION 01460 SURVEY. SECTION 1.05 F. Spot Elevations - Survey shall be constructed to provide an accuracy of 0.1 feet vertically. Ninety percent of all spot elevations placed on the maps shall have an accuracy of at least 0.1', and the remaining 10 percent shall not be in error by more than one-half (1/2) the contour interval (0.5'). Break points added to replace Grid Points that fell on slopes and Boundary Points will be treated as Spot Elevations as defined in Section 1.05 F.

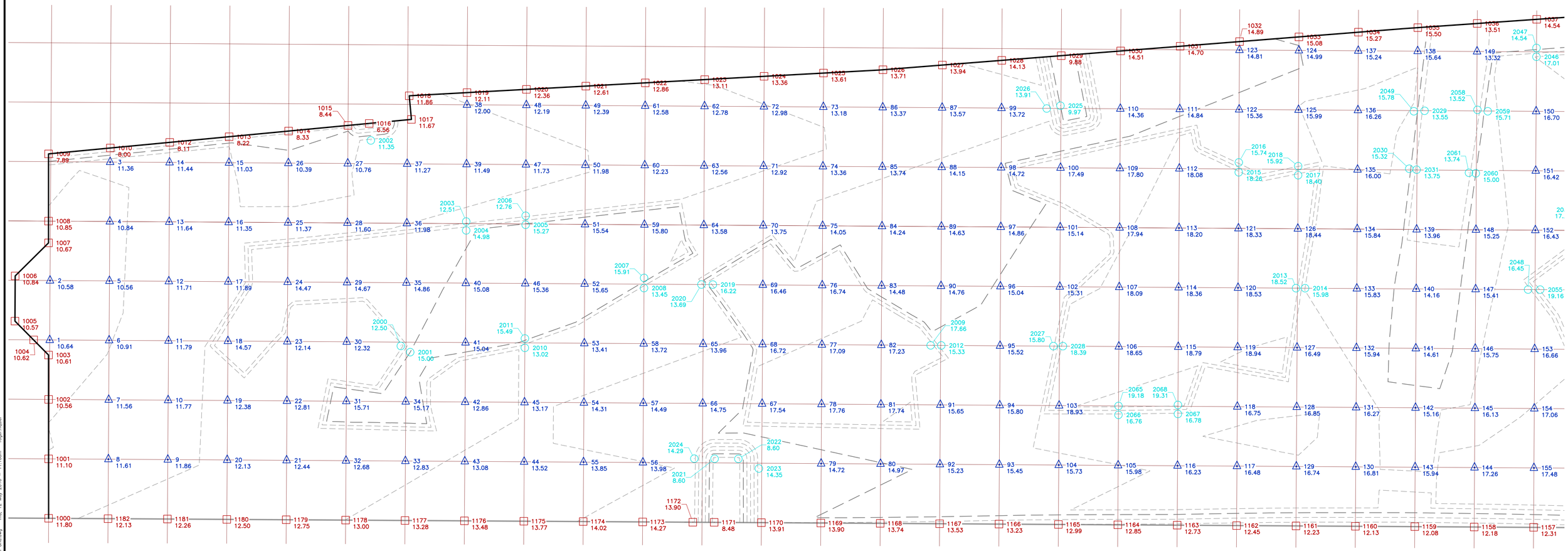
Maser Consulting P.A. certifies that the elevations, with their corresponding date obtained, of the Grid Points depicted in Table 1, Break Points in Table 2, Boundary Points in Table 3, and topographic spot elevations are correct, and representative of the as-built cap subgrade throughout the SA6 North cap.

R. THOMAS HUGG

NEW JERSEY PROFESSIONAL LAND SURVEYOR

LICENSE NO. 36737

C2. Subgrade Construction Control Grid



153 16.66 GRID POINT

2054 17.00 BREAK POINT

1157 12.31 BOUND POINT

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SCALE IN FEET

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Honeywell
101 COLUMBIA RD. BOX 2105
MORRISTOWN, NJ 07962

CHROMI□M REMEDY
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - □□□2

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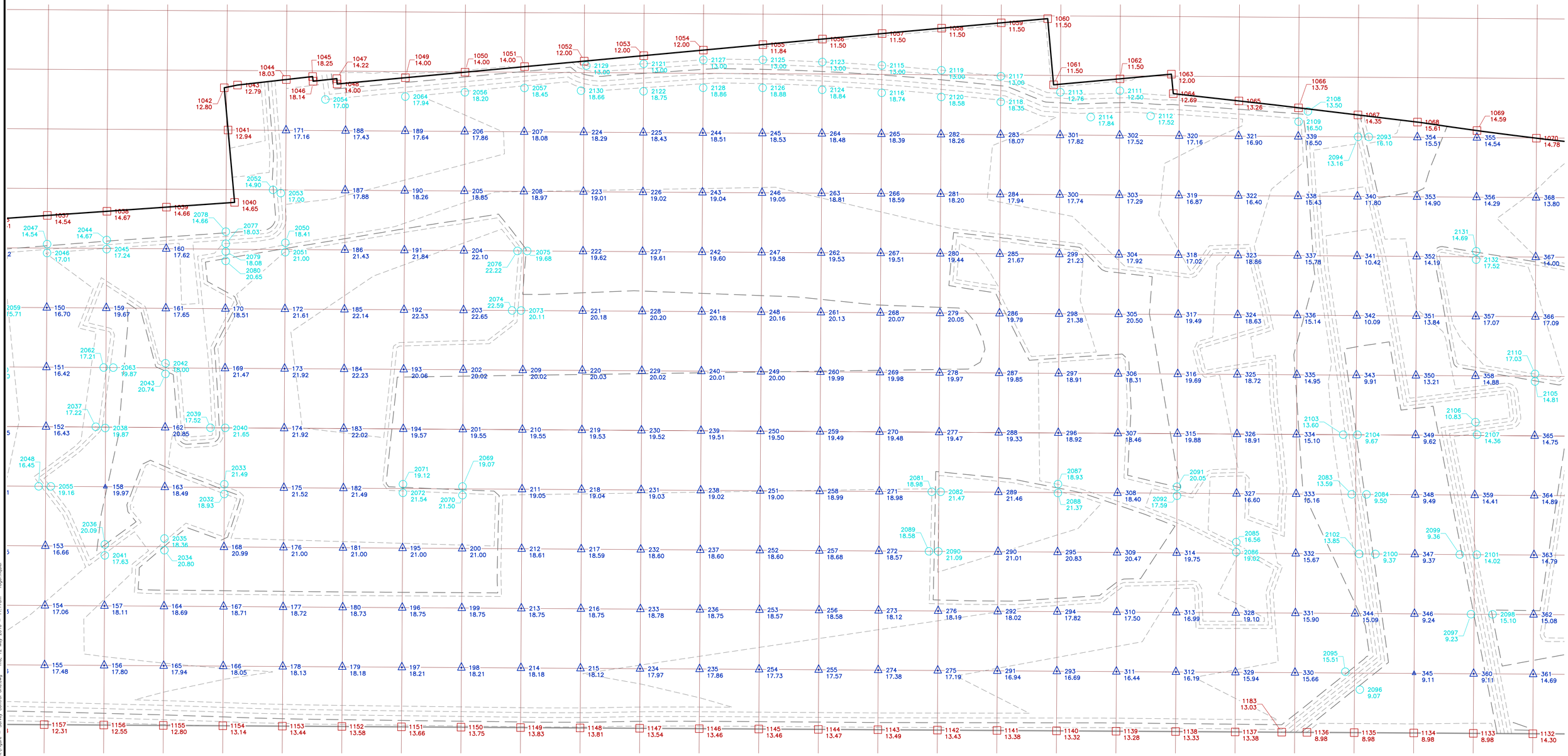

153 16.66 GRID POINT

2054 17.00 BREAK POINT

1157 12.31 BOUND POINT

0 10 20 40

SCALE IN FEET

Honeywell

101 COLUMBIA RD., BOX 2105
MORRISTOWN, NJ 07962

CHROMI□M REMEDY
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - □□□□2

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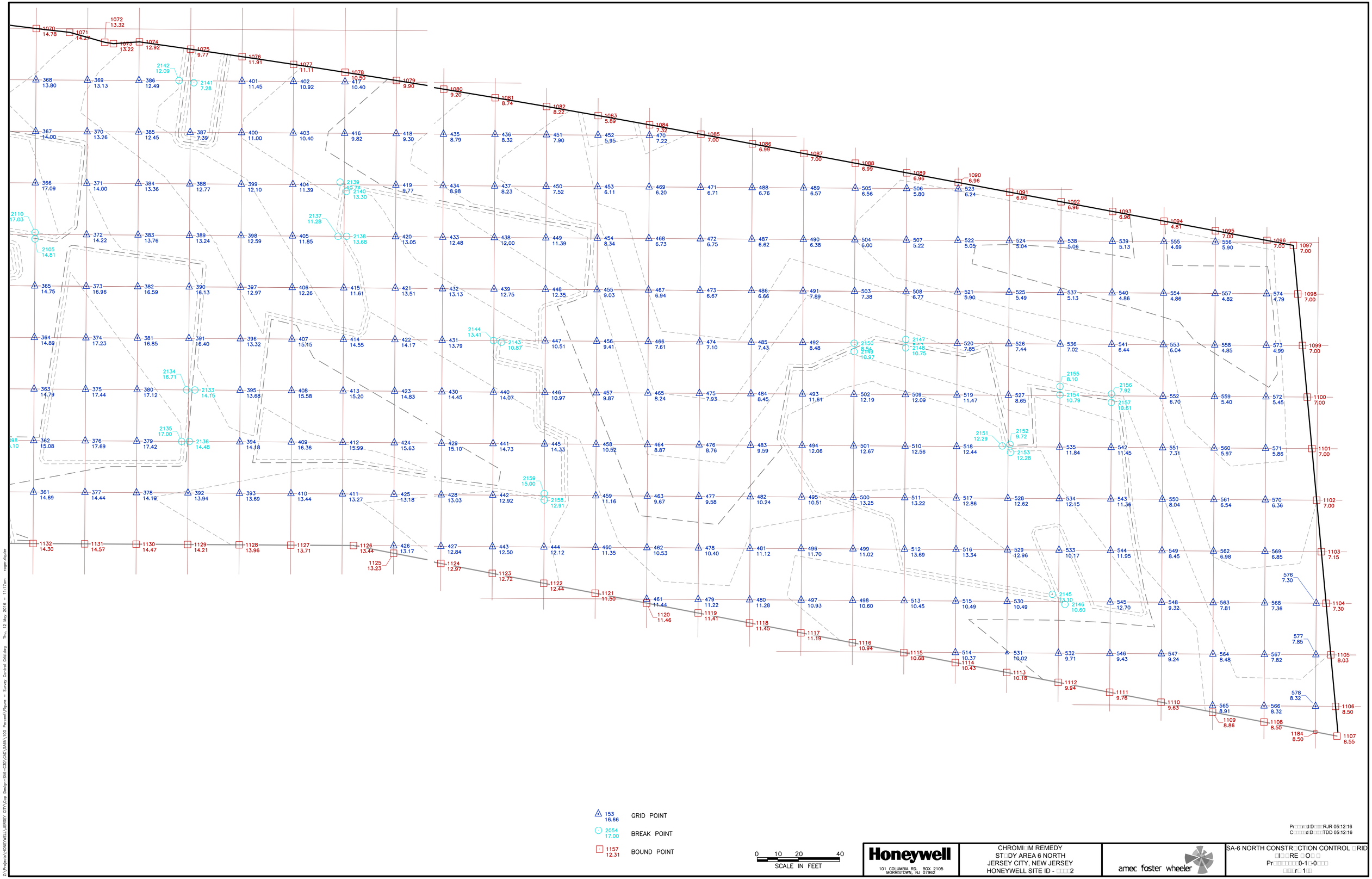
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578 8.32
153 16.66 GRID POINT
2054 17.00 BREAK POINT
1157 12.31 BOUND POINT
0 10 20 40
SCALE IN FEET
Honeywell
101 COLUMBIA RD, BOX 2105
MORRISTOWN, NJ 07962
CHROMIUM REMEDY
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY
HONEYWELL SITE ID - 0002
amec foster wheeler
SA-6 NORTH CONSTRUCTION CONTROL GRID
PLORE NO 00
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Pr000r d:D000 RJR 05:12:16
C:0000d:D000 TDD 05:12:16
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Appendix D: Soil Subgrade Approval

D1. ESI Certificate of Subgrade Surface Acceptance

D2. Langan Certificate of Soil Surface

D1. ESI Certificate of Subgrade Surface Acceptance

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell S.A.B. North a PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 19,384 Square feet

PANEL NUMBERS: Panel 1 thru 7

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai S. Sok ,certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6-22-16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	6/22/16
	INDEPENDENT CQA MONITOR	6/22/16
	QC Manager	6/22/16

OWNER REPRESENTATIVE

Signature Title DATE

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 16,618 square Feet

PANEL NUMBERS: P8-P13

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai S. Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6/23/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	6/23/16

OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	6/23/16

Signature	Title	DATE
Caroline Yanez	QC Manager	6/23/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North PROJECT NO: 12a-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 21,784 square Feet

PANEL NUMBERS: P14 - P19

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6/24/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	6/24/16
	INDEPENDENT CQA MONITOR	6/24/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Timothy Collins	Field Engineer	6/27/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 27,225

PANEL NUMBERS: P-20-27

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sak, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6-27-16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Khai S Sak	QC	6-27-16
Signature	*Title*	*DATE*
	INDEPENDENT CQA MONITOR	6/27/16
OWNER REPRESENTATIVE		
Caroline Harris	QC Manager	6-28-16
Signature	*Title*	*DATE*

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA6 North PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 19,305

PANEL NUMBERS: P28 & 32

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6/30/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	6/30/16

	INDEPENDENT CQA MONITOR	6/30/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Christina Ramos	QC Manager	7/1/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell S A6 Northcap PROJECT NO: 16-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: P-33 thru 38

PANEL NUMBERS: 33/34/35/36/37/38

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai PSdk, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 6/1 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	7/1/16
OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	7/1/16
	QC Manager	7/1/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA6 North PROJECT NO: 12-11-1397

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 15,732

PANEL NUMBERS: P39-42

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/6/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	7/6/16

OWNER REPRESENTATIVE		
	INDEPENDENT CQA MONITOR	7/6/16

Signature	Title	DATE
Cristina Barros	QC Manager	7/6/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 5,520

PANEL NUMBERS: P43

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Soh, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/7/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	7/7/16

OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	7/7/16
Signature	Title	DATE
	QC Manager	7/7/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell 9A6 North Cap PROJECT NO: _____

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 32,890 sq ft

PANEL NUMBERS: P44 & 49

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai S Sdk, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/8/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	7/8/16
	INDEPENDENT CQA MONITOR	7/8/16

OWNER REPRESENTATIVE

Signature	Title	DATE
	QC Mgr	7/8/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North cap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 26,680

PANEL NUMBERS: P 50 - 57

GRADE ACCEPTANCE: INSPECTOR

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sdk, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/12/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	QC Title	7/12/16 DATE
OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	7/12/16
Signature	QC Manager	7/12/16

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North Cap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 27,600 sq feet

PANEL NUMBERS: P58's 63

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Rhai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/13/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Rhai S Sok	QC	7/13/16
Signature	*Title*	*DATE*
OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	7/13/16
Carolina Parra	QC Manager	7/13/16
Signature	*Title*	*DATE*

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell 8A6 North Cap PROJECT NO: 12-11-1399

LOCATION: Jersey City; New Jersey

AREA ACCEPTED: 27,600

PANEL NUMBERS: P64 & 68

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Soh, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/14/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Soh	QC	7/14/16

OWNER REPRESENTATIVE	INDEPENDENT CQA MONITOR	7/14/16
Caroline Barnes	QC Mgr	7/15/16
Signature	Title	DATE

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA6 North cap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 26 3/2 sq feet

PANEL NUMBERS: P69-75

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/25/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	7/25/16

	INDEPENDENT CQA MONITOR	7/25/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Carolina Ramos	QC Manager	7/26/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell Sh 6 North cap. PROJECT NO: 12-11-1399

LOCATION: Jersey City; New Jersey

AREA ACCEPTED: 25,024

PANEL NUMBERS: P 76 & 80

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/27/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	7/27/16
	Independent CQA Monitor	7/27/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Caroline Marino	QC Mgr	7/28/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SAb Northcell PROJECT NO: 12-11-1399

LOCATION: Jersey City New Jersey

AREA ACCEPTED: 22,885

PANEL NUMBERS: 81-88

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: _____

OWNER: _____

AUTHORIZED REPRESENTATIVE: _____

The undersigned, Khai Sbok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 7/28/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	7/28/16

	INDEPENDENT CQA MONITOR	7/28/16

OWNER REPRESENTATIVE

Signature	Title	DATE
	QC Mgr	7/28/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell PROJECT NO: 12-11-1399

LOCATION: Jersey City; New Jersey

AREA ACCEPTED: 22,356

PANEL NUMBERS: P89 / P93

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Soik ,certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/3/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Soik		8/3/16
[signature]	INDEPENDENT CQA MONITOR	8/3/16

OWNER REPRESENTATIVE

Signature	Title	DATE
[signature]	QC	8/3/16

7943 FECHE LANE SUITE 4 - BATON ROUGE, LA 70809 - PHONE 225-291-2700 - FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell Well PROJECT NO: 12-11-1399

LOCATION: Jersey City; New Jersey

AREA ACCEPTED: 15,750 sq feet

PANEL NUMBERS: 3 TEME

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khaled Sakr, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/4/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Khaled Sakr — Signature | QC — Title | 8/4/16 — DATE

INDEPENDENT CQA MONITOR

OWNER REPRESENTATIVE

Caroline Torres — Signature | QC — Title | 8/4/16 — DATE

8/4/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell PROJECT NO: 12-11-1399

LOCATION: Jesey City, New Jersey

AREA ACCEPTED: 21,620 sq feet

PANEL NUMBERS: P94/P98

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sak, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/5/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sak	QC	8/5/16

OWNER REPRESENTATIVE

Signature	Title	DATE
[illegible]	INDEPENDENT CQA MONITOR	8/5/16
[illegible]	QC Mgr	8/5/16

7943 PECUE LANE SUITE A - BATON ROUGE, LA 70809 - PHONE 225-291-2700 - FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell 8th North cap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 10,948 sq feet

PANEL NUMBERS: P99/100

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/8/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	8/8/16

	Title	
	INDEPENDENT CQA MONITOR	8/8/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Carolina Ramos	QC Mgr	8/8/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SR6 North cap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 21,712 sq foot

PANEL NUMBERS: P 101/106

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/9/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	8/9/16

	INDEPENDENT CQA MONITOR	8/9/16

OWNER REPRESENTATIVE

Signature	Title	DATE
Carolina Ramos	QC	8/9/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA 6 North cap PROJECT NO: 12-11-1379

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 10,948 sq feet

PANEL NUMBERS: P 111 / P 112

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/11/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Khai S Sok — Signature | QC — Title | 8/11/16 — DATE

Independent CQA Monitor 8/11/16

OWNER REPRESENTATIVE

Signature | PE — Title | 8/11/16 — DATE

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA6 North cap PROJECT NO: 12-11-1379

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 10,764 sq feet

PANEL NUMBERS: P113/P114

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/12/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
	QC	8/12/16

OWNER REPRESENTATIVE		
	INDEPENDENT CQA MONITOR	8/12/16
Signature	Title	DATE
	QC	8/12/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

PROJECT NAME: Honeywell SA6 Northcap PROJECT NO: 12-11-1399

LOCATION: Jersey City, New Jersey

AREA ACCEPTED: 44,793 sq feet

PANEL NUMBERS: ~~P113 / P119~~ P115 / P119

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR:

OWNER:

AUTHORIZED REPRESENTATIVE:

The undersigned, Khai S Sok, certifies that he/she is a representative of Environmental Specialties International, Inc. authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on 8/13/16 and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

Signature	Title	DATE
Khai S Sok	QC	8/13/16

	INDEPENDENT CQA MONITOR	8/13/16
OWNER REPRESENTATIVE		
Signature	Title	DATE
Caroline Ramos	QC	8/13/16

7943 PECUE LANE SUITE A ~ BATON ROUGE, LA. 70809 ~ PHONE 225-291-2700 ~ FAX 225-291-2788

D2. Langan Certificate of Soil Surface

LANGAN

Certificate of Soil Surface

Sheet # 1

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 319+00 + ~STA 317+75		
QA Monitor	LANGAN	Date	6/22/16		

Description of Soil Surface to be lined: WESTERN END OF SA-6 NORTH (~STA 319+00) APPROX. 125 FT. EAST (STA. 317+75). SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (7½") AND IN CONFORMANCE WITH PROJECT SPECS. NOTE: MINOR CHANGES IN SUBGRADE ELEVATION IN SELECT AREAS TO ALLOW POSITIVE DRAINAGE

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BODWORTH
Date:	6/22/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	CAROLINE PANICO
Date:	6/22/16
Title	QC MANAGER
Representing:	ENTACT
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (7½") AS OUTLINED IN SECTION 02372-8.
MINOR CHANGES IN SUBGRADE ELEVATION IN SELECT AREAS OF CAP (COMPLETED BY ENTACT)
- NO GCL TO BE PLACED ALONG WESTERN END OF SA-6 NORTH

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	STA 319+00	LOOKING N	REFER TO PHOTO #1 (PHOTO LOG 6/22/16)
	2 PHOTO #2	STA 318+50	LOOKING N	REFER TO PHOTO #2 (PHOTO LOG 6/22/16)
1. REFER TO 6/22/16 PHOTOGRAPH LOG PHOTOS 1 TO 4 FOR SUPPORTING INFORMATION.				2.

LANGAN

Certificate of Soil Surface

Sheet # 2

Project Name	HONEYWELL SA-6 NI	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~ STA. 317+75' TO ~ STA. 316+50		
QA Monitor	LANGAN	Date	6/23/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST FROM PANEL PM1 (INSTALLED ON 6/22/16) ~~FROM~~ APPROX. STA. 317+75 + 425 FT. EAST TO APPROXIMATE. STA 316+50. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (≥ ½") AND IN CONFORMANCE WITH PROJECT SPECS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	6/23/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	6/29/16
Title	QC Manager
Representing:	Gundle
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02372-8.

- NO GCL TO BE PLACED ALONG WESTERN END OF SA-6 NORTH.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	±STA. 317+50	LOOKING E	REFER TO PHOTO #1 (PHOTO LOG 6/23/16)
	2 PHOTO #2	±STA. 317+50	LOOKING S	REFER TO PHOTO #2 (PHOTO LOG 6/23/16)
1. REFER TO 6/23/16 PHOTOGRAPH LOG PHOTOS 1 TO 4 FOR SUPPORTING INFORMATION.				2.

LANGAN

Certificate of Soil Surface

Sheet # 3

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	≈STA. 316+50 TO ≈STA. 315+75		
QA Monitor	LANGAN	Date	6/24/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P12/P13 (INSTALLED ON 6/23/16). FROM APPROX. STA. 316+50 TO APPROX. STA. 315+75. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (> ½") AND IN CONFORMANCE WITH PROJECT SPECS.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	6/24/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Panico
Date:	6/29/16
Title	QC Manager
Representing:	Enhanced
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (> 1/2")
AS OUTLINED IN SECTION 023172-8.

- NO GCL TO BE PLACED ALONG WESTERN END OF SA-6 NORTH.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	~STA 316+50	LOOKING E	REFER TO PHOTO #1 (PHOTO LOG 6/24/16)
	2 PHOTO #2	~STA 315+75	LOOKING S	REFER TO PHOTO #2 (PHOTO LOG 6/24/16)
1. REFER TO 6/24/16 PHOTOGRAPH LOG PHOTOS 1 TO 3 FOR SUPPORTING INFORMATION.				2.

LANGAN

Certificate of Soil Surface

Sheet # 4

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / AMEC FW	Cell No.	~STA. 315+75 to ~STA. 314+25		
QA Monitor	Langan	Date	6/27/16		

Description of Soil Surface to be lined: Area immediately east of Panel P19 (installed on 6/24/16). From approx. Sta. 315+75 to approx Sta. 314+25. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with project specs

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	6/27/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	6/29/16
Title	QC Manager
Representing:	Entrust
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>1/2") AS OUTLINED IN SECTION 02372-8.

- NO GCL TO BE PLACED ALONG WESTERN END OF SA-6 NORTH.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	~STA. 315+75	LOOKING E	REFER TO PHOTO #1 (PHOTO LOG 6/27/16)
	2 PHOTO #2	~STA. 315+00	LOOKING S	REFER TO PHOTO #2 (PHOTO LOG 6/27/16)
1. REFER TO 6/27/16 PHOTOGRAPH LOG PHOTOS 1 TO 3 FOR SUPPORTING INFORMATION				2.

LANGAN

Certificate of Soil Surface

Sheet # 5

Project Name	Honeywell 3A-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / Amec FW	Cell No.	~Sta. 314.25 to ~Sta. 313+25		
QA Monitor	Langan	Date	6/30/16		

Description of Soil Surface to be lined: Area immediately east of Panel P27 (installed on 6/27/16) from approx. Sta. 314+25 to approx. Sta. 313+25. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with project specs.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	6/30/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Ibarra
Date:	7/1/16
Title	QC Manager
Representing:	Entact
Signature:	Carolina Ibarra

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (> 1/2 ")
As outlined In Section 02372-8

- No GCL to Be Placed Along Western End of SA-6 North

Photographs	Number	Location	Orientation	Notes
	1 Photo #1			Refer to Photo #1 (Photo Log 6/30/16)
	2 Photo #2			Refer to Photo #2 (Photo Log 6/30/16)
1. Refer to 6/30/16 Photograph Log Photos 1 to 3 for Supporting Information.				2.

LANGAN

Certificate of Soil Surface

Sheet # 6

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / Amec FW	Cell No.	~Sta. 313+25 to ~Sta. 312+60		
QA Monitor	Langan	Date	7/1/16		

Description of Soil Surface to be lined: Area immediately East of Panel P32 (installed on 6/30/16) from approx Sta. 313+25 to approx Sta. 312+60. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with Project Specs

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	7/1/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Carolyn Panico
Date:	7/1/16
Title	QC Manager
Representing:	Entek
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02372-8.

- NO GCL TO BE PLACED FROM ~STA. 313+25 TO ~STA. 312+60

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	~STA. 313+25	LOOKING N	REFER TO PHOTO #1 (PHOTO LOG 7/1/16)
	2 PHOTO #2	~STA. 313+25	LOOKING S	REFER TO PHOTO #2 (PHOTO LOG 7/1/16)

1. REFER TO 7/1/16 PHOTOGRAPH LOG PHOTOS 1 TO 3 FOR SUPPORTING INFO.

2.

LANGAN

Certificate of Soil Surface

Sheet # 7

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 312+60 TO ~STA. 311+75		
QA Monitor	LANGAN	Date	7/6/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P38 (INSTALLED ON 7/1/16) FROM APPROX. STA. 312+60 TO APPROX. STA. 311+75. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (> ½") AND IN CONFORMANCE WITH PROJECT SPECS.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	7/6/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	7/8/16
Title	QC Mgr
Representing:	Entac
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½")
AS OUTLINED IN SECTION 02372-8
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200 FT. X 8 FT TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (i.e. >½'). NO GCL TO BE PLACED FROM ~STA. 312+60 TO ~STA. 311+75

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #3	~STA 312+25	LOOKING S/SE	REFER TO PHOTO #3 (PHOTO LOG 7/6/16)
	2 PHOTO #4	~STA 312+25	LOOKING E	REFER TO PHOTO #4 (PHOTO LOG 7/6/16)
1. REFER TO 7/6/16 PHOTOGRAPH LOG PHOTOS 3 TO 5 FOR SUPPORTING PHOTOS				2.

LANGAN

Certificate of Soil Surface

Sheet # 8

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / AmecFW	Cell No.	~Sta. 311+75 to ~Sta. 311+55		
QA Monitor	Langan	Date	7/7/16		

Description of Soil Surface to be lined: ~20 ft. Area immediately East of Panel P42 (installed on 7/6/16) from Approx. Sta. 311+75 to Approx. Sta. 311+55. Approved Soil for placement of one panel so installed LLDPE terminates outside of bottom of swales + depressed contours to promote + maintain drainage (PM rainstorms forecasted).

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	7/7/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	7/8/16
Title	QC Mgr
Representing:	Entrade
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02372-8.
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200 FT. × 8FT TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>½"). NO GEL TO BE PLACED FROM ~STA. 311+75 TO ~STA. 311+55'.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #9	~STA 311+75	LOOKING N	REFER TO PHOTO #9 (PHOTO LOG 7/17/16)
	2			

1. REFER TO 7/17/16 PHOTO LOG PHOTO 9 (N ALONG ~STA 311+75)

2.

LANGAN

Certificate of Soil Surface

Sheet # 9

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	Honeywell/AmecFW	Cell No.	~Sta. 311+55 to ~Sta. 310+80		
QA Monitor	Langan	Date	7/8/16		

Description of Soil Surface to be lined: Area immediately East of Panel P43 (installed on 7/7/16) from approx. Sta. 311+55 to ~Sta. 310+80. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with project specs.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bodnorth
Date:	7/8/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	7/8/16
Title	QC Mgr
Representing:	Entac
Signature:	

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (>1/2")
As outlined In Section 02372-8.
- Subgrade Observed By Field Engineer Who Walked The Placement Area In Approx. 200 ft. x 8ft. Transects To Observe Soil Compaction As Well As Items Requiring Removal Prior to Panel Placement (>1/2"). No GCL to Be Placed From ~Sta. 311+55 to ~Sta. 310+80.

Photographs	Number	Location	Orientation	Notes
	1 Photo #1	~Sta. 311+55	Looking S/SE	Refer to Photo #1 (7/8/16)
	2 Photo #2	~Sta. 311+55	Looking S	Refer to Photo #2 (7/8/16)
1. Refer to 7/8/16 Photo Log Photos 1+2 for Supporting Subgrade Photos				2.

LANGAN

Certificate of Soil Surface

Sheet # 10

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane
Project No.	100530001	General Desc.	(Subgrade) / Operations / LCRS
Owner/ Contr.	Honeywell / AMEC FW	Cell No.	~Sta. 310+80 to ~Sta. 309+75
QA Monitor	Langan	Date	7/12/16

Description of Soil Surface to be lined: Area immediately East of Panel P49 (installed on 7/8/16) Approx. 105 ft. from Approx Sta. 310+80 to ~Sta 309+75. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with Project Specs.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bodsworth
Date:	7/12/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Panico
Date:	7/15/16
Title	QC Mgr
Representing:	Layfield
Signature:	

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (>½") As Outlined In Section 02372-8.
- Subgrade Observed By Field Engineer Who Walked The Placement Area In Approx. 200 ft. x 8 ft Transects To Observe Soil Compaction As Well As Items Requiring Removal Prior To Panel Placement (>½"). No ACL To Be Placed From ~Sta. 310+80 To ~Sta. 309+75.

Photographs	Number	Location	Orientation	Notes
	1 Photo #7	~Sta. 310+80	Looking N	Refer to Photo #7 (7/12/16)
	2 Photo #8	~Sta. 310+80	Looking E	Refer to Photo #8 (7/12/16)
1. Refer to 7/12/16 Photo Log Photos 7 to 9 for Supporting Subgrade Photos				2.

LANGAN

Certificate of Soil Surface

Sheet # 11

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / Amec FW	Cell No.	~Sta. 309+75 to ~Sta. 309+00		
QA Monitor	Langan	Date	7/13/16		

Description of Soil Surface to be lined: Area immediately east of Panel P55/P56/P57 (installed on 7/12/16) approx 175 ft. from approx. Sta. 309+75 to ~Sta. 309+00. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with Project Specs.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	7/13/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Carolin Panico
Date:	7/15/16
Title	QC Mgr
Representing:	Entrade
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (≥ ½") AS OUTLINED IN SECTION 02372-8.
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200 FT BY 8FT TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (7½"). NO GCL TO BE PLACED FROM ~STA 309+75 TO ~STA. 309+00.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #3	~STA. 309+75	LOOKING S	REFER TO PHOTO #3 (7/13/16)
	2 PHOTO #4	~STA. 309+75	LOOKING E	REFER TO PHOTO #4 (7/13/16)
1. REFER TO 7/13/16 PHOTO LOG PHOTOS 3 TO 5 FOR SUPPORTING SUBGRADE PHOTOS				2.

LANGAN

Certificate of Soil Surface

Sheet # 12

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 309+00 TO ~STA 308+20		
QA Monitor	LANGAN	Date	7/14/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P62/P63 (INSTALLED ON 7/13/16) APPROX 85 FT FROM APPROX STA. 309+00 TO ~STA. 308+20 SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	7/14/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Panico
Date:	7/15/16
Title	QC Mgr
Representing:	Environet
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02372-8.
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200 FT. BY 8 FT. TRANSECTS TO OBSERVE SOIL CONDITION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>½"). NO GCL TO BE PLACED FROM APPROX STA. 309+00 TO ± STA. 308+20.

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #1	~STA. 309+00	LOOKING E	REFER TO PHOTO #1 (7/14/16)
	2 PHOTO #2	~STA 309+00	LOOKING N	REFER TO PHOTO #2 (7/14/16)
1. REFER TO 7/14/16 PHOTOGRAPH LOG, PHOTOS 1 TO 3 FOR SUPPORTING SUBGRADE PHOTOS				2.

LANGAN

Certificate of Soil Surface

Sheet # 13

Project Name	Honeywell Sta-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / Amec FW	Cell No.	~Sta. 308+20 to ~Sta. 307+20		
QA Monitor	Langan	Date	7/25/16		

Description of Soil Surface to be lined: Area immediately East of Panel P68 (Installed on 7/14/16) Approx 100 ft. From Approx ~Sta. 308+20 to ~Sta. 307+20 Soil Appears to be Graded, Compacted, and Free of Debris (>½") and in Conformance with Project Specs

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	7/25/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Panico
Date:	7/25/16
Title	QC Mgr
Representing:	Entrel
Signature:	

LANGAN

Notes, Observations, Comments: Soil Graded, compacted, And Free of Debris (>½")
As outlined In Section 02372-8.
"Subgrade Observed By Field Engineer Who Walked the Placement Area In Approx 200 ft x 8 ft. Transects To Observe Soil Compaction As well As Items Requiring Removal Prior to Panel Placement (>½"). No GCL to Be Placed From ~ Sta. 308+20 to ~ Sta. 307+20

Photographs	Number	Location	Orientation	Notes
	1 Photo #1	~Sta. 308+15	Looking S	Refer to Photo #1 (11/25/16)
	2 Photo #2	~Sta 308+15	Looking E	Refer to Photo #2 (11/25/16)

1. Refer to 11/25/16 Photograph Log Photos 1 to 3 for supporting Subgrade Photo)

2.

LANGAN

Certificate of Soil Surface

Sheet # 14

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 307+20 TO ~STA. 306+40		
QA Monitor	LANGAN	Date	7/27/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P175 (INSTALLED ON 7/25/16) APPROX 80 FT. FROM ~STA. 307+20 TO ~STA. 306+40. SOIL ADDITIONS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (7½") AND IN CONFORMANCE WITH PROJECT SPECS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	7/27/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	CAROLINA PANICO
Date:	7/27/16
Title	QC
Representing:	Entech
Signature:	

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (>1/2")
As outlined in Section 02372-8.
- Subgrade Observed By Field Engineer Who Walked The Placement Area In Approx. 200 ft. x 8ft Transects to observe Soil Compaction As well As Items Requiring Removal Prior to Panel Placement (>1/2"). No GCL to Be Placed From ~Sta. 307+20 to ~Sta. 306+40.

Photographs	Number	Location	Orientation	Notes
	1 Photo #1	~Sta. 307+00	Looking S	Refer to Photo #1 (11/27/16)
	2 Photo #2	~Sta. 307+20	Looking S	Refer to Photo #2 (11/27/16)
1. Refer to 11/27/16 Photograph Log Photos 1 to 4 for Supporting Subgrade Photos				2.

LANGAN

Certificate of Soil Surface

Sheet # 15

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 306+40 TO ~STA. 305+40		
QA Monitor	LANGAN	Date	7/28/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P80 (INSTALLED ON 7/27/16) APPROX 100 FT. EAST FROM ~STA. 306+40 TO ~STA. 305+40 SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS.

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	7/28/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Carolina Panico
Date:	7/28/16
Title	QC
Representing:	Entech
Signature:	

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (>1/2") As outlined In Section 02317-S.

- Subgrade observed By Field Engineer who walked The Placement Area in Approx. 200 ft. x 5 ft. Transects to observe Soil Condition As well As Items Requiring Removal to Panel Placement (>1/2"). No GCL to be Placed From Approx. Sta. 306+40 to ~ Sta. 305+40

Photographs	Number	Location	Orientation	Notes
	1 Photo #1	Sta. 306+40	Looking N	Refer to Photo #1 (7/28/16)
	2 Photo #2	Sta. 306+40	Looking S	Refer to Photo #2 (7/28/16)

1. Refer to 7/28/16 Photographic Log Photos 1 to 3 for Supporting Subgrade Photos.

2.

LANGAN

Certificate of Soil Surface

Sheet # 16

Project Name	HONEYWELL STA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 305+40 TO ~STA. 304+60		
QA Monitor	LANGAN	Date	8/3/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P88 (INSTALLED ON 7/28/16) APPROX 80 FT EAST FROM ~STA. 305+40 TO ~STA. 304+60. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	
Suitable for placement of GCL	
Smooth	
Any changes required? If so the contractor and owner's representative must be notified.	

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	8/3/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	CAROLINE PARRIS
Date:	8/3/16
Title	QC Mgr
Representing:	Antaeus
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>1½") AS OUTLINED IN SECTION 02372-8.
-SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200 FT BY 8 FT TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>1½"). NO GCL TO BE INSTALLED FROM APPROX. STA. 805+40 TO ± STA. 804+60

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #3	~STA. 805+40	LOOKING S	REFER TO PHOTO #3 (8/3/16)
	2 PHOTO #4	~STA. 805+40	LOOKING E	REFER TO PHOTO #4 (8/3/16)

1. REFER TO 8/3/16 PHOTOGRAPH LOG PHOTOS 3 TO 5 FOR SUPPORTING SUBGRADE PHOTOS

2.

LANGAN

Certificate of Soil Surface

Sheet # 17

Project Name	Honeywell SA-6 North	Material Desc.	Geomembrane		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	Honeywell / AMEC FW	Cell No.	~Sta. 304+60 to ~Sta. 303+75		
QA Monitor	Langan	Date	8/4/16		

Description of Soil Surface to be lined: Area immediately East of Panel P93 (installed on 8/3/16) Approx. 85 ft. East from ~Sta. 304+60 to ~Sta. 303+75. Soil appears to be graded, compacted, and free of debris (>½") and in conformance with Project Specs. GCL placed along North end of Cap (~Sta. 303+75) for area below, to 1 ft. above site water table

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N - no changes

Independent CQA Monitor	
Name:	Daniel Bosworth
Date:	8/4/16
Title	Lead QA Engineer
Representing:	Langan
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Yanto
Date:	8/4/16
Title	QC Mgr
Representing:	Entrade
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>1/2") AS OUTLINED IN SECTION 02372-8.
-SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX. 200FT BY 8FT. TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>1/2"). GCL PANELS ALONG NORTHERN EDGE OF CHIP AT APPROX STA. 303+75 FOR ANCHOR BELOW (TO BE CUT ABOVE SITE GROUNDWATER TABLE) @ APPROX EL. 7

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #3	~STA. 304+60	LOOKING E	REFER TO PHOTO #3 (8/4/16)
	2 PHOTO #4	~STA. 304+60	LOOKING S	REFER TO PHOTO #4 (8/4/16)

1. REFER TO 8/4/16 PHOTOGRAPH LOG PHOTOS 3 TO 5 FOR SUPPORTING SUBGRADE PHOTOS.

2.

LANGAN

Certificate of Soil Surface

Sheet # 18

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 303+75 TO ~STA. 303+15		
QA Monitor	LANGAN	Date	8/5/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF TEMPORARY PANEL 3 (INSTALLED ON 8/4/16) APPROX 60 FT EAST FROM ~STA. 303+75 TO ~STA. 303+15. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N END OF CAP FOR AREA BELOW (TO 1FT. ABOVE) SITE WATER TABLE AS INDICATED ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N-NO CHANGES

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	8/5/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/5/16
Title	QC Mgr
Representing:	Entact
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>1½") AS OUTLINED IN SECTION 02372-8.
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX 200 FT BY 8 FT. TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>1½"). GCL PLACED ALONG NORTHERN END OF CAP FROM ~STA. 303+75 TO ~STA 303+15. FOR AREAS BELOW (TO 1FT. ABOVE) SITE WATER TABLE @ APPROX EL. 7 AS ~~INDICATED~~ SHOWN ON DESIGN DRAWINGS

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #5	~STA. 303+75	LOOKING S	REFER TO PHOTO #5 (8/5/16)
	2 PHOTO #6	~STA. 303+75	LOOKING E	REFER TO PHOTO #6 (8/5/16)

1. REFER TO 8/5/16 PHOTOGRAPH LOG PHOTOS 5 TO 8 FOR SUPPORTING SUBGRADE PHOTOS + GCL PLACEMENT

2.

LANGAN

Certificate of Soil Surface

Sheet # 19

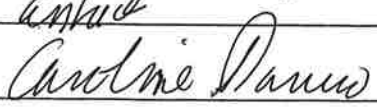
Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 303+15 TO ~STA. 302+70		
QA Monitor	LANGAN	Date	8/8/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P98 (INSTALLED ON 8/5/16) APPROX 45 FT EAST FROM APPROX ~STA. 303+15 TO ~STA. 302+70. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N END OF CAP FOR AREAS BELOW (TO LFT ABOVE) SITE WATER TABLE AS SHOWN ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N-NO CHANGES

Independent CQA Monitor	
Name:	DANIEL BOSWORTH
Date:	8/8/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/8/16
Title	QC Manager
Representing:	Anchor
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (> ½") AS OUTLINED IN SECTION 02372-8.

- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX ~12.00 FT BY 8 FT. TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT. ALL PLACED ALONG N END OF CUT FROM APPROX ~STA. 303+15 TO ~STA. 902+70. FOR AREAS BELOW (TO LEFT ABOVE) SITE WATER TABLE @ ~EL. 7 AS SHOWN ON DESIGN DRAWINGS

Photographs	Number	Location	Orientation	Notes
	1			
	2			

1.

2.

LANGAN

Certificate of Soil Surface

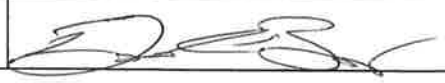
Sheet # 20

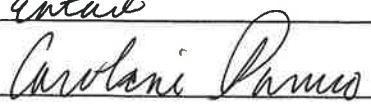
Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 302+70 TO ~STA. 301+70		
QA Monitor	LANGAN	Date	8/9/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF P100 (INSTALLED ON 8/8/16) APPROX 100 FT EAST FROM APPROX ~STA. 302+70 TO ~STA. 301+70. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N END OF CAP FOR AREAS BELOW (TO 1FT. ABOVE) SITE WATER TABLE AS SHOWN ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N-NO CHANGES

Independent CQA Monitor	
Name:	DANIEL BOSHUETER
Date:	8/9/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/9/16
Title	QC Manager
Representing:	Entact
Signature:	

LANGAN

Notes, Observations, Comments: SOIL GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02317-8
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN ARMOR TRACKED BY GPS TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>½"). GCL PLACED ALONG N END OF CAP FROM ABOVE ~STA. 302+70 TO ~STA. 301+70 FOR AREAS BELOW (TO 1FT. ABOVE) SITE WATER TABLE @ APPROX EL. 7 AS SHOWN ON DESIGN DRAWINGS

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #9	~STA 302+70	LOOKING E	REFER TO PHOTO #9 (8/9/16)
	2 PHOTO #10	~STA. 302+70	LOOKING S	REFER TO PHOTO #10 (8/9/16)

1. REFER TO 8/9/16 PHOTOGRAPH LOG PHOTOS 9 TO 12 FOR SUPPORTING SUBGRADE PHOTOS + GCL PLACEMENT

2.

LANGAN

Certificate of Soil Surface

Sheet # 21

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEL FW	Cell No.	~STA. 301+70 TO ~STA. 301+25		
QA Monitor	LANGAN	Date	8/11/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P106 (INSTALLED ON 8/9/16) APPROX 45 FT. EAST FROM APPROX ~STA. 301+70 TO ~STA. 301+25. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>1/2") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N END OF CAP FOR AREAS BELOW (TO 1FT ABOVE) SITE WATER TABLE AS SHOWN ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N-NO CHANGES

Independent CQA Monitor	
Name:	DAN BOSWORTH
Date:	8/11/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	[signature]

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/11/16
Title	QC Manager
Representing:	Entrack
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: SOIL BLENDED, COMPACTED, AND FREE OF DEBRIS (>½") AS OUTLINED IN SECTION 02372-8
- SUBGRADE OBSERVED BY FIELD ENGINEER WHO WALKED THE PLACEMENT AREA IN APPROX ~200 FT BY 8 FT TRANSECTS TO OBSERVE SOIL COMPACTION AS WELL AS ITEMS REQUIRING REMOVAL PRIOR TO PANEL PLACEMENT (>½"). GCL PLACED ALONG N END OF CAP FROM ~STA. 301+70 TO ~STA. 301+25 FOR AREAS BELOW (TO 1FT. ABOVE) SITE WATER TABLE @ APPROX EL. 7 AS SHOWN ON DESIGN DRAWINGS

Photographs	Number	Location	Orientation	Notes
	1 PHOTO #9	~STA 301+70	LOOKING S	REFER TO PHOTO #9 (8/11/16)
	2 PHOTO #10	~STA. 301+70	LOOKING S	REFER TO PHOTO #10 (8/11/16)
1. REFER TO 8/11/16 PHOTOGRAPH LOG PHOTOS 9 TO 12 FOR SUPPORTING SUBGRADE PHOTOS + GCL PLACEMENT				2.

LANGAN

Certificate of Soil Surface

Sheet # 22

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	Subgrade	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 301+25 TO ~STA. 300+80		
QA Monitor	LANGAN	Date	8/12/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P112 (INSTALLED ON 8/11/16) APPROX 45 FT. EAST FROM ~STA. 301+25 TO ~STA. 300+80. SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>1/2") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N END OF CAP FOR AREAS BELOW (TO 1FT ABOVE) SITE WATER TABLE AS SHOWN ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N-NO CHANGES

Independent CQA Monitor	
Name:	DAN BOSWORTH
Date:	8/12/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	[signature]

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/12/16
Title	QC Manager
Representing:	Entact
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: Soil Graded, Compacted, And Free of Debris (>½") As outlined In Section 02372-8.
- Subgrade Observed By Field Engineer Who Walked The Placement Area In Approx. ~200 ft by 8ft Transects To Observe Soil Compaction As well As Items Requiring Removal Prior to Panel Placement. GCL Placed Along N end of Cap From Approx ~ Sta. 301+25 to ~ Sta. 300+80 For Areas Below (to left. Above) Site Water Table @ Approx. El. 17 As Shown on Design Drawings.

Photographs	Number	Location	Orientation	Notes
	1 Photo #9	~Sta. 301+25	Looking N	Refer to Photo #9 (8/12/16)
	2 Photo #10	~Sta. 301+25	Looking S	Refer to Photo #10 (8/12/16)

1. Refer to 8/12/16 Photograph Log Photos 9 to 12 for Supporting Subgrade Photos + GCL Placement

2.

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Certificate of Soil Surface

Sheet # 23

Project Name	HONEYWELL SA-6 NORTH	Material Desc.	GEOMEMBRANE		
Project No.	100530001	General Desc.	(Subgrade)	Operations	LCRS
Owner/ Contr.	HONEYWELL / AMEC FW	Cell No.	~STA. 300+80 TO ~STA. 300+00 (EE05)		
QA Monitor	LANGAN	Date	8/13/16		

Description of Soil Surface to be lined: AREA IMMEDIATELY EAST OF PANEL P114 (INSTALLED ON 8/12/16) APPROX 80 FT. EAST FROM ~STA. 300+80 TO ~STA. 300+00 (EE03). SOIL APPEARS TO BE GRADED, COMPACTED, AND FREE OF DEBRIS (>½") AND IN CONFORMANCE WITH PROJECT SPECS. GCL PLACED ALONG N AND E END OF CAP FOR AREAS BELOW (TO INT ABOVE) SITE WATER TABLE. AS SHOWN ON DESIGN DRAWINGS

I hereby certify that the above surface area is suitable for the installation of geosynthetics, and I shall be responsible for its integrity and suitability in accordance with the specifications from this date to the completion of the installation.

Visual Inspection of Subgrade Surface	
QUALITY	**Y/N/NA**
Geomembrane	
Smooth	Y
Uniform	Y
Relatively free from abrupt changes in grade, rocks larger than ½, sharp objects, and debris	Y
Free of standing water	Y
Surface area to be lined has been properly prepared	Y
Geocomposite Clay Liner	
Free from wheel ruts, debris, rocks, sticks, and rocks larger than 1 inch	Y
Suitable for placement of GCL	Y
Smooth	Y
Any changes required? If so the contractor and owner's representative must be notified.	N - NO CHANGES

Independent CQA Monitor	
Name:	DAN BOSWORTH
Date:	8/13/16
Title	LEAD QA ENGINEER
Representing:	LANGAN
Signature:	

Geosynthetic Installer Representative	
Name:	Caroline Panico
Date:	8/13/16
Title	QC Manager
Representing:	Anteon
Signature:	Caroline Panico

LANGAN

Notes, Observations, Comments: Soil Placed, Compacted, And Free of Debris (≤ ½") As Outlined In Section 02372-8
- Subgrade Observed By Field Engineer Who Walked The Placement Area In Approx ≤200ft By 5ft. Transects To Observe Soil Compaction As Well As Items Requiring Removal Prior To Panel Placement. GCL Placed Along North + East End Of Cap From Approx Stn. 300+80 To ~Stn. 300+00 (Edge Of (and) For Areas Below To 1ft. Above Site Water Table @ Approx EL. 7 As Shown On Design Drawings

Photographs	Number	Location	Orientation	Notes
	1 Photo #8	~Stn. 300+40	Looking N	Refer To Photo #8 (8/13/16)
	2 Photo #9	~Stn. 300+80	Looking N	Refer To Photo #9 (8/13/16)
1. Refer to 8/13/16 Photograph Log Photos 8 to 11 for Supporting Subgrade Photos + GCL Placement				2.

Appendix E
Langan Daily Reports & Supporting Photo Logs

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	6/21/2015
PROJECT:	SA-6 Capping		**WEATHER:**	80/92° F, Clear, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Soil Subgrade Observation	**TIME:**	0745 – 1215

CONTRACTOR & EQUIPMENT: **Entact & ESI** *Equipment:* Dozers, Steel Drum Rollers, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #1** **AmecFW**: Stu Bills, Geoff Shallard, Dave Ambrose, Philemon **Langan:** Dan Bosworth, Jeff Stoicescu **ENTACT**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite to conduct soil subgrade observation along the west end of SA-6 North. A preliminary kickoff meeting was conducted between AmecFW, Langan, and Entact to discuss the QA / QC activities, along with the strategy and implementation plan for the proposed capping of SA-6 North.
- Following the meeting, Langan and AmecFW conducted a visual observation of the prepared soil subgrade along the western end of SA-6 North. This area included the furthest western part of the cap (approximately 100 ft. from the western end moving east).
- In general, the following soil subgrade properties were observed:
  - Various debris including broken glass, wood fragments, small rocks, etc. were observed along the western end of SA-6 North (specifically along the slopes and elevation changes at the northern end of the cap). It is recommended that this debris addressed so that no objects are penetrating / extruding from the surface, and the overall subgrade is flat and even. Additionally, Entact should provide laborers with a wheelbarrow and equipment to collect various debris as it is encountered.
  - Some slight changes in elevation were observed in areas along the western end of the cap where one area appeared higher than the other. The variations in cap subgrade elevation could potentially result in the ponding of water. Additionally, the mouths along the tree bulb swales appeared to be higher than the swale itself, thus causing water to pond in the swales instead of flowing out and down the sides of the cap. AmecFW to review the survey data and confirm existing grades.
  - Additional details regarding the subgrade are outlined in the 6/21/16 Photograph Log attached as part of this report.
- AmecFW to address the issues outlined above, with follow up subgrade inspection to be completed on 6/22/16 by Langan (prior to deployment of GVL).

Observations Requiring Contractor / QA Engineer Review

- Based on the soil subgrade observation, the soil has not yet been approved for liner installation activities based on the debris / penetrations outlined in this report. It is recommended that the Entact provide the necessary labor to remove the various debris and provide a flat, even surface with no penetrations or extrusions through the subgrade.

Cc Jeff Stoicescu, Rory Johnston, Vikki Hon, File

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Action Items Pending

- QA Engineer - Review SA-6 North capping specifications and drawings. Review product submittals (as provided) and ensure that all data, drawings, and pertinent documents are ready for liner installation kickoff (planned to commence on 6/22/16).

Action Items – Weekly Completions

- None to Date

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- SA-6 North capping to commence on 6/22/16 (pending soil subgrade approval).

Cc: Jeff Stoicescu, Rory Johnston, Vikki Hon, File

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Photograph Log

Photo 1: Wood and various debris observed along northern end of SA-6 North.

Photo 2: Looking south along western end of SA-6 North. Misc. trash and debris to be removed by Entact.

Photograph Log (continued)

Photo 3: Prepared subgrade along western end of SA-6 North. AmecFW to confirm and verify surveyed grades.

Photo 4: Soil subgrade along western end of SA-6 North. Entact to remove debris / penetrations. AmecFW to verify and confirm surveyed grades.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	6/22/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	78/92° F, Clear, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0745 – 1630

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #2** **AmecFW**: Stu Bills, Geoff Shallard, Dave Ambrose, Philemon **Langan:** Dan Bosworth **ENTACT**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) starting at the western end of SA-6 North. Material to be placed starting from the western end (approximate Sta. 319+00) of SA-6 North for approximately 125 ft. east. (to approximate Sta. 317+75).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area).
- Prior to placement of geosynthetic material, soil subgrade observation was conducted by Langan and Entact for the area outlined above. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos #1, 2, 3, and 4 of the daily photo log for 6/22/2016, for supporting subgrade photos. This area was also surveyed to meet the grading requirements as outlined in the project specifications as verified by AmecFW. Additionally, minor modifications to the subgrade elevations were completed by Entact to facilitate positive drainage flow away from the tree bulb swales (located at approximate Sta. 317+75).
- Following soil subgrade approval, ESI began by placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the specifications. After the 16 oz. geotextile was placed, GVL was installed on the western end of the Site (approximate Sta. 319+00) moving east (to approximate Sta. 317+75). GVL was placed according to the project specifications with white plastic fasteners spaced at a minimum of 5 ft. Additionally the top panel of geotextile was sewed along the seams (according to the project specifications). Refer to 6/22/16 Photo Log for supporting photographs.
- After installation of GVL, geomembrane liner was installed beginning at the western end of SA-6 North and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 319+00 to approximate Sta. 317+75. A total of seven panels were installed (P1, P2, P3, P4, P5, P6, and P7). Note: P1 consisted of an approximate 50 ft. by 18 ft. piece of LLDPE installed along the western end of SA-6 North. During placement of Panel P4, the roll of LLDPE terminated at the approximate center of the cap, thus the remaining run of LLDPE was installed as P5. P2, P3, P6, and P7 ran the entire width of SA-6 North (approximately 162 ft.) from north to south.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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- Adjacent panel seams were overlapped a minimum of four inches for fusion welding (according to project specifications). Prior to welding activities, trial welds were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 6/22/16 *Trial Weld Log.*
- Non-destructive testing was then conducted (pressure testing) for the fusion welded seams. 30 psi was applied to the seams and held for 5-minute increments with no more than 4 psi loss measured over the 5-minute interval. The results of the non-destructive tests are outlined in the *Seam Control Form.*
- Destruct test samples and extrusion weld detailing (repairs) to be completed on 6/23/15.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log for 6/22/16. Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, etc.)

Action Items – Weekly Completions

- None to Date

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Additional subgrade preparation work for the next approximate 100 ft. run east (approximately from Sta. 317+75 to Sta. 316+75).
- Continue with 16 oz. geotextile, GVL, and LLDPE placement moving east along SA-6 North.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be certified upon completion of SA-6 North
A2 – Receiving and Inspection		NA - No material delivered to the site on 6/22/16
A3 – Photo Log	Pages 1 - 8	Total of 16 photos outlining pertinent daily observations and descriptions for activities completed on 6/22/16
A4 – Geosynthetic Inventory Log		Completed to date, no updates from 6/22/15
A5 – Subgrade Approval	Sheet 1 & ESI (6/22/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer.
A6 – Trial Weld Log	Sheet 1	One trial weld log provided by ESI and confirmed by Langan for trial welds completed on 6/22/16
A7 – Panel Placement Log	Sheet 1	One panel placement log provided by ESI and confirmed by Langan for panels placed on 6/22/16.
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 6/22/16
A9 – Seam/Non-Destruct. Test Log	Sheets 1 - 2	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/22/16
A10 – Repair Log		NA – no repairs or extrusion welds completed on 6/22/16
A11 – Conformance COC		NA – for 6/22/16.
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 6/22/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 6/22/16
A14 – Penetration & Edge Form		NA – no penetrations / boots completed on 6/22/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 6/22/16
A17 – Spark Test Form		NA – no spark testing conducted on 6/22/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along SA-6 North (western end of cap) near Sta. 319+00.

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along western end of SA-6 North (approximate Sta. 318+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking southeast along western end of SA-6 North

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (06/22/2015)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/2215

Direction Taken:

Looking north / northeast along SA-6 North (at approximate Sta. 318+00).

Description:

Modifications completed on subgrade to facilitate positive drainage flow away from tree bulb swales.

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PHOTOGRAPHIC LOG
Photo #5 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along western end of SA-6 North (approximate Sta. 319+00).

Description:

ESI deploying 16 oz. geotextile along western end of SA-6 North. Geotextile overlapped minimum of 1 ft. over the edges of the cap (remaining roll width inside)

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PHOTOGRAPHIC LOG
Photo #6 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking east along northern end of SA-6 North.

Description:

16 oz. geotextile deployed along northern end of SA-6 North and overlapped a minimum of 1 ft. beyond the edges of the cap.

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PHOTOGRAPHIC LOG
Photo #7 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along western end of SA-6 North (approximate Sta. 319+00).

Description:

ESi deploying GVL along SA-6 North. 16 oz. geotextile overlapping GVL by a minimum of 1 ft. and leistered in place.

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PHOTOGRAPHIC LOG
Photo #8 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

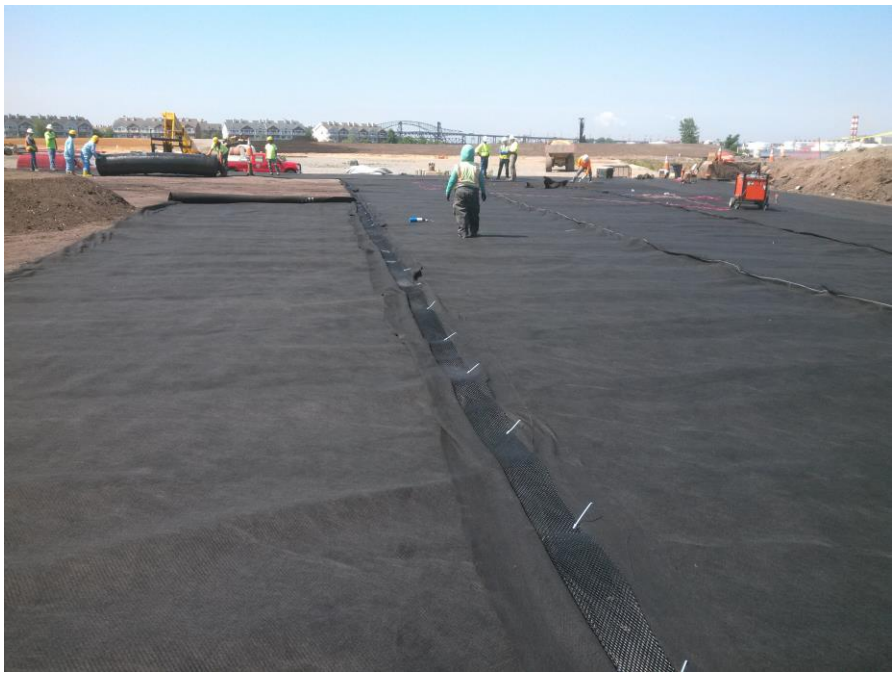
Date:
6/22/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 318+25).

Description:

ESI placing white plastic fasteners at maximum 5 ft. spacing along adjacent GVL panels. Top layer of geotextile then sewn.



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PHOTOGRAPHIC LOG
Photo #9 (06/22/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/22/16

Direction Taken:

Looking south / southeast along SA-6 North

Description:

GVL deployed over approved subgrade.

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PHOTOGRAPHIC LOG
Photo #10 (06/22/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/22/16

Direction Taken:

Looking north along western end of SA-6 North

Description:

ESI deploying LLDPE along western end of SA-6 North (approximate Sta. 319+00).

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PHOTOGRAPHIC LOG
Photo #11 (06/22/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/22/16

Direction Taken:

SA-6 North

Description:

ESI conducting fusion weld for peel and shear trial weld testing.

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PHOTOGRAPHIC LOG
Photo #12 (06/22/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/22/16

Direction Taken:

ESI Trailer

Description:

ESI conducting trial weld peel and shear testing (as per project specifications).

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PHOTOGRAPHIC LOG
Photo #13 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along western end of SA-6 North (approximate Sta. 319+00).

Description:

ESI conducting fusion welding between P1 and P2 seams.

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PHOTOGRAPHIC LOG
Photo #14 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking at SA-6 North (P1 & P2 seam)

Description:

ESI conducting pressure testing along P1 and P2 seams (30 psi hold for 5 minutes).

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PHOTOGRAPHIC LOG
Photo #15 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking north along SA-6 North

Description:

LLDPE Panels P4 & P5 (butt seam) labeled in field.

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PHOTOGRAPHIC LOG
Photo #16 (06/22/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/22/16

Direction Taken:

Looking south / southeast along SA-6 North

Description:

LLDPE deployed across SA-6 North from approximate Sta. 319+00 to Sta. 317+75.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	6/23/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/90° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0650 – 1530

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Lull, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #3**
AmecFW: Stu Bills, Dave Ambrose, Ari Eslaminejad, Philemon Onyango
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) continuing east from Panel P7 installed on 6/22/16 (approximate Sta. 317+75). Material to be placed from Panel P7 running approximately 125 ft. east to approximate Sta. 316+50.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 317+75 (east of Panel P7 installed on 6/22/16) to approximate Sta. 316+50. Refer to *Soil Subgrade Approval* forms from 6/23/15 for additional details. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos 1 to 4 of the daily photo log for 6/23/2016, for supporting subgrade photos. This area was also surveyed to meet the grading requirements as outlined in the project specifications as verified by AmecFW
- GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 317+75 (east Panel P7) moving east to approximate Sta. 316+50. GVL was placed according to the project specifications with white plastic fasteners spaced at a minimum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/23/16 Photo Log for supporting photographs.
- While GVL was being deployed, ESI also conducted patch / repair work along the panels installed on 6/22/16 (Panels P1 to P7). Prior to repair work a preweld test was conducted to confirm the extrusion welds met the requirements of the project specs. Refer to *Preweld Trial Log* (6/23/16).

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

- A total of eleven repairs (R-1 through R-11) were observed and fixed (according to the project specifications) from Panels P1 through P7. Refer to 6/23/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- While the geomembrane (installed on 6/22/16) was being patched / repaired, ESI also began to prepare penetration boots for Piezometer PZ10, Well 115-W6-SO, and Gas Vent GV-6. Note: The boot and boot skirts were completed, however, the vertical welds along the boots have not yet been tested as methane testing / spark testing are to be completed prior to finalizing the boot details.
- During repair activities / extrusion welding one non-conformance issue was observed and was documented on Sheet #1 as non-compliance. The non-compliance issue encountered was identified based on debris / rock that was observed underneath the LLDPE geomembrane. The rock was subsequently removed and the hole was patched / repaired according to the project specifications and further outlined in the *Non-Compliance and Corrective Action* forms – *Sheet #1* for 6/23/16. The non-compliance issue was also recorded within the *Repair Log* as a subgrade irregularity and is identified as R-10.
- After placement of GVL, geomembrane liner was installed beginning at the western end of SA-6 North (from Panel P7) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 317+75 (Panel P7) to approximate Sta. 316+50. A total of six panels were installed (P8, P9, P10, P11, P12, and P13). Note: During placement of panel P8, the roll of LLDPE terminated approx. 2/3 from the north of the cap, thus the remaining run of LLDPE was installed as P9. Similarly, during placement of Panel P12, the roll terminated along the northern end of SA-6 North, thus the remaining run of LLDPE was labeled as P13. Panels P10 and P11 ran the entire width of SA-6 North (approximately 162 ft.) from north to south.
- Adjacent geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 6/23/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 316+50, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 6/23/16 *Seam Control Form* for non-destructive testing details. Additionally, repair and extrusion weld activities were also conducted for Panels P8 through P13. A total of 32 additional repairs (RP-11 through RP-43) were observed and fixed according to the project specifications. Additional details are also outlined on the 6/23/16 *Repair Log.*
- A total of four destruct samples were collected for laboratory sampling by Entact / ESI. Three fusion weld destruct samples DS-1 (Panel P1 / P2 seam), DS-2 (Panel P6 / P7 seam), and DS-3 (Panel P10 / P11 seam) were collected for laboratory analysis. Additionally, one extrusion weld sample DSX-1 (Panel P1) was also collected for laboratory analysis.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 1 (Sheet #1) – Subgrade irregularity identified as R-10 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P6. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 1 Notice of Non-Compliance.*

Action Items – Pending

- Complete Daily Report and Photo Log (for 6/23/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.)

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Action Items – Pending (continued)

- Review laboratory destruct sample data for fusion weld destruct samples DS-1 to DS-3 and extrusion weld sample DSX-1 (once received from laboratory).

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16. ESI Daily Form Submittals still to be reviewed.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 6/23/16
A3 – Photo Log	Pages 1 – 8	Total of 16 photos outlining pertinent daily observations and descriptions for 6/23/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 6/23/16
A5 – Subgrade Approval	Sheet 2 & ESI (6/23/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 1	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 6/23/16
A7 – Panel Placement Log	Pages 1 - 2	One panel placement log provided by ESI and confirmed by Langan for panels placed on 6/23/16
A8 – Destruct Seam Testing COC	Sheet 1	Updated for destruct samples collected on 6/23/16
A9 – Seam/Non-Destruct. Test Log	Pages 2 - 4	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/23/16
A10 – Repair Log	Pages 1 - 2	One repair log provided by ESI and confirmed by Langan for repairs completed for 6/23/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A11 – Conformance COC		NA for 6/23/16
A12 – Destructive Seam Field Test	Page 1	Updated with destruct samples collected on 6/23/16
A13 – Destruct. Sample Summary	Page 1	Destruct sample summary updated with samples collected on 6/23/16
A14 – Penetration & Edge Form	6/23/16 Pipe Boot Logs	Pipe boots completed for Piezometer PZ10, Well 115-W6-SO, and Gas Vent GV-6. Methane / spark testing still to be conducted to confirm integrity of boot.
A16 – Notice of Non-Compliance	Sheet 1	One non-compliance issue identified on 6/23/16 and summarized on Sheet 1
A17 – Spark Test Log		NA – no spark testing conducted on 6/23/16

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PHOTOGRAPHIC LOG
Photo #1 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking east along SA-6 North from Panel P7 (installed on 6/22/16) near Sta. approximate Sta. 317+50.

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 317+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking east along SA-6 North (from approximate Sta. 316+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking north / northeast along SA-6 North (southern end of SA-6 North)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #5 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 317+25).

Description:

ESI deploying GVL across approved soil subgrade.

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PHOTOGRAPHIC LOG
Photo #6 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking east along western end of SA-6 North (at Piezometer PZ10)

Description:

ESI prepping for extrusion weld / detailing for pipe boot repairs. Neoprene gasket placed around Piezometer PZ10.

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PHOTOGRAPHIC LOG
Photo #7 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking north along SA-6 North (at approximate Sta. 317+50).

Description:

White plastic fasteners spaced at maximum of 5 ft. along geonet. Top layer of geotextile to be sewn.

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PHOTOGRAPHIC LOG
Photo #8 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking east along western end of SA-6 North (Panel P1).

Description:

ESI conducting extrusion welding (detailing) for pipe boot for Piezometer PZ10 and repairs located on Panel P1. Additional details provided in ESI Repair Log dated 6/23/16.

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PHOTOGRAPHIC LOG
Photo #9 (06/23/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/23/16

Direction Taken:

Looking east along SA-6 North (at approximate Sta. 318+25)

Description:

ESI conducting repairs / extrusion welding for custom fit repairs on Panel P6. Geomembrane cut to conform to SA-6 North contours.

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PHOTOGRAPHIC LOG
Photo #10 (06/23/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/23/16

Direction Taken:

Looking east along southern end of SA-6 North (Panel P6 / P7 seam).

Description:

Destruct sample DS-2 (fusion weld) marked to be cut for laboratory testing. DS-2 located along southern end of SA-6 North (Panel P6 / P7).

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PHOTOGRAPHIC LOG
Photo #11 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 317+25).

Description:

ESI deploying LLDPE across SA-6 North (panels oriented north to south).

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PHOTOGRAPHIC LOG
Photo #12 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

SA-6 North, Panel P6

Description:

Subgrade irregularity identified on Panel P6. Rock removed from underneath LLDPE and recorded as Repair R-10, non-compliance issue (identified on Sheet 1).

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PHOTOGRAPHIC LOG
Photo #13 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/23/16

Direction Taken:

Looking east along SA-6 North (approximate Sta. 317+50).

Description:

ESI conducting fusion welding between Panel P8 / P9 seam (butt seam).

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PHOTOGRAPHIC LOG
Photo #14 (06/23/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

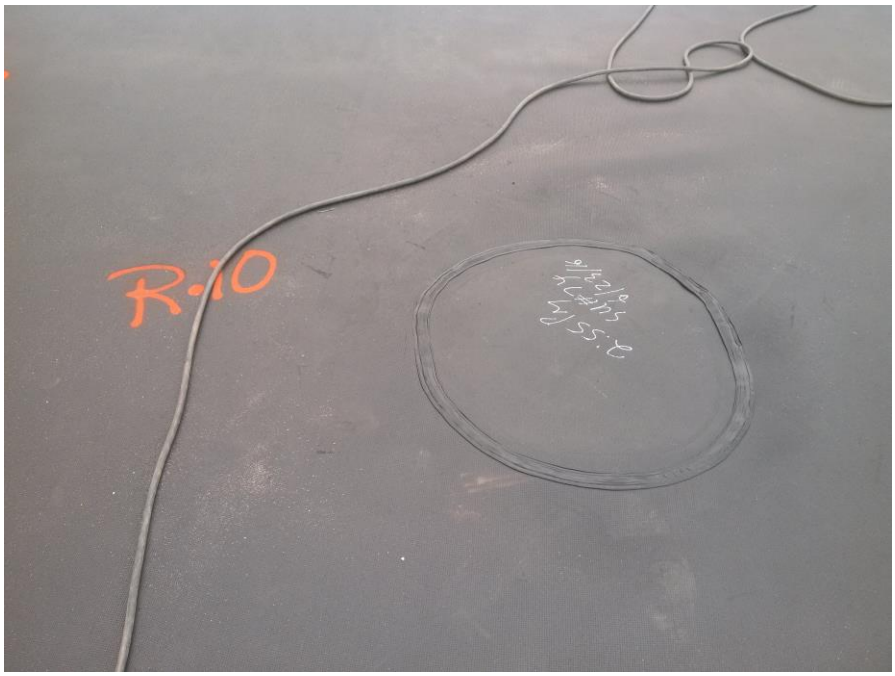
Date:
6/23/16

Direction Taken:

SA-6 North Panel P6

Description:

Patch repair and extrusion welding completed for R-10 which was identified as the subgrade irregularity (non-conformance Sheet 1) with rock removed from underneath LLDPE geomembrane.



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PHOTOGRAPHIC LOG
Photo #15 (06/23/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/23/16

Direction Taken:

SA-6 North Destruct Sample DS-2

Description:

Destruct sample DS-2 (Panel P6 / P7 seam) following patch repair and extrusion welding.

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PHOTOGRAPHIC LOG
Photo #16 (06/23/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/23/16

Direction Taken:

SA-6 North at well 115-W6-SO

Description:

LLDPE boot with skirt welded. Vertical seam extrusion weld to be completed once methane testing / spark testing completed.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	6/24/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/95° F, Clear, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1545

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #4**
AmecFW: Stu Bills, Dave Ambrose, Ari Eslaminejad, Philemon Onyango
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) continuing east from Panel P12 / P13 installed on 6/23/16 (approximate Sta. 316+50). Material to be placed from Panel P12 / P13 running approximately 75 ft. east to approximate Sta. 315+75.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 316+50 (Panel P12 / P13 installed on 6/23/16) to approximate Sta. 315+75. Refer to *Soil Subgrade Approval* forms from 6/24/15 for additional details. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos 1 to 3 of the daily photo log for 6/24/2016, for supporting subgrade photos. This area was also surveyed to meet the grading requirements as outlined in the project specifications as verified by AmecFW
- GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 316+50 (east of Panel P12 / P13) moving east to approximate Sta. 315+75. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/24/16 Photo Log for supporting photographs.
- While GVL was being deployed, ESI also continued patch / repair work for the panels installed on 6/23/16 (Panels P8 to P13). Prior to repair work a preweld test was conducted to confirm the extrusion welds met the requirements of the project specs. Refer to *Preweld Trial Log* (6/24/16).
- In addition, methane testing was conducted for the pipe boots completed for Well 115-W6-SO,

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Piezometer PZ10, and Gas Vent GV-6. Methane testing was conducted by AmecFW to measure the concentration of methane present below the LLDPE geomembrane. During methane testing of Well 115-W6-SO, a concentration of 1.4% (greater than 1%) was measured. No spark testing was conducted on Well 115-W6-SO due to the measured methane concentration. Instead, the weld was visually observed for deficiencies and none were noted.

- Methane testing for PZ10 and Gas Vent GV-6 yielded methane concentrations of 0.8% and 0.0%, respectively (<1%). Following the methane testing, spark testing was conducted by ESI for the vertical weld and pipe boot weld at the base of the penetration (i.e. welds not accessible for vacuum box testing). No sparks were observed during the test, and both boots passed. Additional details are outlined in the *Spark Testing QA Form Sheets #1-3.*
- After placement of GVL, LLDPE geomembrane was installed continuing from Panel P12 / P13 (installed on 6/23/16) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 316+50 (Panel P12 / P13) to approximate Sta. 315+75. A total of six panels were installed (P14, P15, P16, P17, P18, and P19). Note: During placement of panel P15, the roll of LLDPE terminated approx. 2/3 from the north of the cap, thus the remaining run of LLDPE was installed as P16. Panels P14, P17, P18, and P19 ran the entire width of SA-6 North (approximately 192 ft.) from north to south.
- Adjacent geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At leastsix 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 6/24/16 *Trial Weld Log*.
- Upon completion of geomembrane panel placement to approximate Sta. 315+75, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 6/24/16 *Seam Control Form* for non-destructive testing details. Additionally, repair and extrusion weld activities were also conducted for Panels P14 through P19. Additional details are also outlined on the 6/24/16 *Repair Log.*
- A total of thirty repairs (RP-44 through RP-73) were observed and fixed (according to the project specifications) from Panels P14 through P19. Refer to 6/24/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications. Note: vacuum box testing not completed for all welds. To be continued on 6/27/16.
- ESI completed pipe boot / penetrations for Access Manhole 1 (Sta. 1+50). Additional details are provided in the 6/24/16 Pipe Boot Forms.
- A total of two destruct samples were collected for laboratory analysis by Entact / ESI. One fusion weld destruct sample DS-4 (Panel P15 / P17 seam) was collected for laboratory analysis. Additionally, one extrusion weld sample DSX-2 (Panel P10) was also collected for laboratory analysis.

Non-Conformance Items / Corrective Actions

- None Encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 6/24/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample data (once received from laboratory).

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By: Dan Bosworth

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16 and 6/23/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1, DS-2, and DS-3. Reviewed laboratory data for extrusion weld destruct sample DSX-1.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 6/24/16
A3 – Photo Log	Pages 1 – 7	Total of 14 photos outlining pertinent daily observations and descriptions for 6/24/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 6/24/16
A5 – Subgrade Approval	Sheet 3 & ESI (6/24/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 1 - 2	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 6/24/16
A7 – Panel Placement Log	Pages 2 & 3	One panel placement log provided by ESI and confirmed by Langan for panels placed on 6/24/16
A8 – Destruct Seam Testing COC	Sheet 1	Updated for destruct samples collected on 6/24/16
A9 – Seam/Non-Destruct. Test Log	Pages 4 - 7	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/24/16
A10 – Repair Log	Pages 2 - 4	One repair log provided by ESI and confirmed by Langan for repairs completed for 6/24/16
A11 – Conformance COC		NA for 6/24/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test	Page 1	Updated with destruct samples collected on 6/24/16
A13 – Destruct. Sample Summary	Page 1	Destruct sample summary updated with samples collected on 6/24/16
A14 – Penetration & Edge Form	6/24/16 Pipe Boot Logs	Pipe boot completed for Access Manhole 1 (Sta. 1+50).
A16 – Notice of Non-Compliance		NA - no non-compliance issues identified on 6/24/16.
A17 – Methane / Spark Testing Log	Sheets 1 to 3	Methane testing completed for Piezometer PZ10, Well 115-W6-SO, and Gas Vent GV-6. Spark testing completed for Piezometer PZ10 and Gas Vent GV-6 (no spark testing completed for Well 115-W6-SO due to the measured methane concentration).

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PHOTOGRAPHIC LOG
Photo #1 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

Looking east along the southern end of SA-6 North (at approximate Sta. 316+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 315+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

Looking east / southeast along SA-6 North (from approximate Sta. 316+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

Looking north / northeast along SA-6 North (at approximate Sta. 316+50).

Description:

ESI deploying GVL over approved subgrade. GVL secured with plastic fasteners with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #5 (06/24/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/24/16

Direction Taken:

Looking north / northwest at Well 115-W6-SO

Description:

Entact conducting methane testing for Well 115-W6-SO pipe boot. Methane at concentration of 1.4% measured. No spark testing conducted on well pipe boot.

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PHOTOGRAPHIC LOG
Photo #6 (06/24/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/24/16

Direction Taken:

Looking west at Piezometer PZ10

Description:

ESI conducting spark testing for Piezometer PZ10 pipe boot. Methane testing yielded results of 0.8% (below 1%), thus spark testing was completed. No sparks identified during test. Spark test passed.

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PHOTOGRAPHIC LOG
Photo #7 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

SA-6 North – Gas Vent GV-6

Description:

ESI conducting spark testing for Gas Vent GV-6 pipe boot. Methane testing yielded results of 0.0% (below 1%), thus spark testing was conducted. No sparks identified during test. Spark test passed.

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PHOTOGRAPHIC LOG
Photo #8 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

Looking south / southeast along SA-6 North (at approximate Sta. 316+50).

Description:

ESI deploying LLDPE geomembrane over GVL. LLDPE panels oriented north to south as per approved panel layout.

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PHOTOGRAPHIC LOG
Photo #9 (06/24/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/24/16

Direction Taken:

Looking south / southeast along SA-6 North (Panel P13 / P14).

Description:

ESI conducting fusion welding along Panel P13 / P14 seam.

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PHOTOGRAPHIC LOG
Photo #10 (06/24/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/24/16

Direction Taken:

Looking south / southwest along SA-6 North (Access Manhole #1).

Description:

ESI prepping pipe boot for Access Manhole #1. Methane testing / spark testing to be completed before completing boot welds.

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PHOTOGRAPHIC LOG
Photo #11 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

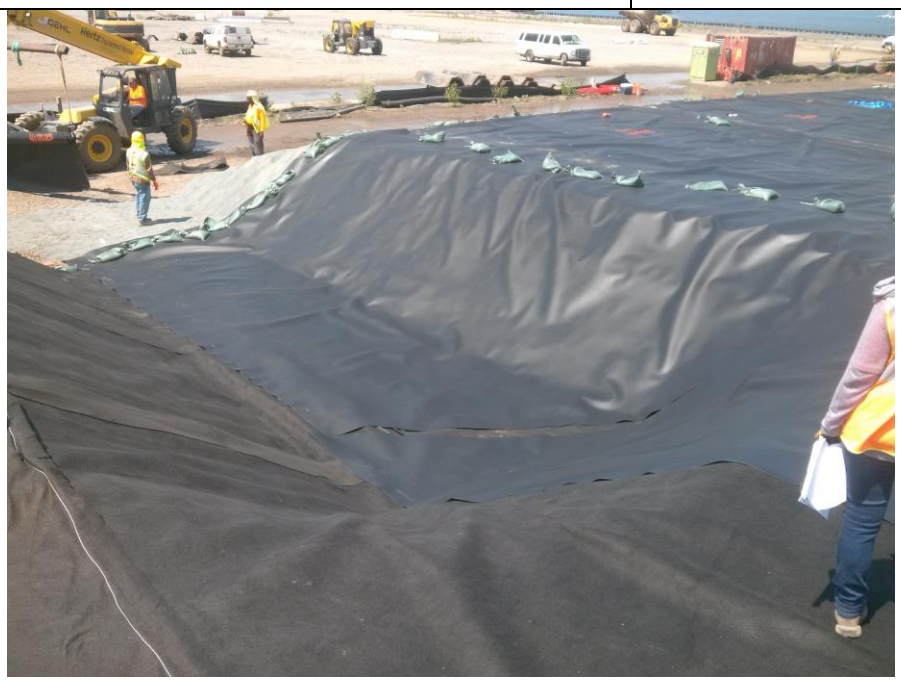
Date:
6/24/16

Direction Taken:

Looking south along southern end of SA-6 North (approximate Sta. 316+00).

Description:

ESI cutting “custom fit” repairs to conform LLDPE geomembrane to SA-6 North contours (i.e. drainage swale at approximate Sta. 316+00).



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PHOTOGRAPHIC LOG
Photo #12 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

SA-6 North, Panel P12 / P13

Description:

ESi conducting non-destructive testing (i.e. pressure testing) for Panel seam P12 / P13/ P14. Seam pressurized to 30 psi and held for 5 minutes with > 4 psi loss (according to project specs).

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PHOTOGRAPHIC LOG
Photo #13 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

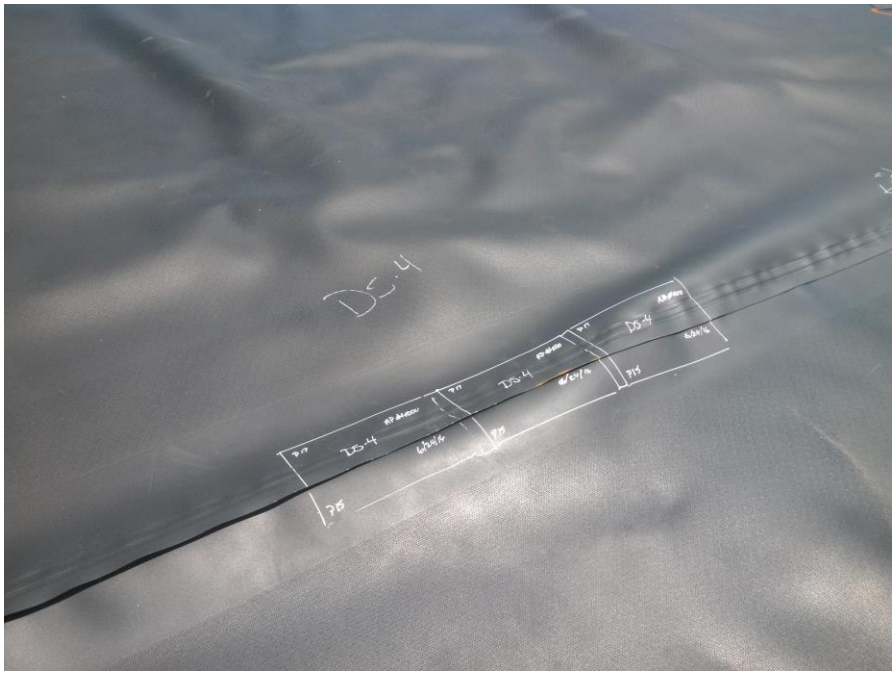
Date:
6/24/16

Direction Taken:

SA-6 North – Panels P15 / P17

Description:

Destruct sample DS-4 marked on Panels P15 / P17.



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PHOTOGRAPHIC LOG
Photo #14 (06/24/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/24/16

Direction Taken:

SA-6 North Panel P10

Description:

ESI conducting vacuum box testing for R-31 (Panel P10).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	6/27/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	70/85° F, Sunny (AM), PM Showers
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0650 – 1930

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #5**
AmecFW: Stu Bills, Dave Ambrose, Ari Eslaminejad, Philemon Onyango
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) continuing east from Panel P19 installed on 6/24/16 (approximate Sta. 315+75). Material to be placed from Panel P19 running approximately 150 ft. east to approximate Sta. 314+25.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 315+75 (Panel P19 installed on 6/24/16) to approximate Sta. 314+25. Refer to *Soil Subgrade Approval* forms from 6/27/15 for additional details. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos 1 to 3 of the daily photo log for 6/27/2016, for supporting subgrade photos. During subgrade observation, AmecFW was also completing surveying to verify the subgrade elevations. The area was subsequently approved by AmecFW following review of the survey data.
- While the subgrade was being surveyed, ESI deployed the orange geocomposite drainage layer (GDL), over the installed LLDPE geomembrane. GDL was placed from Panel P1 (approximate Sta. 319+00), to Panel P11 (approximate Sta. 316+25). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/27/16 Photo Log for supporting photographs.
- While GDL was being deployed, ESI also conducted, methane / spark testing for the pipe boot completed for Access Manhole #1 (Panel P10). Prior to spark testing, methane testing was conducted to measure the concentration of methane present below the LLDPE geomembrane. During methane testing of Manhole #1, a concentration of 0.1% (less than 1%) was measured. Following the methane testing, spark testing was conducted by ESI for the vertical weld and pipe boot weld at the base of the penetration (i.e. welds not accessible for vacuum box testing). No sparks were observed during the test, and Manhole #1 boot passed. Additional details are outlined in the *Spark Testing QA Form Sheet #4.*

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

- Following the placement of GDL, and subsequent to AmecFW completing the survey requirements for the soil subgrade, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 315+75 (east of Panel P19) moving east to approximate Sta. 314+25. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/27/16 Photo Log for supporting photographs.
- After placement of GVL, LLDPE geomembrane was installed continuing from Panel P19 (installed on 6/24/16) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 315+75 (Panel P19) to approximate Sta. 314+25. A total of eight panels were installed (P20, P21, P22, P23, P24, P25, P26, and P27). Note: During placement of panel P21, the roll of LLDPE terminated at the approximate center of the cap, thus the remaining run of LLDPE was installed as P22. Similarly, during placement of Panel P24, the roll of LLDPE terminated along the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P25. Panels P20, P23, P26, and P27 ran the entire width of SA-6 North (approximately 200 ft.) from north to south.
- Adjacent geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 6/27/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 314+25, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 6/27/16 *Seam Control Form* for non-destructive testing details. Additionally, repair and extrusion weld activities were also conducted for Panels P19 through P27 to attempt to patch / cover the LLDPE before inclement weather. Additional details are outlined on the 6/27/16 *Repair Log.*
- ESI completed pipe boot / penetrations for Piezometer PZ8. Additional details are provided in the 6/27/16 Pipe Boot Forms.
- A total of seven repairs (R-75 through R-81) were observed and fixed (according to the project specifications) from Panels P20 through P21. Refer to 6/27/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications. Note: not all repairs completed, repairs conducted to cover and seal cap before inclement weather. Vacuum box testing not completed. Activities to be continued on 6/28/16. No destruct samples were collected, as destruct samples to be cut on 6/28/16 (Note: Repair R-74 destruct sample to be cut on 6/28/16).

Non-Conformance Items / Corrective Actions

- None Encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 6/27/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Complete pipe boot penetration log for Piezometer PZ-8 (Panel P21).

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, and 6/24/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1, DS-2, DS-3, and DS-4. Reviewed laboratory data for extrusion weld destruct sample DSX-1 and DSX-2. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 6/27/16
A3 – Photo Log	Pages 1 – 7	Total of 14 photos outlining pertinent daily observations and descriptions for 6/27/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 6/27/16
A5 – Subgrade Approval	Sheet 4 & ESI (6/27/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 2	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 6/27/16
A7 – Panel Placement Log	Pages 3 - 4	One panel placement log provided by ESI and confirmed by Langan for panels placed on 6/27/16
A8 – Destruct Seam Testing COC	Sheet 1	Updated for destruct samples collected on 6/27/16
A9 – Seam/Non-Destruct. Test Log	Pages 7 - 8	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/27/16
A10 – Repair Log	Pages 4 - 5	One repair log provided by ESI and confirmed by Langan for repairs completed for 6/27/16
A11 – Conformance COC		NA for 6/27/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 6/27/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 6/27/16
A14 – Penetration & Edge Form	6/27/16 Form	One boot penetration form completed for Piezometer PZ8. Note: no methane / spark testing conducted.
A16 – Notice of Non-Compliance		NA - no non-compliance issues identified on 6/27/16
A17 – Spark Testing Form		NA – no spark testing completed on 6/27/16. Boot for Piezometer PZ8 completed. Methane / spark testing to be completed week of July 5, 2016.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

Looking east along SA-6 North (from approximate Sta. 315+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 315+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

Looking east along northern end of SA-6 North (from approximate Sta. 315+50).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

Looking west/ southwest along SA-6 North (at approximate Sta. 319+00).

Description:

ESI preparing to deploy GDL over Panel P1 and P2 (at approximate Sta. 319+00).

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PHOTOGRAPHIC LOG
Photo #5 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

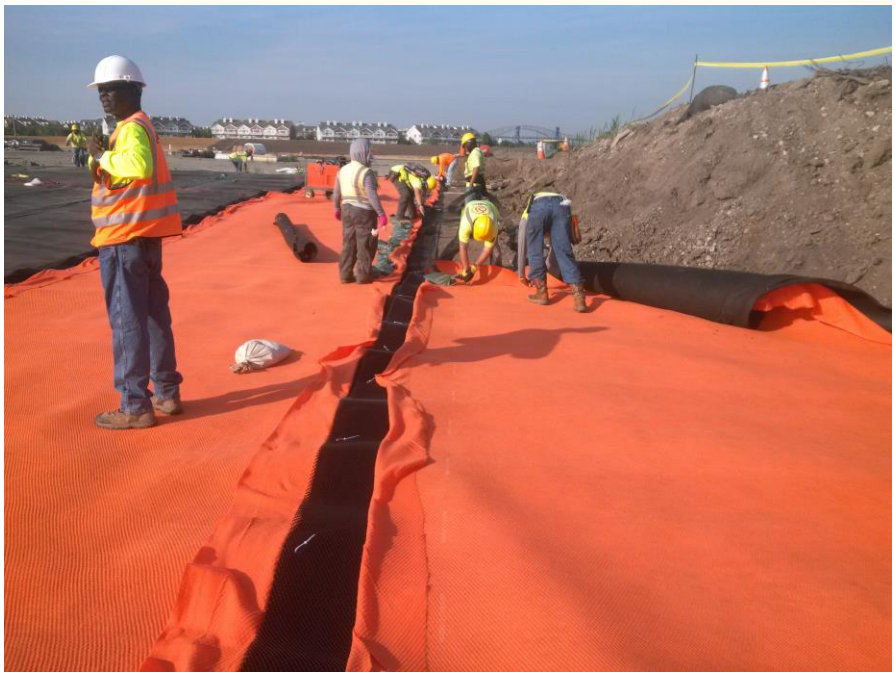
Date:
6/27/16

Direction Taken:

Looking south along western end of SA-6 North (approximate Sta. 319+00).

Description:

ESI deploying GDL with white plastic fasteners spaced at a maximum of 5 ft. along geonet. Top layer of geotextile (orange) sewn.



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PHOTOGRAPHIC LOG
Photo #6 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

Looking south / southeast across SA-6 North (from approximate Sta. 319+00).

Description:

ESI placing GDL across western end of SA-6 North.

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PHOTOGRAPHIC LOG
Photo #7 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

SA-6 North – Access Manhole #1. Repair R-29 (Panel P10).

Description:

Entact completing methane testing for Access Manhole #1 pipe boot (prior to spark testing). Methane concentration of 0.1% measured underneath LLDPE. Boot approved for spark testing.

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PHOTOGRAPHIC LOG
Photo #8 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

SA-6 North - Access Manhole #1. Repair R-29 (Panel P10).

Description:

ESI conducting spark testing for Access Manhole #1 pipe boot. Spark testing completed around base of boot and vertical welds (i.e. welds that cannot be vacuum box tested). No sparks were observed. Pipe boot passed spark testing.

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PHOTOGRAPHIC LOG
Photo #9 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

Looking east along southern end of SA-6 North (from approximate Sta. 315+50).

Description:

ESI deploying 16 oz. geotextile along southern edge of SA-6 North. Geotextile overlapped 1 ft. outside of SA-6 North (remaining roll width inside), as outlined in project specifications.

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PHOTOGRAPHIC LOG
Photo #10 (06/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
6/27/16

Direction Taken:

Looking south / southeast along SA-6 North (from approximate Sta. 315+75).

Description:

ESI deploying GVL across approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. Top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #11 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

Looking north along SA-6 North (at approximate Sta. 315+00).

Description:

ESI deploying LLDPE geomembrane over GVL.

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PHOTOGRAPHIC LOG
Photo #12 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

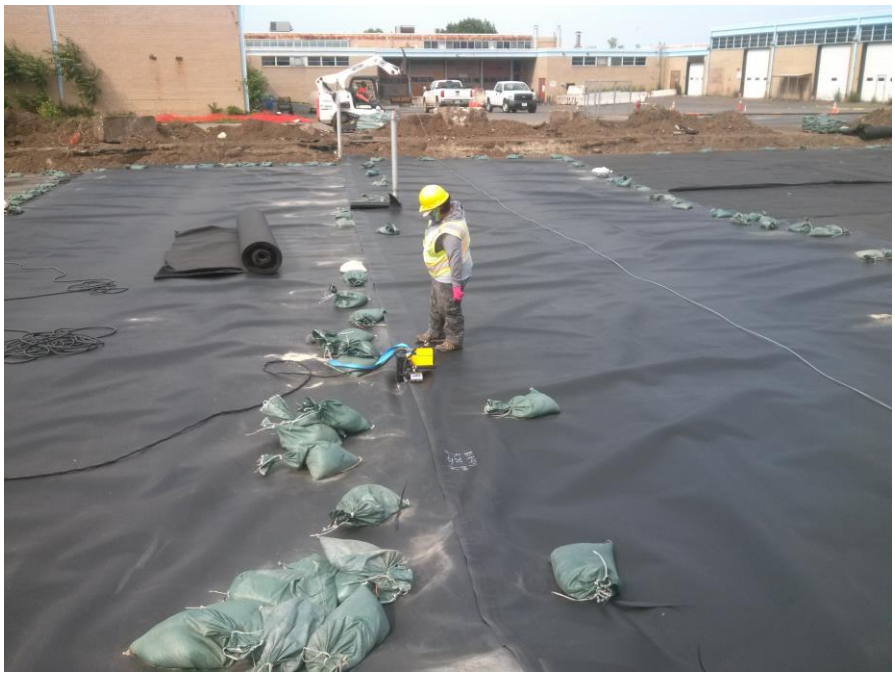
Date:
6/27/16

Direction Taken:

Looking north along SA-6 North at Panel P20 / P21 seam

Description:

ESI conducting fusion welding along Panel P20 / P21 seam.



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PHOTOGRAPHIC LOG
Photo #13 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

SA-6 North – Panel P23 / P24 seam.

Description:

ESI conducting non-destructive testing (pressure testing) along fusion weld Panel P23 / P24 seam.

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PHOTOGRAPHIC LOG
Photo #14 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

SA-6 North – Piezometer PZ8

Description:

ESI completing LLDPE boot for Piezometer PZ8 (Panel P21). Note: no methane / spark testing completed. Testing to be completed week of July 5, 2016.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	6/29/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/90° F, Clear, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0650 – 1530

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #6**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for LLDPE repair activities to be completed on LLDPE geomembrane installed on 6/27/16. Note: No capping activities conducted on 6/28/16 due to inclement weather, and no new LLDPE was placed on 6/29/16 as soil subgrade was not approved.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI continuing with non-destructive testing (pressure testing) and repair activities for geomembrane panels P19 through P27 (installed on 6/27/16). Non-destructive testing was conducted on the remaining panel seams and the seams were pressurized to 30 psi and held for 5 minutes with less than 4 psi loss. Refer to *6/29/16 Seam Control Form* for additional details.
- A total of twenty-two repairs (R-82 through RP-103) were observed and fixed (according to the project specifications) from Panels P19 through P27. Refer to 6/29/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of two destruct samples were collected for laboratory analysis. Two fusion weld destruct samples, DS-5 and DS-6, were collected from Panel Seam P19 / P20 and Panel Seam P23 / P24, respectively. Additional details are outlined in the *Trial Weld Log* dated 6/29/16.
- The LLDPE pipe boot penetration for Gas Vent GV-5 was completed and extrusion welded. Note: no methane testing / spark testing completed. Methane / spark testing to be completed week of July 5, 2016.
- While ESI was conducting repairs, small areas of standing water were observed on the soil subgrade from Sta. 314+25 to approximate Sta. 313+75. Entact solidified the subgrade by adding calcium cement to the soils so that the wet areas were absorbed / removed. Additionally, minor modifications to the subgrade were completed to facilitate positive drainage off of SA-6 North.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 2 (Sheet #2) – Subgrade irregularity identified as R-98 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P26. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 2 Notice of Non-Compliance.*

Action Items – Pending

- Complete Daily Report and Photo Log (for 6/29/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct samples results for DS-5 and DS-6.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, and 6/27/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1, DS-2, DS-3, and DS-4. Reviewed laboratory data for extrusion weld destruct sample DSX-1 and DSX-2. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 6/29/16
A3 – Photo Log	Pages 1 – 4	Total of 7 photos outlining pertinent daily observations and descriptions for 6/29/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 6/29/16
A5 – Subgrade Approval		NA - no subgrade approval for 6/29/16
A6 – Trial Weld Log	Page 2	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 6/29/16
A7 – Panel Placement Log		NA – no LLDPE panels placed on 6/29/16
A8 – Destruct Seam Testing COC	Sheet ~~1~~	Updated for destruct samples collected on 6/29/16
A9 – Seam/Non-Destruct. Test Log	Pages 8 - 10	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/29/16
A10 – Repair Log	Pages 5 - 6	One repair log provided by ESI and confirmed by Langan for repairs completed for 6/29/16
A11 – Conformance COC		NA for 6/29/16
A12 – Destructive Seam Field Test	Page 1	Updated with destruct samples collected on 6/29/16
A13 – Destruct. Sample Summary	Page 1	Destruct sample summary updated with samples collected on 6/29/16
A14 – Penetration & Edge Form	6/29/16 Form	LLDPE pipe boot penetration form completed for Gas Vent GV-5. Note: methane / spark testing not completed (to be completed week of June 5, 2016).
A16 – Notice of Non-Compliance	Sheet 2	One non-compliance issue identified on 6/29/16 and summarized on Sheet 2.
A17 – Spark Testing Form		NA – no methane / spark testing completed on 6/29/16 for Gas Vent GV-5.

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PHOTOGRAPHIC LOG
Photo #1 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

Looking south along SA-6 North along southern end of cap.

Description:

ESI continuing patch / repair activities for LLDPE geomembrane panels P19 through P27 (installed on 6/27/16).

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PHOTOGRAPHIC LOG
Photo #2 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

SA-6 North – Repair R98

Description:

ESI completing extrusion welds (detailing) for Repair R98 identified as a subgrade irregularity (Panel P26)

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PHOTOGRAPHIC LOG
Photo #3 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

Looking south / southwest across SA-6 North (approximate Sta. 317+00).

Description:

Entact placing protective cover soil over GDL Panels 1 to 11 (GDL placed on 6/27/16).

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PHOTOGRAPHIC LOG
Photo #4 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

SA-6 North – Destruct Sample DS-5 (Panel P19 / P20 seam)

Description:

Destruct sample DS-5 along Panel seam P19 / P20 marked by ESI for laboratory analysis.

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PHOTOGRAPHIC LOG
Photo #5 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 314+25).

Description:

Soft / wet areas identified along northern end of SA-6 North from approximate Sta. 314+25 to approximate Sta. 313+75. Entact to add calcium cement and solidify subgrade.

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PHOTOGRAPHIC LOG
Photo #6 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 314+25).

Description:

Entact adding calcium cement and solidifying subgrade for LLDPE geomembrane placement.

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PHOTOGRAPHIC LOG
Photo #7 (06/29/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/29/16

Direction Taken:

SA-6 North – Gas Vent GV-5

Description:

ESI completing LLDPE pipe boot for Gas Vent GV-5 (R-102). Boot sealed and extrusion welds completed. Methane / spark testing not completed (to be conducted week of July 5, 2016).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	6/30/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/95° F, Sunny, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1615

CONTRACTOR & EQUIPMENT:	**PERSONNEL ON SITE:** **Day #7**
ENTACT & ESI *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) continuing east from Panel P27 installed on 6/27/16 (approximate Sta. 314+25). Material to be placed from Panel P27 running approximately 100 ft. east to approximate Sta. 313+25.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 314+25 (Panel P27 installed on 6/27/16) to approximate Sta. 313+25. Refer to *Soil Subgrade Approval* forms from 6/30/16 for additional details. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos 1 to 3 of the daily photo log for 6/30/2016, for supporting subgrade photos. During subgrade observation, AmecFW was also completing surveying to verify the subgrade elevations. The area was subsequently approved by AmecFW following review of the survey data.
- Following subgrade approval (including AmecFW completing the survey requirements for the soil subgrade), GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 314+25 (east of Panel P27) moving east to approximate Sta. 313+25. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/30/16 Photo Log for supporting photographs.
- After placement of GVL, LLDPE geomembrane was installed continuing from Panel P27 (installed on 6/27/16) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 314+25 (Panel P27) to approximate Sta. 313+25. A total of five panels were installed (P28, P29, P30, P31, and P32). Note: During placement of Panel P30

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the roll of LLDPE terminated near the north end of SA-6 North, thus the remaining run of LLDPE was installed as P31. Panels P28, P29, and P31 ran the entire width of SA-6 North (approximately 215 ft.) from north to south.

- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 6/30/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 314+25, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 6/30/16 *Seam Control Form* for non-destructive testing details. Additionally, repair and extrusion weld activities were also conducted for Panels P27 through P32. Additional details are outlined on the 6/30/16 *Repair Log.*
- A total of thirty-one repairs (R-104 through R-134) were observed and fixed (according to the project specifications) from Panels P19 through P27. Refer to 6/30/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications. Note: Add on (AO) repairs completed for Panels P17, P18, and P19, as LLDPE length had to be increased along edges of SA-6 North.
- Following the placement of LLDPE geomembrane, ESI deployed the orange geocomposite drainage layer (GDL), over the installed LLDPE geomembrane. GDL was placed from Panel P11 (approximate Sta. 316+25), to east of Panel P19 (approximate Sta. 315+50). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 6/30/16 Photo Log for supporting photographs
- A total of four destruct samples were collected on 6/30/16. Three fusion weld destruct samples DS-7, DS-8, and DS-9 were collected from panel seams P13 / P14, P18 / R-105, and 18 / 19, respectively. One extrusion weld destruct sample, DSX-3, was collected from Panel P21 (R-79).

Non-Conformance Items / Corrective Actions

- None Encountered

Action Items – Pending

- Complete Daily Report and Photo Log for 6/30/16. Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DS-7, DS-8, DS-9, and DSX-3.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, and 6/29/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-6. Reviewed laboratory data for extrusion weld destruct sample DSX-1 and DSX-2. Laboratory results in compliance with project specifications.

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Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 6/30/16
A3 – Photo Log	Pages 1 – 7	Total of 13 photos outlining pertinent daily observations and descriptions for 6/30/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 6/30/16
A5 – Subgrade Approval	Sheet 5 & ESI (6/30/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 2-3	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 6/30/16
A7 – Panel Placement Log	Pages 4-5	One panel placement log provided by ESI and confirmed by Langan for panels placed on 6/30/16
A8 – Destruct Seam Testing COC	Sheet 1	Updated for destruct samples collected on 6/30/16
A9 – Seam/Non-Destruct. Test Log	Pages 10 - 14	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 6/30/16
A10 – Repair Log	Pages 6-7	One repair log provided by ESI and confirmed by Langan for repairs completed for 6/30/16
A11 – Conformance COC		NA for 6/30/16
A12 – Destructive Seam Field Test	Page 1	Updated with destruct samples collected on 6/30/16
A13 – Destruct. Sample Summary	Page 1	Destruct sample summary updated with samples collected on 6/30/16
A14 – Penetration & Edge Form		NA – no pipe boot penetrations completed on 6/30/16.

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A16 – Notice of Non-Compliance		NA - no non-compliance issues identified on 6/30/16
A17 – Spark Test Form		NA – no methane / spark testing completed on 6/30/16

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PHOTOGRAPHIC LOG
Photo #1 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking east along southern end of SA-6 North (from approximate Sta. 314+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 314+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”). Area previously identified as wet and unacceptable subgrade from 6/29/16.

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PHOTOGRAPHIC LOG
Photo #3 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking south / southeast across SA-6 North (from approximate Sta. 314+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #4 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 314+00).

Description:

ESI deploying GVL across approved subgrade for SA-6 North.

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PHOTOGRAPHIC LOG
Photo #5 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking south along southern end of SA-6 North (approximate Sta. 314+00).

Description:

ESI deploying GVL with white plastic fasteners spaced at a maximum of 5 ft. along geonet. Top layer of geotextile also sewn.

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PHOTOGRAPHIC LOG
Photo #6 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking west along southern end of SA-6 North (Panels P19, P18, P17).

Description:

ESI conducting repair activities and completing LLDPE add on (AO) for Panels P17, P18, and P19.

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PHOTOGRAPHIC LOG
Photo #7 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 314+00).

Description:

ESI deploying LLDPE geomembrane over GVL.

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PHOTOGRAPHIC LOG
Photo #8 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

SA-6 North Panel P27 / P28 seam

Description:

ESI conducting non-destructive testing (air pressure testing) for Panel P27 / P28 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #9 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking north / northeast along SA-6 North (from approximate Sta. 314+00).

Description:

LLDPE geomembrane deployed across SA-6 North from approximate Sta. 314+25 to Sta. 313+25.

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PHOTOGRAPHIC LOG
Photo #10 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

SA-6 North – Destruct Sample DS-7

Description:

ESI completed patch / repair activities for destruct sample DS-7 (Panel P13 / P14). Geomembrane patch, repaired, and vacuum box tested.

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PHOTOGRAPHIC LOG
Photo #11 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

SA-6 North – Panel P31 / P32 seam

Description:

ESI conducting fusion welding along Panel P31 / P32 seam.

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PHOTOGRAPHIC LOG
Photo #12 (06/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/27/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 316+00).

Description:

ESI deploying orange GDL over previously installed LLDPE GDL secured with white plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #13 (06/30/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
6/30/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 315+50).

Description:

Orange GDL deployed over approved LLDPE geomembrane to Panel P19 (approximate Sta. 315+50).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/1/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/95° F, Sunny, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1315

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #8**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) continuing east from Panel P32 installed on 6/30/16 (approximate Sta. 313+25). Material to be placed from Panel P32 running approximately 65 ft. east to approximate Sta. 312+60.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 313+25 (Panel P32 installed on 6/30/16) to approximate Sta. 312+60. Refer to *Soil Subgrade Approval* forms from 7/1/16 for additional details. Based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was free of any loose material. Refer to Photos 1 to 3 of the daily photo log for 7/1/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 313+25 (east of Panel P32) moving east to approximate Sta. 312+60. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/1/16 Photo Log for supporting photographs.
- After placement of GVL, LLDPE geomembrane was installed continuing from Panel P32 (installed on 6/30/16) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 313+25 (Panel P32) to approximate Sta. 312+60. A total of seven panels were installed (P33, P34, P35, P36, P37, and P38). Note: During placement of Panel P33 the roll of LLDPE terminated near the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P34. Similarly, during placement of Panel 36, the roll of LLDPE terminated

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approximately 2/3 from the north end of SA-6 North, thus the remaining run of LLDPE was installed as P37. Panels P32, P35, and P38 ran the entire width of SA-6 North (approximately 220 ft.) from north to south.

- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/1/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 312+60, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/1/16 *Seam Control Form* for non-destructive testing details. Additionally, repair and extrusion weld activities were also conducted for Panel P29 (installed on 6/30/16) and Panels P33 to P38 (installed on 7/1/16). Additional details are outlined on the 7/1/16 *Repair Log.*
- A total of twenty-eight repairs (R-135 through R-162) were observed and fixed (according to the project specifications) from Panels P19 through P27. Refer to 7/1/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- ESI also completed a pipe boot for Well 115-S1-SO located on the Panel P28 / P29 seam. Additional details are provided in the pipe boot penetration form for 7/1/16. No methane / spark testing was conducted on the boot (to be completed on 7/6/16).
- Following the placement of LLDPE geomembrane, ESI deployed the orange geocomposite drainage layer (GDL), over the installed LLDPE geomembrane. GDL was placed from Panel P11 (approximate Sta. 316+25), to east of Panel P19 (approximate Sta. 315+50). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/1/16 Photo Log for supporting photographs
- A total of four destruct samples were collected on 7/1/16. Three (3) fusion weld destruct samples were collected – DS-11, DS-12, and DS-13 from Panel Seams P31 / P32, P34 / P35, and P36 / P38, respectively. One extrusion weld destruct sample – DSX-4 was collected from Panel P32 (Repair R-148).

Non-Conformance Items / Corrective Actions

- None Encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/1/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory data for destruct samples DS-11, DS-12, DS-13, and DSX-4.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, and 6/30/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-10. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-3. Laboratory results in compliance with project

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 7/1/16
A3 – Photo Log	Pages 1 – 6	Total of 11 photos outlining pertinent daily observations and descriptions for 7/1/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/1/16
A5 – Subgrade Approval	Sheet 6 & ESI (7/1/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 3	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/1/16
A7 – Panel Placement Log	Page 5	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/1/16
A8 – Destruct Seam Testing COC	Sheets 1 - 2	Updated for destruct samples collected on 7/1/16
A9 – Seam/Non-Destruct. Test Log	Pages 12-13	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/1/16
A10 – Repair Log	Pages 7-9	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/1/16
A11 – Conformance COC		NA for 7/1/16
A12 – Destructive Seam Field Test	Pages 1 - 2	Updated with destruct samples collected on 7/1/16
A13 – Destruct. Sample Summary	Pages 1 - 2	Destruct sample summary updated with samples collected on 7/1/16
A14 – Penetration & Edge Form	7/1/16 Form	Pipe boot completed for Well 115-W1-SO located along Panel P28 / P29.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A16 – Notice of Non-Compliance		NA – no non-compliance issues identified on 7/1/16
A17 – Spark Testing Form		NA – no spark testing completed on 7/1/16. Boot for Well 115-W1-SO completed. Methane / spark testing to be completed week of July 5, 2016.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking north along northern end of SA-6 North (from approximate Sta. 313+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking south along southern end of SA-6 North (approximate Sta. 313+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding and graded, compacted, and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking north / northeast across SA-6 North (from approximate Sta. 313+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 313+00).

Description:

ESI deploying GVL across approved subgrade for SA-6 North. White plastic fasteners spaced at 5 ft. maximum across geonet with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #5 (07/01/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/1/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 313+00).

Description:

ESI deploying GVL across SA-6 North with white plastic fasteners spaced at a maximum of 5 ft. along geonet. Top layer of geotextile also sewn.

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PHOTOGRAPHIC LOG
Photo #6 (07/01/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/1/16

Direction Taken:

Looking north / northeast across SA-6 North (approximate Sta. 313+25).

Description:

ESI deploying LLDPE geomembrane across SA-6 North over GVL.

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PHOTOGRAPHIC LOG
Photo #7 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking north / northeast along SA-6 North (from approximate Sta. 313+25).

Description:

ESI conducting fusion welding along Panel Seams P32 / P34.

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PHOTOGRAPHIC LOG
Photo #8 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

SA-6 North (Panel P32 / P33 / P34 seam

Description:

ESI conducting non-destructive testing (pressure testing) for fusion weld panel seams (Panel Seam P32 / P33 / P34).

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PHOTOGRAPHIC LOG
Photo #9 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 313+00).

Description:

ESI deploying LLDPE geomembrane across SA-6 North.

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PHOTOGRAPHIC LOG
Photo #10 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

Looking south along southern end of SA-6 North (Well 115-W1-SO)

Description:

ESI completing pipe boot / penetration for Well 115-W1-SO listed as Repair R-156 on Repair Report).

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PHOTOGRAPHIC LOG
Photo #11 (07/01/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/1/16

Direction Taken:

SA-6 North – Destruct Sample DS-13

Description:

ESI marking destruct sample DS-13 (Panel P36/ P38 seam) to be cut for laboratory analysis.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	7/6/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	82/98° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0655 – 1630

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #9** **AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), 60-mil geomembrane liner (LLDPE) continuing east from Panel P38 installed on 7/1/16 (approximate Sta. 312+60). Material to be placed from Panel P38 running approximately 85 ft. east to approximate Sta. 311+75.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P19 (approximate Sta. 315+50), moving east up to Panel P27 (approximate Sta. 314+60). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/6/16 Photo Log for supporting photographs
- While ESI was deploying GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 312+60 (Panel P38 installed on 7/1/16) to approximate Sta. 311+75. Refer to *Soil Subgrade Approval* forms from 7/6/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 3 to 5 of the daily photo log for 7/6/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 312+60 (east of Panel P38) moving east to approximate Sta. 311+75. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top

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layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/6/16 Photo Log for supporting photographs.

- During deployment of GVL, the potential for rocks or other debris to become dislodged in the soil subgrade were observed. Additional walkover and observation activities were conducted along the GVL to attempt to identify any rocks or debris (>1/2") that may have been dislodged.
- After placement of GVL, LLDPE geomembrane was installed continuing from Panel P38 (installed on 7/1/16) and moving east. Panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 312+60 (Panel P38) to approximate Sta. 311+75. A total of four panels were installed (P39, P40, P41, and P42). Note: During placement of Panel P39 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P40. Panels P41 and P42 ran the entire width of SA-6 North (approximately 220 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/6/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 311+75, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/6/16 *Seam Control Form* for non-destructive testing details. ESI completed a temporary pipe boot for Extraction Pump Station #1 and completed leistering of temporary patches to cover the LLDPE geomembrane. Repair (detailing) activities to be completed on 7/7/16.
- While GDL was being deployed, ESI also conducted, methane / spark testing for the pipe boots completed for Piezometer PZ8, Gas Vent GV-5, and Well 115-W1-SO. Prior to spark testing, methane testing was conducted to measure the concentration of methane present below the LLDPE geomembrane. During methane testing, a concentration of 0.0% (<1%) was measured for each of the pipe boots. Following the methane testing, spark testing was conducted by ESI for the vertical weld and pipe boot weld at the base of the penetration (i.e. welds not accessible for vacuum box testing).
- During the spark testing for Piezometer PZ8 a spark was observed at the top of the boot (outside of the 2 ft. boot requirement). Since this spark was outside of the required boot construction, the boot was subsequently cut at 2 ft. (thus removing the failed weld), and the remaining boot was retested with no sparks observed.
- During spark testing of Gas Vent GV-5 and Well 115-W1-SO, a spark was observed while testing the vertical weld and a small pinhole deficiency was observed in the weld. These areas will be grinded, rewelded, and retested on 7/7/16. Additional details are outlined in the *Spark Testing QA Forms* dated 7/6/16.
- No destruct samples collected on 7/6/16. Destruct samples to be cut on 7/7/16.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 3 (Sheet #3) – Failed spark test along vertical weld of Gas Vent GV-5
  - Failed spark test identified during spark testing of Gas Vent GV-5. Small pinhole deficiency identified in vertical weld. Weld to be grinded, re-welded, and re-tested on 7/7/16.
- Non-Conformance No. 4 (Sheet #4) – Failed spark test along vertical weld of Well 115-W1-SO
  - Failed spark test identified during spark testing of Well 115-W1-SO. Small pinhole deficiency identified in vertical weld. Weld to be grinded, re-welded, and re-tested on 7/7/16.

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Action Items – Pending

- Complete Daily Report and Photo Log (for 7/6/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, and 7/1/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-13. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-4. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 7/6/16
A3 – Photo Log	Pages 1 – 5	Total of 10 photos outlining pertinent daily observations and descriptions for 7/6/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/6/16
A5 – Subgrade Approval	Sheet 7 & ESI (7/6/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 3	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/6/16
A7 – Panel Placement Log	Pages 5-6	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/6/16
A8 – Destruct Seam Testing COC		NA - no destruct samples collected on 7/6/16
A9 – Seam/Non-Destruct. Test Log	Pages 14-16	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/6/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A10 – Repair Log		NA – no repair activities conducted on 7/6/16
A11 – Conformance COC		NA for 7/6/16
A12 – Destructive Seam Field Test		NA - no destruct samples collected on 7/6/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 7/6/16
A14 – Penetration & Edge Form		NA – no pipe boots / penetrations completed on 7/6/16
A16 – Notice of Non-Compliance	Sheets 3 & 4	Two non-compliance issues identified on 7/6/16 during spark testing of pipe boots and summarized on Sheets 3 & 4 (7/6/16 Non-Compliance Forms).
A17 – Spark Test Log	7/616 Spark Test Logs	Spark tests conducted for Piezometer PZ8, Gas Vent GV-5, and Well 115-W1-SO. Spark retest for Gas Vent GV-5 and Well 115-W1-SO to be completed on 7/7/16.

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PHOTOGRAPHIC LOG
Photo #1 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking north along SA-6 South (Panel P20).

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

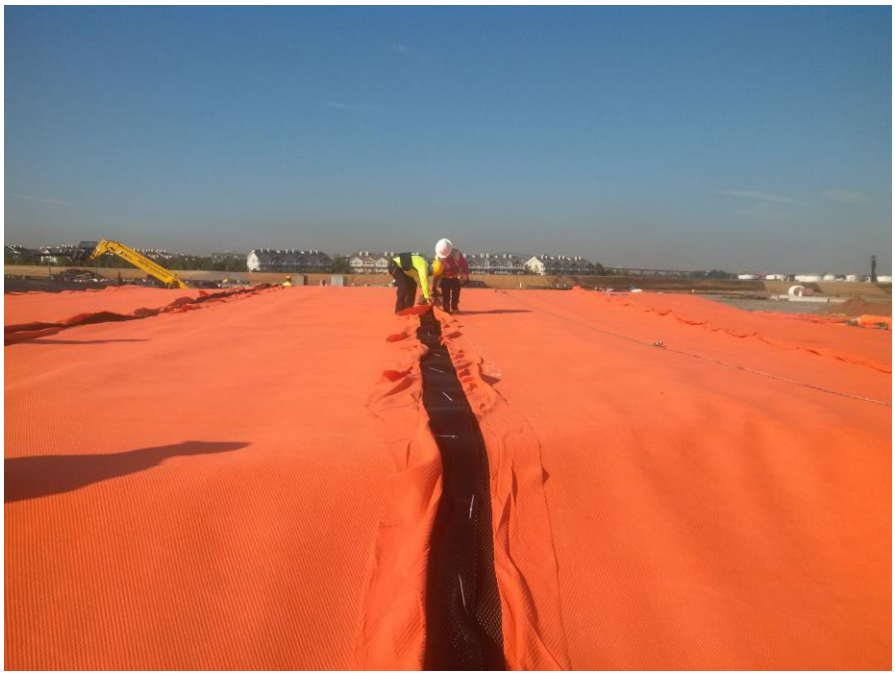
Date:
7/6/16

Direction Taken:

Looking south along SA-6 North

Description:

ESI sewing top layer of orange geotextile. White plastic fasteners spaced at maximum of 5 ft. along geonet.



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PHOTOGRAPHIC LOG
Photo #3 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking south / southeast across SA-6 North (approximate Sta. 312+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking east along SA-6 North, approximate center of the cap (approximate Sta. 312+25).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #5 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking east along southern end of SA-6 North (approximate Sta. 312+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #6 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 312+60).

Description:

ESI deploying GVL over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #7 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

Looking north along SA-6 North (Panels P39 / P40

Description:

ESI conducting fusion welding along Panel P39 / P40 seam.

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PHOTOGRAPHIC LOG
Photo #8 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

SA-6 North (Panels P39 / P41 seam)

Description:

ESI conducting non-destructive testing (pressure testing) along Panel P39 / P41 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #9 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

SA-6 North – Gas Vent GV-5

Description:

Entact conducting methane testing prior to spark testing for Gas Vent GV-5 boot. Methane tested yielded concentration of 0.0% methane, (>1%), thus spark testing was conducted.

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PHOTOGRAPHIC LOG
Photo #10 (07/06/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/6/16

Direction Taken:

SA-6 North – Gas Vent GV-5

Description:

ESI conducting spark testing along Gas Vent GV-5 boot. Small pinhole deficiency identified along vertical weld of boot. Area to be grinded, re-welded, and re-tested on 7/7/16.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/7/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	82/98° F, Overcast, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1530

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #10**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), 60-mil geomembrane liner (LLDPE), continuing east from Panel P42 installed on 7/6/16 (approximate Sta. 311+75). Material to be placed from Panel P42 running approximately 20 ft. east to approximate Sta. 311+55. Note: based on available prepared subgrade and inclement weather scheduled in the afternoon, ESI deployed one panel of GVL and one panel of LLDPE geomembrane so that the installed LLDPE was outside of the slope swales and depressed contours thus promoting positive drainage away from the installed material.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P27 (approximate Sta. 314+60), moving east up to Panel P36 / P37 (approximate Sta. 313+25). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/7/16 Photo Log for supporting photographs
- While GDL was being deployed, ESI also completed repair activities for Panels P39 to P42 (installed on 7/6/16). A total of thirty-seven repairs (R-163 through R-199) were observed and fixed (according to the project specifications) from Panels P39 through P42. Refer to 7/7/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of two (2) destruct samples were collected. One fusion weld destruct sample (DS-14) was collected from Panel P41 / P42 seam, and one extrusion weld sample (DSX-5) was collected from Panel P42, Repair R-179 for laboratory analysis.

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- While GDL and repair activities were being completed, ESI also conducted, methane / spark testing for the pipe boots repairs for Gas Vent GV-5, and Well 115-W1-SO. Based on the sparks observed during spark testing on 7/6/16, the areas were subsequently grinded, re-welded, and re-tested. Refer to 7/7/16 Photograph Log for supporting photos. Prior to spark testing, methane testing was conducted by AmecFW to measure the concentration of methane present below the LLDPE geomembrane. During methane testing, a concentration of 0.0% (<1%) was measured for each of the boots. Following the methane testing, spark testing was conducted by ESI for the vertical weld areas that were re-welded. During the re-test no sparks were observed and the retest spark test passed. Additional details are outlined in the *Spark Testing QA Forms* dated 7/6/16.
- Following the LLDPE repair activities, and deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 311+75 (Panel P42 installed on 7/6/16) to approximate Sta. 311+55. Refer to *Soil Subgrade Approval* forms from 7/7/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photo 9 of the daily photo log for 7/7/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement. Note: the approximate 20 ft. area of soil was approved so that an additional panel of LLDPE geomembrane could be deployed to allow the edges of the liner to be outside of the depressed contours in the event of afternoon rainstorms (positive drainage away from the installed LLDPE geomembrane).
- Following subgrade approval, one panel of GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications).
- After placement of GVL, one panel of LLDPE geomembrane was installed continuing from Panel P42 (installed on 7/6/16) and moving east. The panel was oriented from north to south (as proposed in the approved Panel Layout) and was installed from approximate Sta. 311+75 (Panel P42) to approximate Sta. 311+55. A total of one panel was installed (P43). Panel P43 ran the entire width of SA-6 North (approximately 230 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/7/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 312+60, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/7/16 *Seam Control Form* for non-destructive testing details. Additionally, repairs were marked and temporary patches were leistered in place for repair activities (i.e. detailing) to be completed on 7/8/16.
- ESI completed the boot / penetration construction for Extraction Pump Station #1 manhole and welded (detailed) the repairs. Note: Extraction Pump Station #1 manhole was located in a recessed contour of SA-6 North and repair activities were conducted to seal the LLDPE geomembrane as rainstorms were forecasted for the afternoon.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 5 (Sheet #5) – Subgrade irregularity identified as R-170 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P38. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 5 Notice of Non-Compliance.*

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Action Items – Pending

- Complete Daily Report and Photo Log (for 7/6/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct samples DS-14 and DSX-5.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, and 7/6/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-13. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-4. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/7/16
A3 – Photo Log	Pages 1 – 5	Total of 10 photos outlining pertinent daily observations and descriptions for 7/7/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/7/16
A5 – Subgrade Approval	Sheet 8 & ESI (7/7/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 3-4	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/7/16
A7 – Panel Placement Log	Page 6	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/7/16
A8 – Destruct Seam Testing COC	Sheet 2	Updated for destruct samples collected on 7/7/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A9 – Seam/Non-Destruct. Test Log	Page 16	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/7/16
A10 – Repair Log	Pages 9-10	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/7/16
A11 – Conformance COC		NA for 7/7/16
A12 – Destructive Seam Field Test	Page 2	Updated with destruct samples collected on 7/7/16
A13 – Destruct. Sample Summary	Page 2	Destruct sample summary updated with samples collected on 7/7/16
A14 – Penetration & Edge Form	7/7/16 Boot Form	Pipe boot for Extraction Pump Station #1 manhole completed on 7/7/16
A16 – Notice of Non-Compliance	Sheet 5	One non-compliance issue identified as subgrade irregularity on 7/7/16 and summarized on Sheet 5.
A17 – Spark Test Log	7/6/16 Spark Test Logs	Spark tests logs for Gas Vent GV-5 and Well 115-W1-SO dated 7/6/16 updated for spark retests completed on 7/7/16.

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PHOTOGRAPHIC LOG
Photo #1 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

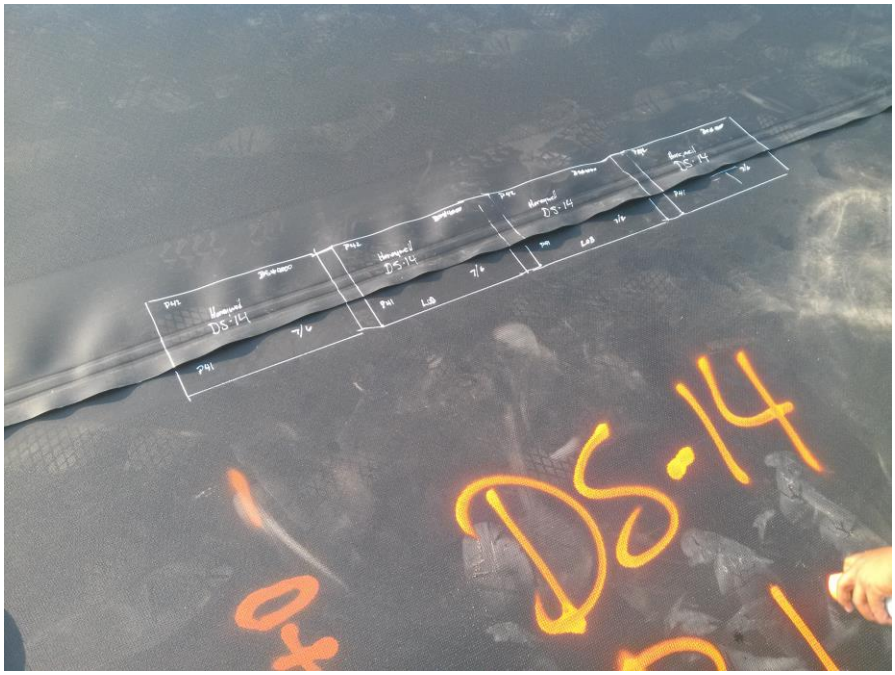
Date:
7/7/16

Direction Taken:

SA-6 North – Destruct Sample DS-14 (Panel P41 / P42 seam)

Description:

Fusion weld destruct sample DS-14 collected from Panel P41 / P42 seam.



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PHOTOGRAPHIC LOG
Photo #2 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

Looking south / southeast along SA-6 North (Panels P42 / P43).

Description:

ESI conducting repair activities for LLDPE geomembrane panels P39 through P42 installed on 7/6/16.

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PHOTOGRAPHIC LOG
Photo #3 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

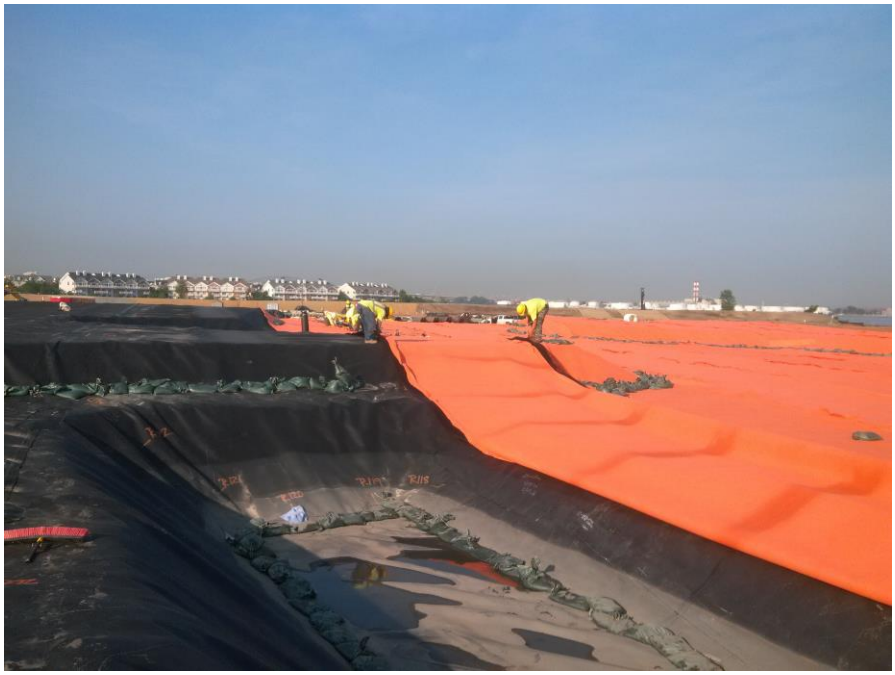
Date:
7/7/16

Direction Taken:

Looking south / southwest across SA-6 North (approximate Sta. 314+50).

Description:

ESI deploying orange GDL across approved LLDPE geomembrane. GDL placed from Panel P27 (approximate Sta. 314+60) to Panel P36/P37 (approximate Sta. 313+25).



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PHOTOGRAPHIC LOG
Photo #4 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

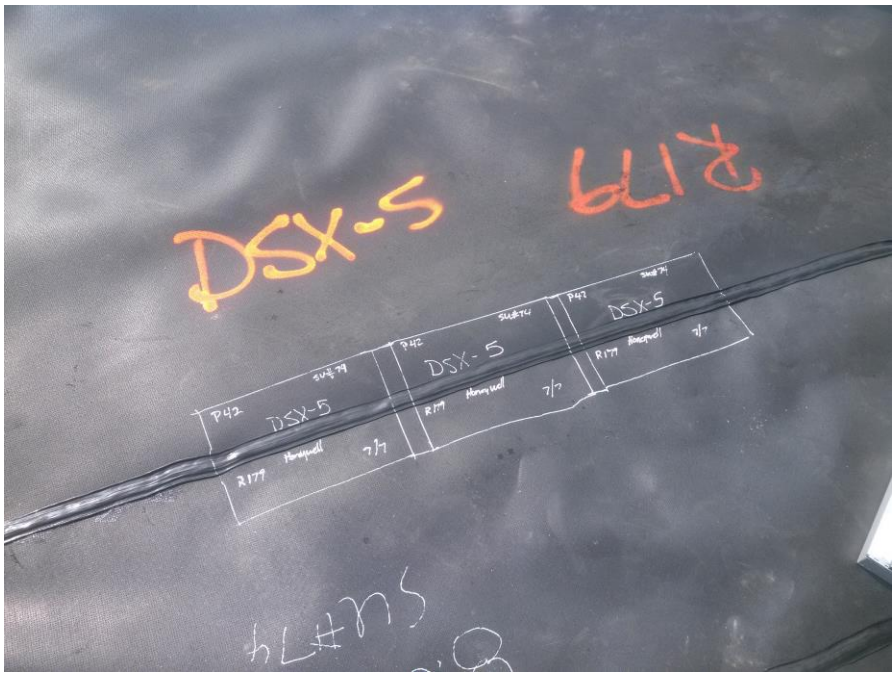
Date:
7/7/16

Direction Taken:

SA-6 North – Destruct Sample DSX-5 (Panel P42)

Description:

ESI collecting extrusion weld destruct sample DSX-5 from Panel P42 / Repair R-179.



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PHOTOGRAPHIC LOG
Photo #5 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

SA-6 North – Gas Vent GV-5

Description:

Entact conducting methane testing prior to the spark retest of Gas Vent GV-5. Methane concentration of 0.0% measured. Weld was grinded, re-welded, and retested by ESI.

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PHOTOGRAPHIC LOG
Photo #6 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

SA-6 North – Gas Vent GV-5

Description:

ESI conducting spark retest on Gas Vent GV-5. Weld was grinded, re-welded, and retested. No sparks were observed during the spark retest (spark retest passed).

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PHOTOGRAPHIC LOG
Photo #7 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

SA-6 North – Well 115-W1-SO

Description:

ESI grinding pinhole area of vertical weld that was identified during spark test on 7/6/16. Repair was grinded, rewelded and retested.

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PHOTOGRAPHIC LOG
Photo #8 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

SA-6 North – Well 115-W1-SO

Description:

ESI re-welding vertical seam on Well 115-W1-SO (failed spark test on 7/6/16). Vertical weld was grinded, re-welded, and retested. No sparks were observed during the spark retest (spark retest passed).

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PHOTOGRAPHIC LOG
Photo #9 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 311+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #10 (07/07/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/7/16

Direction Taken:

SA-6 North – Extraction Pump Station #1

Description:

ESI conducting repair activities for Extraction Pump Station #1. Skirt and base of boot completed so LLDPE geomembrane is watertight before afternoon rainstorms.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/8/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	82/98° F, Overcast, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1530

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #11** **AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P43 installed on 7/7/16 (approximate Sta. 311+55). Material to be placed from Panel P43 running approximately 75 ft. east to approximate Sta. 310+80.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI completing repair activities for Panels P42 and P43 (Panel P43 installed on 7/7/16). A total of twelve repairs (R-200 through R-211) were observed and fixed (according to the project specifications) from the two panels. Refer to 7/8/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- While LLDPE repair activities were being conducted, Langan and Entact conducted soil subgrade approval from approximate Sta. 311+55 (Panel P43 installed on 7/7/16) to approximate Sta. 310+80. Refer to *Soil Subgrade Approval* forms from 7/8/16 for additional details. During subgrade observation, the subgrade area was transversed in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 1 and 2 of the daily photo log for 7/8/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 311+55 (east of Panel P43) moving east to approximate Sta. 310+80.

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- GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/8/16 Photo Log for supporting photographs.
- During deployment of GVL, the potential for rocks or other debris to become dislodged in the soil subgrade were observed. Additional walkover and observation activities were conducted along the GVL to attempt to identify any rocks or debris (>1/2") that may have been dislodged.
- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P43 (installed on 7/7/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 311+55 (Panel P43) to approximate Sta. 310+80. A total of eight panels were installed (P44, P44A, P44B, P45, P46, P47, P48, and P49). Note: During placement of Panel P44 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P45. Similarly, during placement of Panel P47, the roll of LLDPE terminated near the center of SA-6 North, thus the remaining run of LLDPE was installed as P48. Panels P46 and P49 ran the entire width of SA-6 North (approximately 290 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/8/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 310+80, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/8/16 *Seam Control Form* for non-destructive testing details. Additionally, repairs activities were conducted for Panels P44 through P49 (installed on 7/8/16). These repair activities were conducted in addition to the repairs completed in the morning for Panels P42 and P43 (installed on 7/7/16).
- A total of twenty additional repairs (R-212 through R-223, R-225, R-227, R-228, R-229, and R-233 to R-236) were observed and fixed (according to the project specifications) from Panels P44 to P49. Refer to 7/8/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of one (1) destruct sample was collected. One extrusion weld sample (DSX-6) was collected from Panel P42, Repair R-180 for laboratory analysis. Additional destruct samples to be cut and collected on 7/11/16.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 6 (Sheet #6) – Subgrade irregularity identified as R-222 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P45. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 6 Notice of Non-Compliance.*

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/8/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct sample DSX-6.

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, and 7/7/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-13. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-5. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 7/8/16
A3 – Photo Log	Pages 1 – 4	Total of 8 photos outlining pertinent daily observations and descriptions for 7/8/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/8/16
A5 – Subgrade Approval	Sheet 9 & ESI (7/8/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 4	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/8/16
A7 – Panel Placement Log	Page 6-7	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/8/16
A8 – Destruct Seam Testing COC	Sheet 2	Updated for destruct samples collected on 7/8/16
A9 – Seam/Non-Destruct. Test Log	Pages 17-19	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/8/16
A10 – Repair Log	Pages 10-12	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/8/16
A11 – Conformance COC		NA for 7/8/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test	Page 2	Updated with destruct samples collected on 7/8/16
A13 – Destruct. Sample Summary	Page 2	Destruct sample summary updated with samples collected on 7/8/16
A14 – Penetration & Edge Form		NA – no pipe boots / penetrations completed on 7/8/16
A16 – Notice of Non-Compliance	Sheet 6	One non-compliance issue (subgrade irregularity) identified on 7/8/16 and summarized on Sheet 6.
A17 – Spark Test Log		NA – no spark test activities conducted on 7/8/16

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PHOTOGRAPHIC LOG
Photo #1 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

Looking south / southeast along SA-6 North (from approximate Sta. 311+55).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

Looking north along SA-6 North from northern end of cap (approximate Sta. 311+55).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

SA-6 North – Panels P42 / P43

Description:

ESI conducting repair activities (i.e. extrusion weld detailing) for repairs from Panel P42 / P43 (Panel P43 installed on 7/7/16).

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PHOTOGRAPHIC LOG
Photo #4 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 310+80).

Description:

ESI deploying GVL over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #5 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

Looking south / southwest across SA-6 North (from approximate Sta. 310+80).

Description:

GVL deployed up to approximate Sta. 310+80 (approved soil subgrade).

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PHOTOGRAPHIC LOG
Photo #6 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 311+55).

Description:

ESI deploying LLDPE geomembrane over GVL.

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PHOTOGRAPHIC LOG
Photo #7 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

SA-6 North – Panel P43 / P44 seam

Description:

ESI conducting non-destructive testing (air pressure testing) along Panel P43 / P44 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #8 (07/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/8/16

Direction Taken:

SA-6 North – Panel P47 / P49 seam

Description:

ESI conducting fusion welding along Panel P47 / P49 seam (butt seam).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/11/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	72/80° F, Sunny, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** LLDPE Repair Activities & Destruct Samples	**TIME:**	0645 – 0845

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #12**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of LLDPE repair activities (from Panels P44 to P49 installed on 7/8/16). Note: soil subgrade not approved for LLDPE placement as standing water / wet areas observed along subgrade from rainstorms over the weekend. Entact to solidify, rework, and re-compact soils for subgrade approval to be completed on 7/12/16. Note: the edge of the LLDPE geomembrane placed on 7/8/16 was pulled back until dry soil subgrade from below the liner was exposed (as shown in the 7/11/16 Photo Log). Soil to be dried, solidified, reworked, and re-compacted by Entact for approval on 7/12/16.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI conducting repair activities for Panels P44 through P49 (panels installed on 7/8/16). A total of eight repairs (R-224, R-226, R-230, R-231, R-232, R-239, R-240, and R-241) were observed and fixed (according to the project specifications) from the two panels. Refer to 7/11/16 *Repair Report* for additional details. In general, the majority of the repairs were destruct samples that were collected for laboratory analysis and cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of four (4) destruct samples were collected from panels installed on 7/8/16. Three fusion weld destruct samples – DS-15, DS-16, and DS-17 were collected from Panel Seam P43 / P44, P46 / P47, and P45 / 46, respectively. Additionally, one extrusion weld destruct sample - DSX-7 was collected from Panel P44, Repair R-179 for laboratory analysis.

Non-Conformance Items / Corrective Actions

- None Encountered

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Action Items – Pending

- Complete Daily Report and Photo Log (for 7/11/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct results for DS-15, DS-16, DS-17, and DSX-7.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, and 7/8/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-14. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-6. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no material delivered on 7/11/16
A3 – Photo Log	Pages 1 – 2	Total of 4 photos outlining pertinent daily observations and descriptions for 7/11/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/11/16
A5 – Subgrade Approval		NA – no subgrade approved for LLDPE placement on 7/11/16
A6 – Trial Weld Log	Page 4	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/11/16
A7 – Panel Placement Log		NA – no panels placed on 7/11/16 as no soil subgrade was not approved.

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A8 – Destruct Seam Testing COC	Sheet 2	Updated for destruct samples collected on 7/11/16
A9 – Seam/Non-Destruct. Test Log		NA – no pressure testing conducted on 7/11/16
A10 – Repair Log	Pages 12-13	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/11/16
A11 – Conformance COC		NA for 7/11/16
A12 – Destructive Seam Field Test	Page 2	Updated with destruct samples collected on 7/11/16
A13 – Destruct. Sample Summary	Page 2	Destruct sample summary updated with samples collected on 7/11/16
A14 – Penetration & Edge Form		NA – no boots / penetrations completed on 7/11/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues identified on 7/11/16
A17 – Spark Test Log		NA – no spark testing conducted on 7/11/16

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PHOTOGRAPHIC LOG
Photo #1 (07/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/11/16

Direction Taken:

Looking east along SA-6 North (approximate Sta. 310+50).

Description:

Soil subgrade east of Panel P49. Soil wet / saturated with standing water present from rainstorms over the weekend. Subgrade not approved for panel placement. Entact to solidify, rework, and re-compact soil.

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PHOTOGRAPHIC LOG
Photo #2 (07/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/11/16

Direction Taken:

SA-6 North – Destruct Sample DS-15 (Panel P43 / P44 seam)

Description:

Fusion weld destruct sample DS-15 collected from Panel P43 / P44 seam. Area of LLDPE geomembrane cut, patched, and repaired according to project specs.

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PHOTOGRAPHIC LOG
Photo #3 (07/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/11/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 310+50).

Description:

Entact reworking wet / saturated soils. Calcium cement added to solidify soil. Area to be re-compacted.

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PHOTOGRAPHIC LOG
Photo #4 (07/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/11/16

Direction Taken:

Looking south along southern end of SA-6 North (approximate Sta. 310+50).

Description:

Calcium cement added to wet / saturated soils. Entact to rework and re-compact wet areas for soil subgrade approval on 7/12/16.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/12/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	72/85° F, Sunny, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1500

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #13**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P49 installed on 7/8/16 (approximate Sta. 310+80). Material to be placed from Panel P49 running approximately 100 ft. east to approximate Sta. 309+75.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P36 / P37 (approximate Sta. 313+25), moving east up to Panel P42 (approximate Sta. 312+25). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/12/16 Photo Log for supporting photographs.
- While GDL was being deployed, ESI also completed the LLDPE pipe boot for Gas Vent GV-4 (previously installed on 7/8/16). The boot was patched and welded (to be methane / spark tested later in the morning). Additional details are outlined in the Gas Vent GV-4 penetration log dated 7/12/16.
- ESI completed methane / spark testing for the LLDPE pipe boot for Extraction Pump Station #1 and Gas Vent GV-4. Prior to spark testing, Entact conducted methane testing to measure the concentration of methane present underneath the LLDPE geomembrane. A concentration of 0.0% (>1%) was measured for both boots. As such, ESI conducted spark testing along the base of the boot and the vertical weld. No sparks were observed during the spark test and both boots passed. Additional details are outlined in the *Spark Testing QA Forms* dated 7/12/16.
- Following the deployment of GDL and spark testing activities, Langan and Entact conducted soil subgrade approval from approximate Sta. 310+80 (Panel P49 installed on 7/8/16) to approximate Sta. 309+75. Refer to *Soil Subgrade Approval* forms from 7/12/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was

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generally free of any loose material greater than ½". Refer to Photos 7 to 9 of the daily photo log for 7/12/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement. Note: the approximate 20 ft. area of soil was approved so that an additional panel of LLDPE geomembrane could be deployed to allow the edges of the liner to be outside of the depressed contours in the event of afternoon rainstorms (positive drainage away from the installed LLDPE geomembrane).

- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 310+80 (east of Panel P49) moving east to approximate Sta. 309+75. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/12/16 Photo Log for supporting photographs.
- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P49 (installed on 7/8/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 310+80 (Panel P49) to approximate Sta. 309+75. A total of eight panels were installed (P50, P51, P52, P53, P54, P55, P56, and P7). Note: During placement of Panel P51 the roll of LLDPE terminated near the approximate center of SA-6 North, thus the remaining run of LLDPE was installed as P52 and P53 (P52 and P53 remaining pieces of LLDPE from rolls previously used). Similarly, during placement of Panel P55, the roll of LLDPE terminated near the center of SA-6 North, thus the remaining run of LLDPE was installed as P56 & P57 (Panels P56 and P57 installed as remaining pieces of previously used LLDPE rolls). Panels P50 and P54 ran the entire width of SA-6 North (approximately 288 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/12/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 309+75, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/12/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P50 through P57 (installed on 7/12/16).
- ESI conducted repair activities for Panels P50 to P57 (installed on 7/12/16). A total of twenty-two repairs (R-237, R-238 and R-242 through R-261) were observed and fixed (according to the project specifications) from Panels P50 through P57. Refer to 7/12/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- As part of the repair activities for Panels P50 to P57, the pipe boot/penetration for Piezometer PZ6 was also completed as outlined on the 7/12/16 Pipe Boot Form. A total of three (3) destruct samples were also collected. Three fusion weld destruct samples - DS-18, DS-19, DS-20 were collected from Panel Seams P49 / P50, P53 / P54, and P55 / P56 for laboratory analysis

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 7 (Sheet #7) – Subgrade irregularity identified as R-242 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P49 / P50. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 7 Notice of Non-Compliance.*

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Action Items – Pending

- Complete Daily Report and Photo Log (for 7/12/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct samples DS-18, DS-19, and DS-20.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, and 7/11/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-17. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-7. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/12/16
A3 – Photo Log	Pages 1 – 8	Total of 15 photos outlining pertinent daily observations and descriptions for 7/12/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/12/16
A5 – Subgrade Approval	Sheet 10 & ESI (7/12/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 4	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/12/16
A7 – Panel Placement Log	Pages 7-8	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/12/16
A8 – Destruct Seam Testing COC	Sheet 2	Updated for destruct samples collected on 7/12/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A9 – Seam/Non-Destruct. Test Log	Pages 19-22	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/12/16
A10 – Repair Log	Pages 13-14	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/12/16
A11 – Conformance COC		NA for 7/12/16
A12 – Destructive Seam Field Test	Page 2	Updated with destruct samples collected on 7/12/16
A13 – Destruct. Sample Summary	Page 2	Destruct sample summary updated with samples collected on 7/12/16
A14 – Penetration & Edge Form	7/12/16 Boot Form	Pipe boot for Gas Vent GV-4 and Piezometer PZ6 completed on 7/12/16.
A16 – Notice of Non-Compliance	Sheet 7	One non-compliance issue identified as subgrade irregularity on 7/12/16 and summarized on Sheet 7.
A17 – Spark Test Log	7/12/16 Spark Test Logs	Spark tests logs for Gas Vent GV-4 and Extraction Pump Station #1 dated 7/12/16

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PHOTOGRAPHIC LOG
Photo #1 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 312+70).

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

SA-6 North – Gas Vent GV-4

Description:

ESI completing LLDPE pipe boot for Gas Vent GV-4. Copper wire placed behind the extrusion weld at the base of the boot and along the vertical weld (for methane / spark testing to be completed later on 7/12/16).

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PHOTOGRAPHIC LOG
Photo #3 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

SA-6 North – Gas Vent GV-4

Description:

ESI conducting spark testing along base of boot and along vertical weld. Methane testing completed by Entact and 0.0% measured. No sparks / deficiencies were observed during the spark test and the GV-4 spark test passed.

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PHOTOGRAPHIC LOG
Photo #4 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

SA-6 North – Gas Vent GV-4

Description:

ESI completing boot construction including adding sacrificial sheet, stainless steel clamp, and butyl sealant. Final construction activities completed after passed spark test.

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PHOTOGRAPHIC LOG
Photo #5 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

SA-6 North – Extraction Pump Station #1

Description:

ESI conducting spark testing along base of boot for Extraction Pump Station #1. Entact previously conducted methane testing and concentration of 0.0% (>1%) was measured. ESI completed spark testing of the base of boot and vertical weld and no sparks or deficiencies were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #6 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

SA-6 North – Extraction Pump Station #1

Description:

Pipe boot for Extraction Pump Station #1 completed. Methane / spark testing completed on 7/12/16 and spark test passed. Following completion of spark testing, ESI completed the boot construction by adding the stainless steel clamp and sealing the boot with butyl sealant.

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PHOTOGRAPHIC LOG
Photo #7 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 310+80).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #8 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

Looking east along southern end of SA-6 North (from approximate Sta. 310+80).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #9 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

Looking south along SA-6 North from northern end (approximate Sta. 310+80).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #10 (07/12/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/12/16

Direction Taken:

Looking north / northwest along SA-6 North (from approximate Sta. 309+75)

Description:

GVL deployed across approved soil subgrade up to approximate Sta. 309+75. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #11 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

Looking north along SA-6 North (at approximate Sta. 310+60).

Description:

ESI deploying LLDPE geomembrane along installed GVL.

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PHOTOGRAPHIC LOG
Photo #12 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 310+80).

Description:

ESI conducting fusion welding along Panel P49 / P50 seam.

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PHOTOGRAPHIC LOG
Photo #13 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

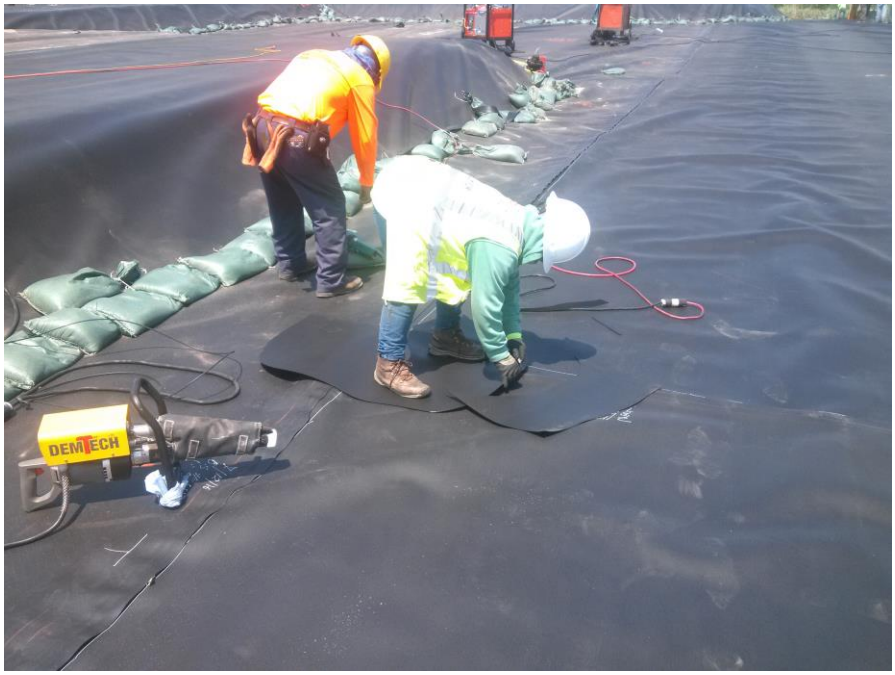
Date:
7/12/16

Direction Taken:

SA-6 North – Panel P50 / P51 / P52 seam joint

Description:

ESI conducting repair activities for Panel Seam Joint P50 / P51 / P52.



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PHOTOGRAPHIC LOG
Photo #14 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

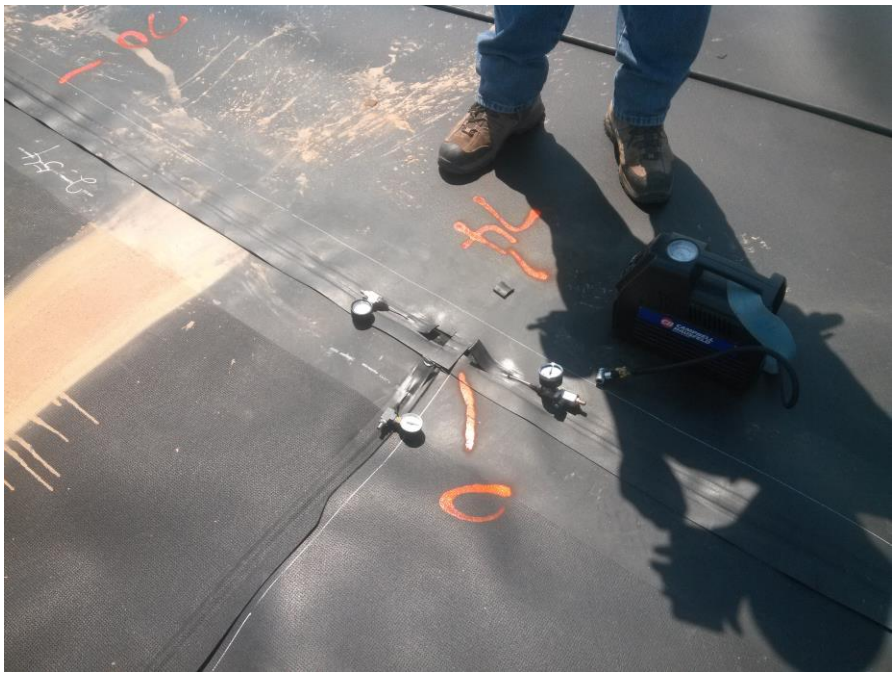
Date:
7/12/16

Direction Taken:

SA-6 North Panel P51 / P52 / P54 seam joint

Description:

ESI conducting non-destructive testing (pressure testing) for seam joint P51 / P52 / P54. Seams pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.



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PHOTOGRAPHIC LOG
Photo #15 (07/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/12/16

Direction Taken:

SA-6 North Destruct Sample DS-18

Description:

Destruct sample DS-18 (Panel P49 / P50 seam) following patch repair and extrusion welding.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/13/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	72/85° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1630

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #14**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P55 / P56 / P57 installed on 7/12/16 (approximate Sta. 309+75). Material to be placed from Panel P55 / P56 / P57 running approximately 75 ft. east to approximate Sta. 309+00.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P42 (approximate Sta. 312+25), moving east through Panel P47 / P48 (approximate Sta. 311+10). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/13/16 Photo Log for supporting photographs.
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 309+75 (Panel P55 / P56 / P57 installed on 7/12/16) to approximate Sta. 309+00. Refer to *Soil Subgrade Approval* forms from 7/13/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 3,4, and 5 of the daily photo log for 7/13/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 309+75 (east of Panel P55 / P56 / P57) moving east to approximate Sta. 309+00. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft.

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By: Dan Bosworth

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Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/13/16 Photo Log for supporting photographs.

- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P55 / P56 / P57 (installed on 7/12/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 309+75 (Panel P55 / P56 / P57) to approximate Sta. 309+00. A total of six panels were installed (P58, P59, P60, P61, P62, and P63). Note: During placement of Panel P59 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P60. Similarly, during placement of Panel P62, the roll of LLDPE terminated near the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P63. Panels P58 and P61 ran the entire width of SA-6 North (approximately 295 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/13/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 309+00, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/13/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P58 to P63 (installed on 7/13/16)
- ESI conducted repair activities for Panels P58 to P63 (installed on 7/13/16). A total of eleven repairs (R-262 through R-272) were observed and fixed (according to the project specifications) from Panels P58 through P63. Refer to 7/13/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of two (2) destruct samples were collected. Two fusion weld destruct samples - DS-21 and DS-22 were collected from Panel Seams P58 / P59 and P61 / P63, respectively, for laboratory analysis.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/13/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct samples DS-21 and DS-22.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, and 7/12/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-20. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-7. Laboratory results in compliance with project specifications.

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Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/13/16
A3 – Photo Log	Pages 1 – 6	Total of 12 photos outlining pertinent daily observations and descriptions for 7/13/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/13/16
A5 – Subgrade Approval	Sheet 11 & ESI (7/13/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 4-5	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/13/16
A7 – Panel Placement Log	Pages 8 - 9	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/13/16
A8 – Destruct Seam Testing COC	Sheet 2	Updated for destruct samples collected on 7/13/16
A9 – Seam/Non-Destruct. Test Log	Pages 22-24	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/13/16
A10 – Repair Log	Page 14	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/13/16
A11 – Conformance COC		NA for 7/13/16
A12 – Destructive Seam Field Test	Page 2	Updated with destruct samples collected on 7/13/16
A13 – Destruct. Sample Summary	Page 2	Destruct sample summary updated with samples collected on 7/13/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A14 – Penetration & Edge Form		NA – No pipe boots / penetrations completed on 7/13/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 7/13/16
A17 – Spark Test Log		NA – no spark testing conducted on 7/13/16

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PHOTOGRAPHIC LOG
Photo #1 (07/13/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 312+00).

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (07/13/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/13/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 311+25).

Description:

Orange GDL installed across approved LLDPE geomembrane through Panel P47 / P48. GDL secured with white plastic fasteners (5 ft. maximum) and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #3 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking south across SA-6 from approximate center of cap (approximate Sta. 309+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking east along SA-6 North from approximate center of cap (from approximate Sta. 309+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #5 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 309+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #6 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking east along northern end of SA-6 North (from approximate Sta. 309+75).

Description:

ESI deploying 16 oz. geotextile along northern end of SA-6 North. Geotextile overlapped 1 ft. outside of barrier wall (remaining roll width inside) as outlined in project specifications.

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PHOTOGRAPHIC LOG
Photo #7 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 309+75).

Description:

GVL being deployed over approved soil subgrade. GVL securd with whie plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #8 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking north / northwest along SA-6 North (from approximate Sta. 309+00).

Description:

GVL deployed along approved soil subgrade up to approximate Sta. 309+00. GVL secured with white plastic fasteners spaced at maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #9 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

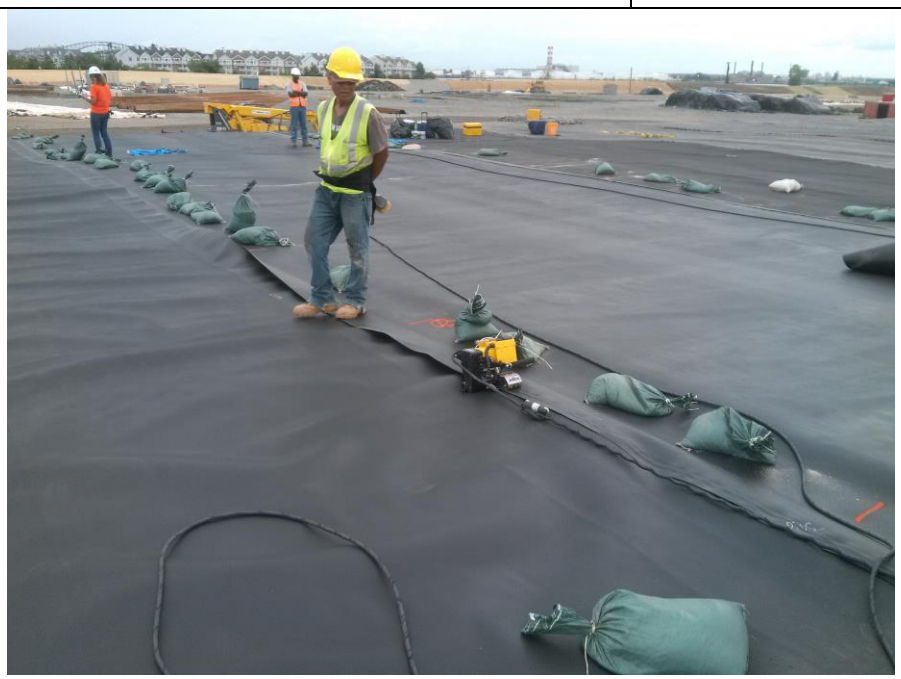
Date:
7/13/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 309+60).

Description:

ESI conducting fusion welding along LLDPE geomembrane Panel Seam P58 and P59.



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PHOTOGRAPHIC LOG
Photo #10 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

SA-6 North – Panel P58 / P59 / P60 seam

Description:

ESI conducing non-destructive testing (pressure testing) along Panel P58 / P59 / P60 seams. Seams pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #11 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

SA-6 North Panel P58 / P59 / P60 / P61

Description:

ESI conducting seam joint patch repair activities along Panel P58 / P59 / P60 / P61 seam joints.

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PHOTOGRAPHIC LOG
Photo #12 (07/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/13/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 309+00).

Description:

LLDPE geomembrane installed up to approximate Sta. 309+00.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/14/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	75/85° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1500

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #15**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P62 / P63 installed on 7/13/16 (approximate Sta. 309+00). Material to be placed from Panel P62 / P63 running approximately 80 ft. east to approximate Sta. 308+20.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI conducting repair activities for a wrinkle observed on Panel P50 / P51. A total of four repairs (R-273 through R-276) were observed and fixed (according to the project specifications) from Panels P50 and P51. Refer to 7/14/16 *Repair Report* for additional details. The observed wrinkles were cut to allow the geomembrane to conform to the subgrade, and the cut areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- While repair activities were being conducted, Langan and Entact conducted soil subgrade approval from approximate Sta. 309+00 (Panel P62 / P63 installed on 7/13/16) to approximate Sta. 308+20. Refer to *Soil Subgrade Approval* forms from 7/14/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 1, 2, and 3 of the daily photo log for 7/14/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta.309+00 (east of Panel P62 / P63) moving east to approximate Sta. 308+20. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft.

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Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/14/16 Photo Log for supporting photographs.

- During deployment of GVL, the potential for rocks or other debris to become dislodged in the soil subgrade were observed. Additional walkover and observation activities were conducted along the GVL to attempt to identify any rocks or debris (>1/2") that may have been dislodged.
- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P62 / P63 (installed on 7/13/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 309+00 (Panel P62 / P63) to approximate Sta. 308+20. A total of five panels were installed (P64, P65, P66, P67, and P68). Note: During placement of Panel P66 the roll of LLDPE terminated approximately 2/3 from the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P67. Panels P64, P65, and P68 ran the entire width of SA-6 North (approximately 299 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/14/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 308+20, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/14/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P64 to P68 (installed on 7/14/16).
- ESI conducted repair activities for Panels P64 to P68 (installed on 7/14/16) in addition to the wrinkle repairs completed in the morning on Panels P50 / P51. A total of sixteen repairs (R-277 through R-292) were observed and fixed (according to the project specifications) from Panels P64 through P68. Refer to 7/14/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- ESI also completed the boot / penetration construction for Gas Vent GV-3 and Cleanout 1. The boots were welded and sealed with methane / spark testing to be conducted at a later date.
- A total of three (3) destruct samples were collected. Two fusion weld destruct samples - DS-23 and DS-24 were collected from Panel Seams P64 / P65 and P66 / P68, respectively, for laboratory analysis. In addition, one extrusion weld destruct sample – DSX-8 was collected from Panel P61 (Repair R-270) for laboratory analysis.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/14/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct samples DS-23, DS-24, and DSX-8.

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, and 7/13/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-22. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-7. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/14/16
A3 – Photo Log	Pages 1 – 6	Total of 11 photos outlining pertinent daily observations and descriptions for 7/14/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/14/16
A5 – Subgrade Approval	Sheet 12 & ESI (7/14/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 5	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/14/16
A7 – Panel Placement Log	Page 9	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/14/16
A8 – Destruct Seam Testing COC	Sheet 3	Updated for destruct samples collected on 7/14/16
A9 – Seam/Non-Destruct. Test Log	Pages 24-25	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/14/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A10 – Repair Log	Pages 14-15	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/14/16
A11 – Conformance COC		NA for 7/14/16
A12 – Destructive Seam Field Test	Page 3	Updated with destruct samples collected on 7/14/16
A13 – Destruct. Sample Summary	Page 3	Destruct sample summary updated with samples collected on 7/14/16
A14 – Penetration & Edge Form	7/14/16 Boot Forms	Pipe boot / penetrations completed for Gas Vent GV-3 and Cleanout 1. To be methane / spark tested at later date.
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 7/14/16
A17 – Spark Test Log		NA – no spark testing conducted on 7/14/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/14/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/14/16

Direction Taken:

Looking east along southern end of SA-6 North (from approximate Sta. 309+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #2 (07/14/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/14/16

Direction Taken:

Looking north across SA-6 North from approximate center of SA-6 North (approximate Sta. 309+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #3 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

Looking east along northern end of SA-6 North (from approximate Sta. 309+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 308+60).

Description:

ESI deploying GVL across approved soil subgrade. GVL secured with white plastic fasteners spaced at maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #5 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

Looking north / northeast along SA-6 North (approximate Sta. 308+20).

Description:

GVL installed up to approximate Sta. 308+20. GVL placed over approved soil subgrade, secured with white plastic fasteners, and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #6 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 308+75).

Description:

ESI deploying LLDPE geomembrane over installed GVL.

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PHOTOGRAPHIC LOG
Photo #7 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 308+20).

Description:

ESI conducting fusion welding along Panel P66 / P68 seam.

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PHOTOGRAPHIC LOG
Photo #8 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

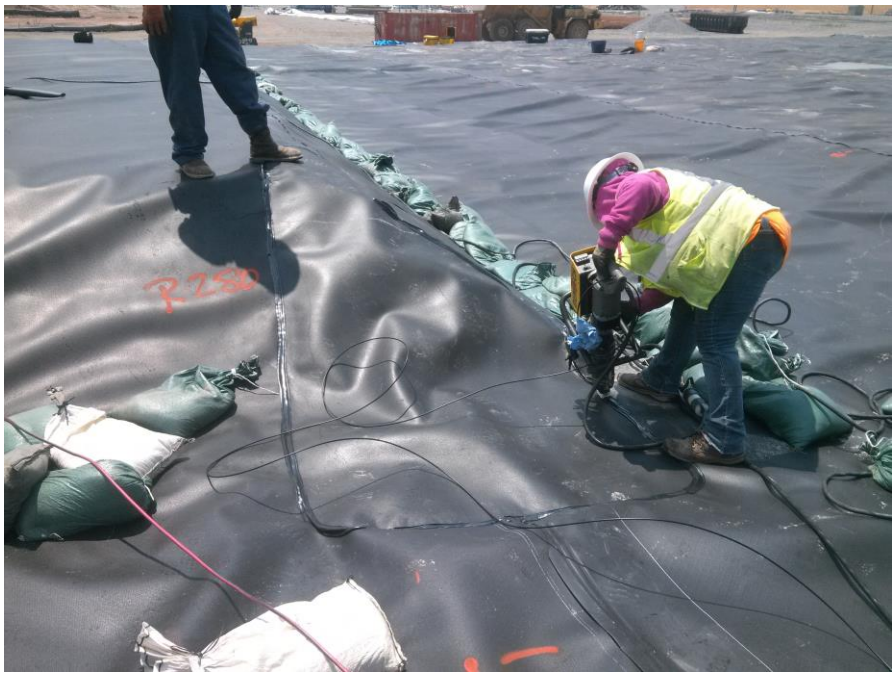
Date:
7/14/16

Direction Taken:

SA-6 North – Panel P64 / P65

Description:

ESI conducting “custom fit” repairs along Panel P64 / P65 (Repair R-280).



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PHOTOGRAPHIC LOG
Photo #9 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

SA-6 North – Gas Vent GV-3

Description:

ESI completing pipe boot / penetration for Gas Vent GV-3. Boot to be methane / spark tested at later date.

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PHOTOGRAPHIC LOG
Photo #10 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

SA-6 North – Cleanout 1

Description:

Completed pipe boot / penetration for Cleanout 1. Boot to be methane / spark tested at later date.

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PHOTOGRAPHIC LOG
Photo #11 (07/14/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/14/16

Direction Taken:

SA-6 North – Destruct Sample DS-23

Description:

ESI completing patch / repair activities for Destruct Sample DS-23 located on Panel P64 / P65 seam (Repair R-287).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/15/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	80/95° F, Partly Cloudy, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite Drainage Layer (GDL)	**TIME:**	0645 – 1630

CONTRACTOR & EQUIPMENT:	**PERSONNEL ON SITE:** **Day #16**
ENTACT & ESI *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth, Kale Novalis **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of geocomposite drainager layer (GDL) over approved LLDPE geomembrane. Note: no soil subgrade approved and no LLDPE geomembrane installed on 7/15/16. Next area of subgrade still being prepared, graded, and compacted by Entact (to be surveyed by Maser).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P47 / P48 (approximate Sta. 311+10) to Panel P66 (approximate Sta. 308+35) along northern end of cap. Note: GDL rolls were approximately 200 ft. in length and covered approximately 2/3 of the cap (north to south). As such, GDL was deployed along the northern half to Panel P66. The southern end of the cap was covered to Panel P63 (approximate Sta. 309+00). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/15/16 Photo Log for supporting photographs.

Non-Conformance Items / Corrective Actions

- None encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/15/16). No LLDPE paperwork to be completed as no subgrade was approved and no LLDPE geomembrane was installed.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, and 7/14/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-24. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-8. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/15/16
A3 – Photo Log	Pages 1 – 2	Total of 3 photos outlining pertinent daily observations and descriptions for 7/15/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/15/16
A5 – Subgrade Approval		NA – no subgrade approved for LLDPE placement on 7/15/16
A6 – Trial Weld Log		NA – no trial welds completed on 7/15/16
A7 – Panel Placement Log		NA – no LLDPE panels placed on 7/15/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 7/15/16
A9 – Seam/Non-Destruct. Test Log		NA – no non-destructive testing conducted on 7/15/16
A10 – Repair Log		NA – no LLDPE repair activities conducted on 7/15/16
A11 – Conformance COC		NA for 7/15/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 7/15/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 7/15/16
A14 – Penetration & Edge Form		NA – no penetration / pipe boots completed on 7/15/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 7/15/16
A17 – Spark Test Log		NA – no spark testing completed on 7/15/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/15/16

Direction Taken:

Looking north / northwest across SA-6 North

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn. Note: based on length of GDL (approximately 200 ft.), panels were run along northern end of cap first.

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PHOTOGRAPHIC LOG
Photo #2 (07/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/15/16

Direction Taken:

Looking north across SA-6 North (approximate center of cap).

Description:

ESI deploying GDL over approved LLDPE geomembrane.

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PHOTOGRAPHIC LOG
Photo #3 (07/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/15/16

Direction Taken:

Looking west along northern end of SA-6 North (from approximate Sta. 308+35).

Description:

GDL deployed along northern edge of cap up to Panel P66.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/18/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/85° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 0845

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #17**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of geocomposite drainager layer (GDL) over approved LLDPE geomembrane. Note: no soil subgrade approved and no LLDPE geomembrane installed on 7/18/16. Next area of subgrade still being prepared, graded, and compacted by Entact (to be surveyed by Maser).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed along the southern end of SA-6 North from Panel P63 (approximate Sta. 309+00) to Panel P66 (approximate Sta. 308+35) along southern end of cap. Note: GDL rolls were approximately 200 ft. in length and covered approximately 2/3 of the cap (north to south). As such, GDL was deployed along the southern half to Panel P66 (northern half previously covered with GDL on 7/15/16). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 7/18/16 Photo Log for supporting photographs.

Non-Conformance Items / Corrective Actions

- None encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/18/16). No LLDPE paperwork to be completed as no subgrade was approved and no LLDPE geomembrane was installed.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, and 7/15/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-24. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-8. Laboratory results in compliance with project specifications.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/18/16
A3 – Photo Log	Page 1	Total of 2 photos outlining pertinent daily observations and descriptions for 7/18/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/18/16
A5 – Subgrade Approval		NA – no subgrade approved for LLDPE placement on 7/18/16
A6 – Trial Weld Log		NA – no trial welds completed on 7/18/16
A7 – Panel Placement Log		NA – no LLDPE panels placed on 7/18/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 7/18/16
A9 – Seam/Non-Destruct. Test Log		NA – no non-destructive testing conducted on 7/18/16
A10 – Repair Log		NA – no LLDPE repair activities conducted on 7/18/16
A11 – Conformance COC		NA for 7/18/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 7/18/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 7/18/16
A14 – Penetration & Edge Form		NA – no penetration / pipe boots completed on 7/18/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 7/18/16
A17 – Spark Test Log		NA – no spark testing completed on 7/18/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/18/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/18/16

Direction Taken:

Looking east across southern end of SA-6 North (approximate Sta. 308+50).

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn. Note: based on length of GDL (approximately 200 ft.), panels were run along northern end first (completed on 7/15/16).

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PHOTOGRAPHIC LOG
Photo #2 (07/18/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/18/16

Direction Taken:

Looking north across SA-6 North

Description:

ESI deploying GDL over approved LLDPE geomembrane.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	7/25/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	85/93° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1630

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #18**
AmecFW: Dave Ambrose, Josh Boynton
Langan: Dan Bosworth, Kale Novalis
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P68 installed on 7/14/16 (approximate Sta. 308+20). Material to be placed from Panel P68 running approximately 100 ft. east to approximate Sta. 307+20.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 308+20 (Panel P68 installed on 7/14/16) to approximate Sta. 307+20. Refer to *Soil Subgrade Approval* forms from 7/25/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 1, 2, and 3 of the daily photo log on 7/25/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 308+20 (east of Panel P68) moving east to approximate Sta. 307+20. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 7/25/16 Photo Log for supporting photographs.
- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P68 (installed on 7/14/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 308+20 (Panel P68) to approximate Sta. 307+20. A total of seven panels were installed (P69, P70, P71, P72, P73, P74 and P75).

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Note: During placement of Panel P69 the roll of LLDPE terminated near the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P70 and P71 (P70 and P71 remaining pieces of LLDPE from rolls previously used). Similarly, during placement of Panel P73, the roll of LLDPE terminated near the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P74. Panels P72 and P75 ran the entire width of SA-6 North (approximately 280 ft.) from north to south.

- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/25/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 307+20, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 7/25/16 *Seam Control Form* for non-destructive testing details.
- ESI conducted repair activities for Panels 68 to P75 (installed on 7/25/16). A total of twenty-six repairs (R-293 through R-318) were observed and fixed (according to the project specifications) from Panels P68 through P75. Refer to 7/25/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications (Note: vacuum box testing not completed for all repairs. To be finished on 7/26/16).
- ESI also completed the pipe boot construction for Cleanout 2. Additional details are provided in the 7/25/16 Pipe Boot Penetration Form.
- A total of two (3) destruct samples were collected. Two fusion weld destruct samples were collected – DS-25 and DS-26 were collected from Panel Seams P68 / P69 and P72 / P74, respectively. One extrusion weld destruct sample – DSX-9 was also collected from patch repair R-299 (Panel P72) for laboratory analysis.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/25/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Complete boot penetration log for Cleanout 2
- Review laboratory results for destruct samples DS-25, DS-26, and DSX-9.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, and 7/18/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-24. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-8. Laboratory results in compliance with project specifications.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/25/16
A3 – Photo Log	Pages 1 – 5	Total of 10 photos outlining pertinent daily observations and descriptions for 7/25/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/25/16
A5 – Subgrade Approval	Sheet 13 & ESI (7/25/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 5	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/25/16
A7 – Panel Placement Log	Pages 9 - 10	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/25/16
A8 – Destruct Seam Testing COC	Sheet 3	Updated for destruct samples collected on 7/25/16
A9 – Seam/Non-Destruct. Test Log	Pages 25-28	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/25/16
A10 – Repair Log	Pages 15-16	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/25/16
A11 – Conformance COC		NA for 7/25/16
A12 – Destructive Seam Field Test	Page 3	Updated with destruct samples collected on 7/25/16
A13 – Destruct. Sample Summary	Page 3	Destruct sample summary updated with samples collected on 7/25/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A14 – Penetration & Edge Form	7/25/16 Pipe Boot Log	Pipe boot penetration log completed for Cleanout 2
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 7/25/16
A17 – Spark Test Log		NA – no spark testing conducted on 7/25/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking south along SA-6 North from approximate center of cap (approximate Sta. 308+20).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #2 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking east along SA-6 North from approximate center of cap (approximate Sta. 308+20).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #3 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking north across SA-6 from approximate center of cap (approximate Sta. 308+20).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 308+20).

Description:

GVL being deployed over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #5 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

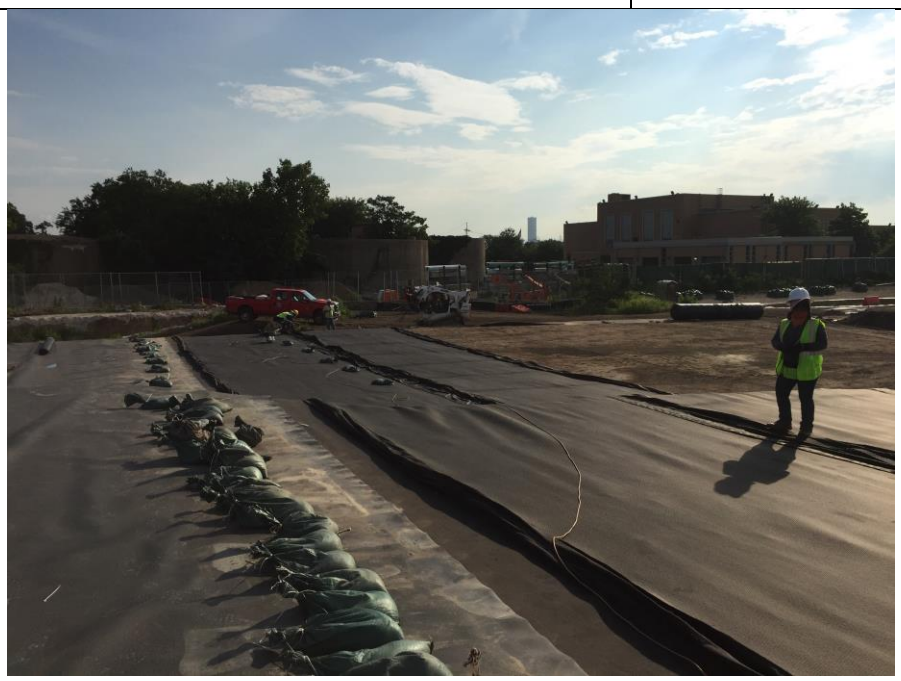
Date:
7/25/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 308+20).

Description:

GVL being deployed over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.



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PHOTOGRAPHIC LOG
Photo #6 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking east along northern end of SA-6 North (from approximate Sta. 308+20).

Description:

ESI deploying 16 oz. geotextile along northern end of SA-6 North. Geotextile overlapped 1 ft. outside of barrier wall (remaining roll width inside) as outlined in project specifications.

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PHOTOGRAPHIC LOG
Photo #7 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 308+00).

Description:

ESI conducting fusion welding along LLDPE geomembrane Panel Seam P68 / P70.

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PHOTOGRAPHIC LOG
Photo #8 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/25/16

Direction Taken:

SA-6 North – Panel P70 / P71 / P72 seam

Description:

ESI conducing non-destructive testing (pressure testing) along Panel P70 / P71 / P72 seams. Seams pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #9 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

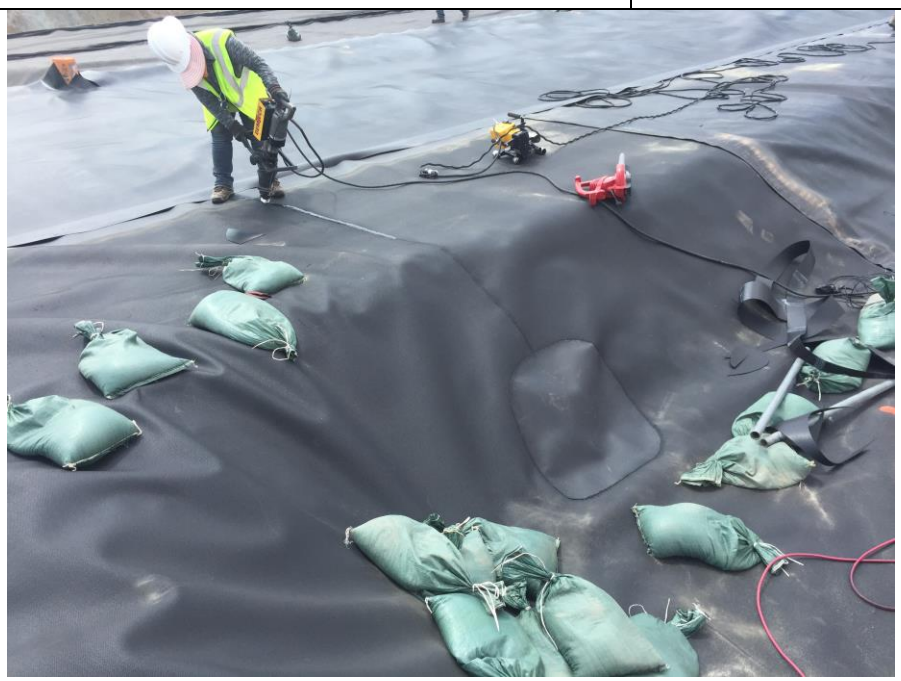
Date:
7/25/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 308+15).

Description:

ESI conducting custom fit repairs on Panel P-70.



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PHOTOGRAPHIC LOG
Photo #10 (07/25/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

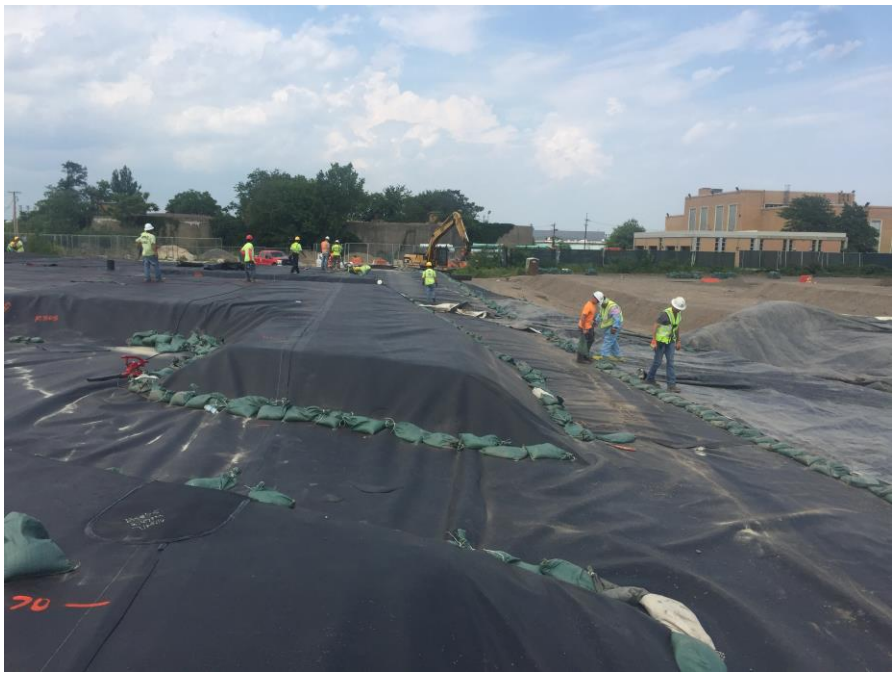
Date:
7/25/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 307+20).

Description:

LLDPE geomembrane installed up to approximate Sta. 307+20.



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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	7/27/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	78/98° F, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1615

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #19**
AmecFW: Dave Ambrose, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P75 installed on 7/25/16 (approximate Sta. 307+20). Material to be placed from Panel P75 running approximately 80 ft. east to approximate Sta. 306+40.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 307+20 (Panel P75 installed on 7/25/16) to approximate Sta. 306+40. Refer to *Soil Subgrade Approval* forms from 7/27/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and one wet / soft area was identified at the top of the western slope of the utility corridor. The wet area was identified underneath the edge of the GVL panel (previously installed on 7/25/16). The GVL was pulled back and the soil subgrade was exposed. The wet area was re-worked by Entact and calcium cement was added to solidify the soil. Based on visual observation, the remaining soil subgrade (along with the re-worked wet area) appeared to be firm and unyielding with no other soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 1 to 4 of the daily photo log for 7/27/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 307+20 (east of Panel P75) moving east to approximate Sta. 306+40. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to the 7/27/16 Photo Log for supporting photographs.

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- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P75 (installed on 7/25/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 307+20 (Panel P75) to approximate Sta. 306+40. A total of five panels were installed (P76, P77, P78, P79, and P80). Note: During placement of Panel P77 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P78. Panels P76, P79, and P80 ran the entire width of SA-6 North (approximately 270 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/27/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 306+40, ESI began to conduct non-destructive testing (pressure testing) in accordance with the project specifications. Seams were pressurized to 30 psi and held for 5 minutes with less than 5 psi loss. Refer to the 7/27/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P75 to P80 (installed on 7/25/16 and 7/27/16)
- ESI conducted repair activities for Panel P75 (installed on 7/25/16), and Panels P76 through P80 (installed on 7/27/16). A total of forty-three repairs (R-319 through R-361) were observed and fixed (according to the project specifications) from Panels P75 through P80. Refer to 7/27/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- As part of the repair activities for LLDPE geomembrane installed on 7/27/16, two pipe boots / penetrations were completed for Well 115-E5-SO and Extraction Pump Station 2. Additional details are provided in the 7/27/16 Pipe Boot Forms.
- While repair activities were being conducted, ESI also completed methane / spark testing for Piezometer PZ6 and Cleanout 1. Prior to spark testing methane testing was conducted at each location and 0.0% methane was recorded. As such, spark testing was then conducted and no sparks were observed along the base of the boot or vertical weld for both boots. Refer to the *Spark Testing Forms* from 7/27/16 for additional details.
- A total of two (2) destruct samples were collected on 7/27/16. One fusion weld destruct samples - DS-27 was collected from Panel Seams P75 / P76, for laboratory analysis. Additionally, one extrusion weld sample – DSX-10 was collected from Panel P75 Repair R-320.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 8 (Sheet #8) – Subgrade irregularity identified as R-328 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P71 / P72. Stone was subsequently removed, and hole was patched/repaired following project specs as further described in *Sheet 8 Notice of Non-Compliance.*

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/27/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory results for destruct samples DS-27 and DSX-10.

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, and 7/25/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-24. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-8. Laboratory samples DS-25, DS-26, and DSX-9 still pending.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/27/16
A3 – Photo Log	Pages 1 – 7	Total of 14 photos outlining pertinent daily observations and descriptions for 7/27/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/27/16
A5 – Subgrade Approval	Sheet 14 & ESI (7/27/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 5-6	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/27/16
A7 – Panel Placement Log	Pages 10-11	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/27/16
A8 – Destruct Seam Testing COC	Sheets 3-4	Updated for destruct samples collected on 7/27/16
A9 – Seam/Non-Destruct. Test Log	Pages 28-31	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/27/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A10 – Repair Log	Pages 16-19	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/27/16
A11 – Conformance COC		NA for 7/27/16
A12 – Destructive Seam Field Test	Pages 3-4	Updated with destruct samples collected on 7/27/16
A13 – Destruct. Sample Summary	Pages 3-4	Destruct sample summary updated with samples collected on 7/27/16
A14 – Penetration & Edge Form	7/27/16 Pipe Boot Forms	Two pipe boot / penetrations completed for Well 115-E5-S0 and Extraction Pump Station 2
A16 – Notice of Non-Compliance	Sheet 8	One subgrade irregularity identified and recorded on Sheet 8 Notice of Non-Compliance
A17 – Spark Test Log	7/27/16 Spark Test Logs	Two spark tests completed for pipe boots Piezometer PZ6 and Cleanout 1

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By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking south along SA-6 North utility corridor (approximate Sta. 307+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #2 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking south along top of western slope of utility corridor (approximate Sta. 307+20).

Description:

Wet / soft area of subgrade identified along edge of previously deployed GVL. GVL was pulled back to expose subgrade. Entact to solidify, re-work, and re-compact area so soil is suitable for LLDPE placement.

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PHOTOGRAPHIC LOG
Photo #3 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking north along western edge of utility corridor (approximate Sta. 307+20).

Description:

Wet / soft area of subgrade solidified with calcium cement. Area re-compacted and suitable for LLDPE placement.

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PHOTOGRAPHIC LOG
Photo #4 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking north along SA-6 North utility corridor (approximate Sta. 307+00).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #5 (07/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/27/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 307+00).

Description:

ESI deploying GVL over approved soil subgrade. GVL secured with white plastic fasteners spaced at maximum of 5 ft. intervals with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #6 (07/27/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/27/16

Direction Taken:

Looking south along southern end of SA-6 North (approximate Sta. 307+20).

Description:

GVL secured with white plastic fasteners at maximum of 5 ft. along geonet. Top layer of geotextile to be sewn.

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PHOTOGRAPHIC LOG
Photo #7 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 306+40).

Description:

GVL deployed over approved subgrade up to approximate Sta. 306+40.

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PHOTOGRAPHIC LOG
Photo #8 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

SA-6 North Panel P75 & P76 seam (toward northern end of cap).

Description:

ESI conducting fusion welding along Panel P75 & P76 seam.

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PHOTOGRAPHIC LOG
Photo #9 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

Looking south along SA-6 North utility corridor (from approximate Sta. 307+00).

Description:

ESI deploying LLDPE geomembrane over installed GVL. LLDPE installed through utility corridor as per approved panel layout.

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PHOTOGRAPHIC LOG
Photo #10 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

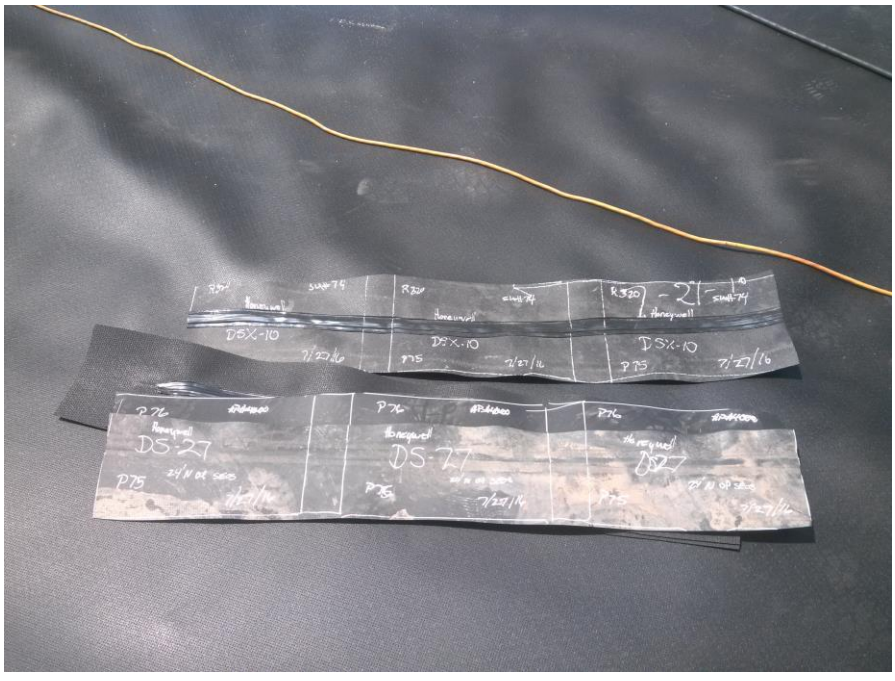
Date:
7/27/16

Direction Taken:

SA-6 North – Destruct Samples

Description:

Fusion weld destruct sample DS-27 and extrusion weld destruct sample DSX-10 cut for laboratory analysis (also to be field tested with tensiometer).



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PHOTOGRAPHIC LOG
Photo #11 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

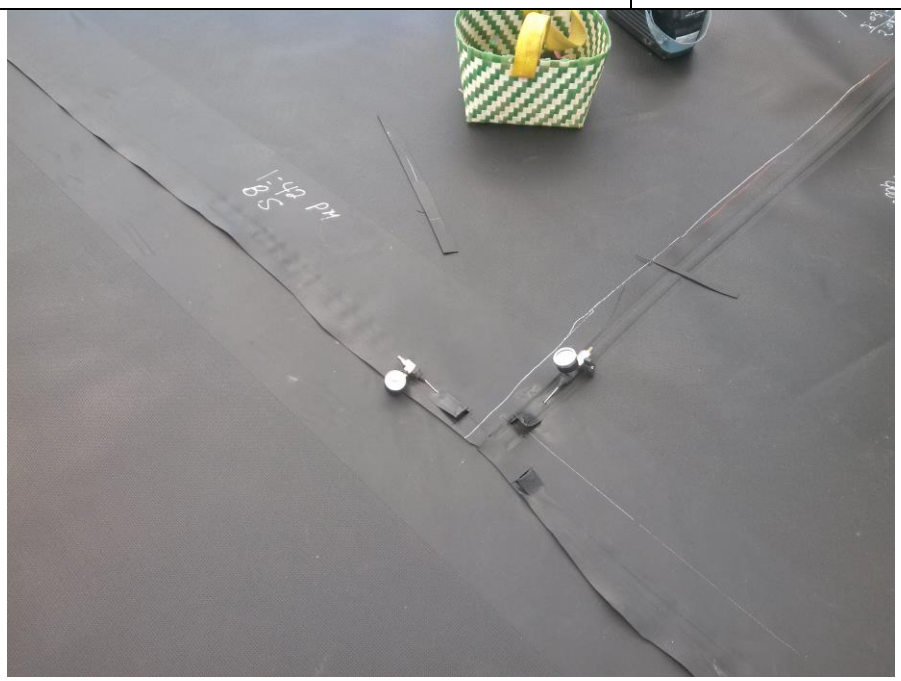
Date:
7/27/16

Direction Taken:

SA-6 North – Panel P77 / P78 / P79 seam

Description:

ESI conducting non-destructive testing (pressure testing) along Panel P77 / P78 / P79 seam. Seams pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.



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PHOTOGRAPHIC LOG
Photo #12 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

SA-6 North – Destruct Sample DS-27

Description:

Destruct sample DS-27 cut for laboratory analysis from Panel P75 / P76 seam. Sample location was patched, repaired with extrusion weld, and vacuum box tested (as per project specs).

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PHOTOGRAPHIC LOG
Photo #13 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/27/16

Direction Taken:

SA-6 North – Piezometer PZ6

Description:

Entact conducting methane testing for LLDPE boot for Piezometer PZ6. Concentration of 0.0% methane measured. As such, spark testing was subsequently completed and no sparks were observed during the test.

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PHOTOGRAPHIC LOG
Photo #14 (07/27/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

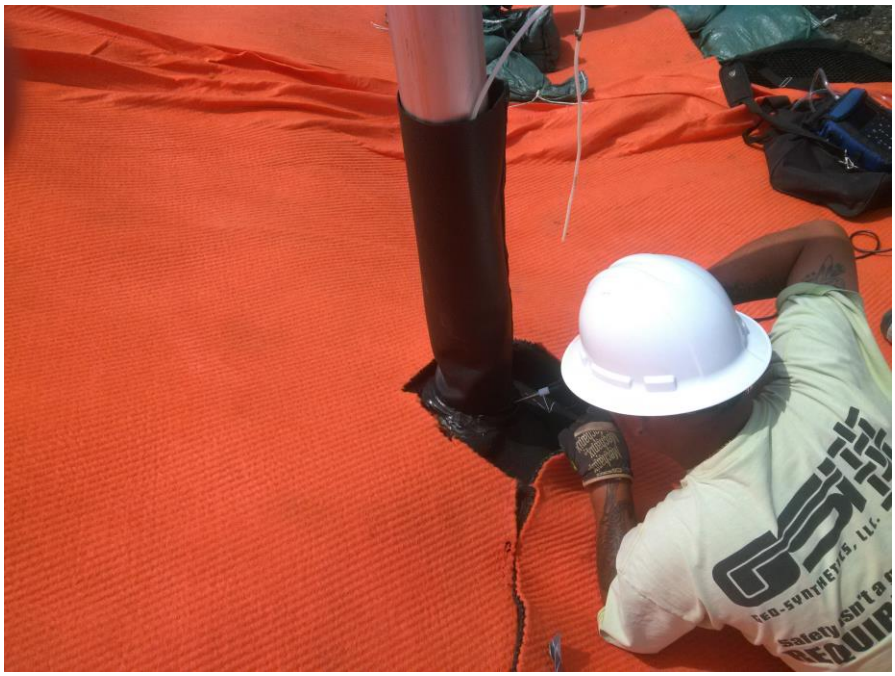
Date:
7/27/16

Direction Taken:

SA-6 North – Piezometer PZ6

Description:

ESI conducting spark testing along vertical weld and base of boot for Piezometer PZ6. No sparks were observed (i.e. spark test passed).



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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	7/28/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	78/95° F, Sunny
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1745

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #20** **AmecFW**: Dave Ambrose, Josh Boynton **Langan:** Dan Bosworth, Jeff Stoicescu **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P80 installed on 7/27/16 (approximate Sta. 306+40). Material to be placed from Panel P80 running approximately 100 ft. east to approximate Sta. 305+40.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with Langan and Entact conducting soil subgrade approval from approximate Sta. 306+40 (Panel P80 installed on 7/27/16) to approximate Sta. 305+40. Refer to *Soil Subgrade Approval* forms from 7/28/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 1, 2, and 3 of the daily photo log for 7/28/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 306+40 (east of Panel P80) moving east to approximate Sta. 305+40. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to the 7/28/16 Photo Log for supporting photographs.
- While GVL was being installed, Entact and ESI conducted spark testing for Gas Vent GV-3, and Cleanout 2. Prior to spark testing, methane testing was conducted by Entact and a concentration of 0.0% was measured at each boot. As such, spark testing was subsequently completed, and no sparks were observed during the test (i.e. spark test passed). Additional details regarding the

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By: Dan Bosworth

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methane / spark testing are provided in the 7/28/16 *Spark Test Logs*.

- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P80 (installed on 7/27/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 306+40 (Panel P80) to approximate Sta. 305+40. A total of eight panels were installed (P81, P82, P83, P84, P85, P86, P87, and P88). Note: During placement of Panel P81 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P82. Similarly, during placement of Panel P84 the roll of LLDPE terminated near the southern end of SA-6, thus the remaining run of LLDPE was installed as Panel P85. Panel P87 also terminated near the approximate center of SA-6 North, thus the remaining LLDPE run was installed as Panel P88. Panels P83 and P86 ran the entire width of SA-6 North (approximately 260 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 7/28/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 305+40, ESI began to conduct non-destructive testing (pressure testing) in accordance with the project specifications. Seams were pressurized to 30 psi and held for 5 minutes with less than 5 psi loss. Refer to the 7/28/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P80 to P88 (installed on 7/27/16 and 7/28/16)
- ESI conducted repair activities for Panel P80 (installed on 7/27/16), and Panels P81 through P88 (installed on 7/28/16). A total of twenty-nine repairs (R-362 through R-390) were observed and fixed (according to the project specifications) from Panels P80 through P88. Refer to 7/28/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- As part of the repair activities ESI also completed the pipe boots for the Utility Corridor Drainage Pipe and Injection Well 088-IW-03. Additional details are provided in the 7/28/16 Boot Forms
- Laboratory results for destruct sample DS-26 were received and two of the coupons were reported as EPA Break Classification Code “AD BRK”. Although the coupons met the peel strength requirements, since the break was reported at the weld and not considered a film tearing bond (FTB), the sample was considered a failed sample and reported as a non-conformance item.
- No destruct samples were collected due to the forecasted storms at the end of the day. Destruct samples anticipated to be cut on 8/1/16 (rain forecast for 7/29/16 – no LLDPE activities anticipated).

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 9 (Sheet #9) – Failed destruct sample DS-26 collected from Panel P72 / P74
    - Destruct sample DS-26 failed 2/5 coupons as the weld breaks were reported as “AD BRK” under the EPA Break Classification Code. Although the coupons achieved the required peel / shear strength parameters, since the break occurred at the weld and was not considered an FTB, the sample failed.

Action Items – Pending

- Complete Daily Report and Photo Log (for 7/28/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, and 7/27/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-27. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-10. Laboratory results in compliance with project specifications with the exception of destruct sample DS-26 (recorded as Non-Conformance #9).

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 7/28/16
A3 – Photo Log	Pages 1 – 7	Total of 14 photos outlining pertinent daily observations and descriptions for 7/28/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 7/28/16
A5 – Subgrade Approval	Sheet 15 & ESI (7/28/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 6	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 7/28/16
A7 – Panel Placement Log	Pages 11-12	One panel placement log provided by ESI and confirmed by Langan for panels placed on 7/28/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 7/28/16
A9 – Seam/Non-Destruct. Test Log	Pages 31-33	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 7/28/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A10 – Repair Log	Pages 19-20	One repair log provided by ESI and confirmed by Langan for repairs completed for 7/28/16
A11 – Conformance COC		NA for 7/28/16
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 7/28/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 7/28/16
A14 – Penetration & Edge Form	7/28/16 Pipe Boot Form	Two pipe boot / penetrations completed for Utility Corridor Drainage Pipe and Injection Well 088-IW-03
A16 – Notice of Non-Compliance	Sheet 9	One failed destruct sample: DS-26 recorded on 7/28/16. Additional details provided in Non-Conformance Log Sheet #9
A17 – Spark Test Log	7/28/16 Spark Test Logs	Spark testing completed on 7/28/16 for Gas Vent GV-3 and Cleanout 2

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

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PHOTOGRAPHIC LOG
Photo #1 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 306+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #2 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

Looking south along SA-6 North from approximate center of cap (approximate Sta. 306+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #3 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 306+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 306+20).

Description:

ESI deploying GVL over approved soil subgrade.

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PHOTOGRAPHIC LOG
Photo #5 (07/28/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/28/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 306+40).

Description:

GVL being deployed over approved soil subgrade. GVL secured with white plastic fasteners spaced at maximum of 5 ft. intervals and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #6 (07/28/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

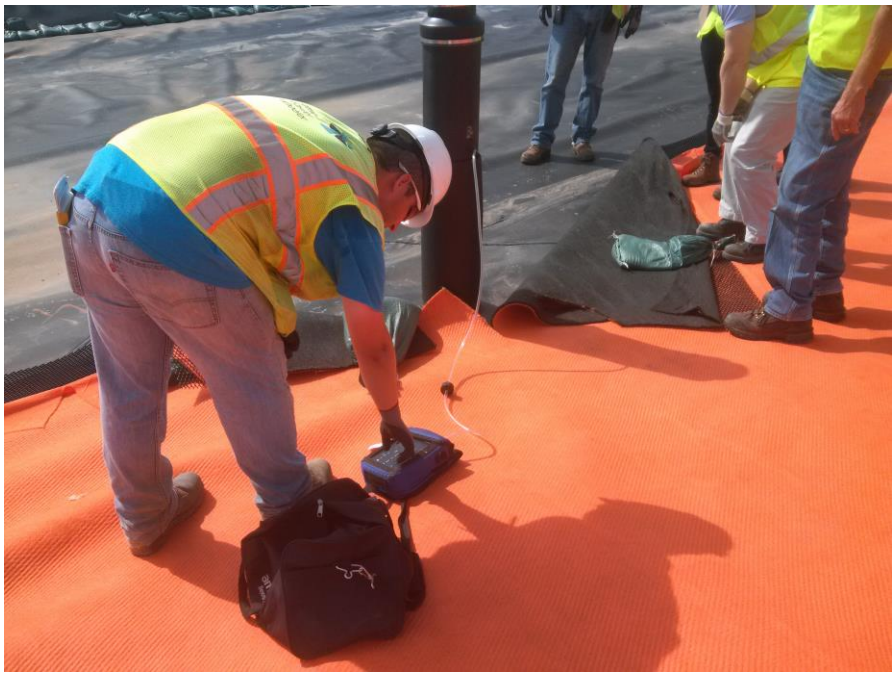
Date:
7/28/16

Direction Taken:

SA-6 North – Gas Vent GV-3

Description:

Entact conducting methane testing at Gas Vent GV-3 prior to spark testing. Concentration of 0.0% methane measured. Boot was subsequently spark tested and passed spark test.



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PHOTOGRAPHIC LOG
Photo #7 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

SA-6 North – Gas Vent GV-3

Description:

ESi conducting spark testing along base of boot and vertical weld for Gas Vent GV-3. No sparks were observed and the spark test passed.

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PHOTOGRAPHIC LOG
Photo #8 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

SA-6 North Panel P75 & P76 seam (toward northern end of cap).

Description:

ESI conducting spark testing for Cleanout 2. No sparks were observed and the spark test passed.

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PHOTOGRAPHIC LOG
Photo #9 (07/28/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/28/16

Direction Taken:

Looking south / southeast along SA-6 North

Description:

GVL being deployed up to approximate Sta. 305+40.

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PHOTOGRAPHIC LOG
Photo #10 (07/28/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
7/28/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 305+90).

Description:

ESI deploying LLDPE geomembrane over GVL across SA-6 North.

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PHOTOGRAPHIC LOG
Photo #11 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

Looking south along SA-6 North (Panel P83 / P84 seam).

Description:

ESI conducting fusion weld along Panel Seam P83 / P84.

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PHOTOGRAPHIC LOG
Photo #12 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

SA-6 North, Northern Swale (at approximate Sta. 305+60).

Description:

ESI conducting repair activities along tree bulb swale located along northern end of SA-6 North (approximate Sta. 305+60). “Custom fit” repairs patched and sealed with extrusion welds.

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PHOTOGRAPHIC LOG
Photo #13 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

SA-6 North – Well 115-E5-WO

Description:

Completed pipe boot for Monitoring Well 115-E5-WO (boot constructed on 7/27/16 and completed on 7/28/16). Boot to be methane / spark tested at later date.

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PHOTOGRAPHIC LOG
Photo #14 (07/28/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
7/28/16

Direction Taken:

SA-6 North – Extraction Pump Station Manhole #2

Description:

Completed pipe boot for Extraction Pump Station Manhole #2 (boot constructed on 7/27/16 and completed on 7/28/16). Boot to be methane / spark tested at later date.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/2/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	78/85° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1645

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #21**
AmecFW: Stu Bills, Dave Ambrose, Josh Boynton
Langan: Dan Bosworth, Vikki Hon
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of geocomposite drainage layer (GDL) over approved LLDPE geomembrane. Note: no soil subgrade approved and no LLDPE geomembrane installed on 8/2/16. Next area of subgrade still being prepared, graded, and compacted by Entact (to be surveyed by Maser).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was first placed along the northern end of SA-6 North from Panel P66 / P67 (approximate Sta. 308+35) to the approximate center of the Utility Corridor (approximate Sta. 306+80) Note: The GDL panel orientation changed to east to west through the utility corridor so that the GDL followed the same contours as the utility corridor slopes. GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/2/16 Photo Log for supporting photographs.
- While GDL was being deployed ESI also conducted vacuum box testing and minor repair activities for Panels P86 and P87 (installed on 7/28/16). Additional details are provided in the 8/2/16 Repair Report.
- A total of three (3) destruct samples were collected. One fusion weld sample – DS-28 was collected from Panel Seam P81 / P83. Two extrusion weld destruct samples – DSX-11 and DSX-12 were collected from Repair R-365 (Panel 81) and Repair R-387 (Panel 86), respectively.
- ESI also completed repair activities for fusion weld destruct sample DS-26 (Panel P72 / P74 seam). DS-26 failed laboratory testing as two specimens were reported as EPA Break Code “AD-BRK” outlining a break in the weld and not the film tear break (FTB). Although the minimum peel requirements were met, since the break code was not an FTB, the test was reported as a failed test.
- To address the failed destruct sample, two field specimens (DS-26A & DS-26B) were cut approximately 10 ft. on each side of DS-26. Both samples were field tested and peel and shear strength requirements were met. Sample DS-26B which exhibited peel and shear breaks slightly less than DS-26A was sent for laboratory analysis.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Non-Conformance Items / Corrective Actions

- None Encountered - Failed destruct sample DS-26 was previously outlined on the 7/28/16 Daily Report

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/2/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct results for DS-28, DSX-11, DSX-12, and DS-26B.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/27/16, and 7/28/16. ESI Daily Form Submittals still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-27. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-10. Laboratory results generally in compliance with project specifications with the exception of DS-26.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/2/16
A3 – Photo Log	Pages 1-3	Total of 6 photos outlining pertinent daily observations and descriptions for 8/2/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/2/16
A5 – Subgrade Approval		NA – no subgrade approved for LLDPE placement on 8/2/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A6 – Trial Weld Log	Page 6	One trial weld log provided by ESI for prewelds completed on 8/2/16
A7 – Panel Placement Log		NA – no LLDPE panels placed on 8/2/16
A8 – Destruct Seam Testing COC	Sheet 3	Updated with destruct samples collected on 8/2/16
A9 – Seam/Non-Destruct. Test Log		NA – no non-destructive testing conducted on 8/2/16
A10 – Repair Log	Page 20	Repair log provided by ESI for LLDPE repair activities completed on 8/2/16
A11 – Conformance COC		NA for 8/2/16
A12 – Destructive Seam Field Test	Page 3	Updated with destruct samples collected on 8/2/16
A13 – Destruct. Sample Summary	Page 3	Updated with destruct samples collected on 8/2/16
A14 – Penetration & Edge Form		NA – no penetration / pipe boots completed on 8/2/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/2/16
A17 – Spark Test Log		NA – no spark testing completed on 8/2/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (08/02/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/2/16

Direction Taken:

Looking south along SA-6 North a approximate Panel P66/ P67 (approximate Sta. 308+35).

Description:

ESI deploying GDL over approved LLDPE geomembrane (Panels P66 / P67 and P68). GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextiel sewn.

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PHOTOGRAPHIC LOG
Photo #2 (08/02/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/2/16

Direction Taken:

SA-6 North – Panel Seam P72 / P74

Description:

ESI conducting LLDPE patching activities (LLDPE cap) over failed destruct sample DS-26. Two field samples cut approximately 10 ft. on each side of DS-26 (labeled A & B). Subsequent field testing yielded peel and shear strength parameters that passed the spec requirements Sample B was sent for laboratory analysis (peel and shear strength slightly less than sample A).

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PHOTOGRAPHIC LOG
Photo #3 (08/02/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

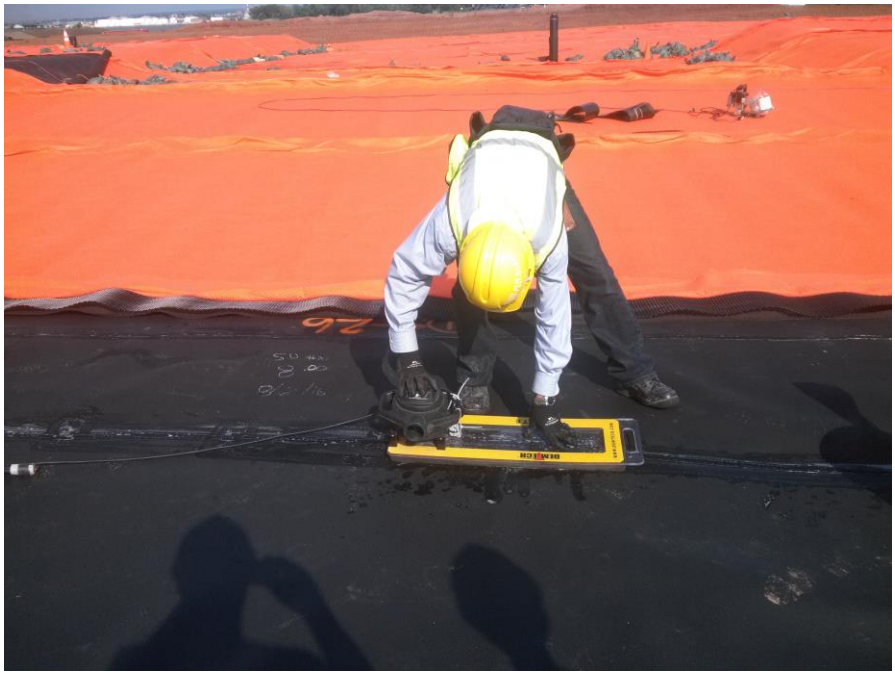
Date:
8/2/16

Direction Taken:

SA-6 North – Panel Seam P72 / P74 (Repair R-391)

Description:

ESI conducting vacuum box activities for extrusion weld patch R-391. Two additional samples were cut approximately 10 ft. from each side of DS-26, patched, sealed with an extrusion weld, and vacuum box tested.



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PHOTOGRAPHIC LOG
Photo #4 (8/2/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/2/16

Direction Taken:

Looking west along SA-6 North (approximate Sta. 307+50).

Description:

ESI sewing along GDL panel seams (geonet secured with white plastic fasteners).

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PHOTOGRAPHIC LOG
Photo #5 (08/2/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/2/16

Direction Taken:

Looking north through SA-6 North Utility Corridor (approximate Sta. 307+00).

Description:

GDL installed along western slopes of utility corridor. GDL panels oriented east – west to mirror slopes of utility corridor. GDL secured with white plastic fasteners with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #6 (08/2/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/2/16

Direction Taken:

Looking north through SA-6 North Utility Corridor

Description:

GDL deployed through center of utility corridor to approximate Sta. 306+80.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/3/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	80/85° F, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1630

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #22**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale Novalis
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P87 / P88 installed on 7/28/16 (approximate Sta. 305+40). Material to be placed from Panel P87 / P88 running approximately 80 ft. east to approximate Sta. 304+60.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from the approximate center of the Utility Corridor (approximate Sta. 306+80), moving east through Panel P81 (approximate Sta. 306+20). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/3/16 Photo Log for supporting photographs.
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 305+40 (Panel P87 / P88 installed on 7/28/16) to approximate Sta. 304+60. Refer to *Soil Subgrade Approval* forms from 8/3/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 3 to 5 of the daily photo log for 8/3/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 305+40 (east of Panel P87 / P88) moving east to approximate Sta. 304+60. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications).

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By: Dan Bosworth

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- After placement of GVL, LLDPE geomembrane was installed continuing east from Panel P87 / P88 (installed on 7/28/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 305+40 (Panel P87 / P88) to approximate Sta. 304+60. A total of five panels were installed (P89, P90, P91, P92, and P93). Note: During placement of Panel P89 a piece of LLDPE was used to realign the panel placement arrangement. Panels P90, P91, P92, and P93 ran the entire width of SA-6 North (approximately 245 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/3/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 304+60, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 8/3/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P89 to P93 (installed on 8/3/16)
- ESI conducted repair activities for Panels 89 to P93 (installed on 8/13/16). A total of sixteen repairs (R-400 through R-415) were observed and fixed (according to the project specifications) from Panels P89 through P93. Refer to 8/3/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications. Additionally, ESI completed boot construction activities for Gas Vent GV-2 and Piezometer PZ4. Additional details are provided in the 8/3/16 Pipe Boot Forms.
- No destruct samples were collected on 8/3/16. Samples to be cut for laboratory analysis on 8/4/16.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/3/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 and 8/2/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-28. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-12. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

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Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/3/16
A3 – Photo Log	Pages 1 – 6	Total of 12 photos outlining pertinent daily observations and descriptions for 8/3/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/3/16
A5 – Subgrade Approval	Sheet 16 & ESI (8/3/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 6-7	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/3/16
A7 – Panel Placement Log	Page 12	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/3/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 8/3/16
A9 – Seam/Non-Destruct. Test Log	Pages 33-35	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 8/3/16
A10 – Repair Log	Pages 20-21	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/3/16
A11 – Conformance COC		NA for 8/3/16
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 8/3/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 8/3/16
A14 – Penetration & Edge Form	8/3/16 Pipe Boot Forms	Pipe boot / penetration forms completed for Piezometer PZ4 and Gas Vent GV-2
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/3/16
A17 – Spark Test Log		NA – no spark testing conducted on 8/3/16

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PHOTOGRAPHIC LOG
Photo #1 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 306+20).

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 306+80).

Description:

Orange GDL installed across approved LLDPE geomembrane through Panel P81. GDL secured with white plastic fasteners (5 ft. maximum) and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #3 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking south across SA-6 from approximate center of cap (approximate Sta. 305+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #4 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking east along SA-6 North from approximate center of cap (from approximate Sta. 305+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #5 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 305+40).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #6 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking east along northern end of SA-6 North (from approximate Sta. 305+40).

Description:

ESI deploying 16 oz. geotextile along northern end of SA-6 North. Geotextile overlapped 1 ft. outside of barrier wall (remaining roll width inside) as outlined in project specifications.

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PHOTOGRAPHIC LOG
Photo #7 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 305+20).

Description:

GVL being deployed over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #8 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking north / northeast along SA-6 North (from approximate Sta. 304+80).

Description:

GVL deployed along approved soil subgrade up to approximate Sta. 304+60. GVL secured with white plastic fasteners spaced at maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #9 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking south / southeast along SA-6 North (approximate Sta. 305+40).

Description:

ESI conducting fusion welding along LLDPE geomembrane Panel Seam P88 and P90.

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PHOTOGRAPHIC LOG
Photo #10 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

SA-6 North – Panel P87 / P89 / P90 seam

Description:

ESI conducing non-destructive testing (pressure testing) along Panel P87 / P89 / P90 seams. Seams pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #11 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

SA-6 North Panel P88 / P90

Description:

ESI conducting seam joint patch repair activities along Panel P88 / P90 seam joints.

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PHOTOGRAPHIC LOG
Photo #12 (08/03/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/3/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 304+60).

Description:

LLDPE geomembrane installed up to approximate Sta. 304+60.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/4/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	72/85° F, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1645

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #23**
AmecFW: Stu Bills, Dave Ambrose, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and temporary liner, continuing east from Panel P93 installed on 8/3/16 (approximate Sta. 304+60). Material to be placed from Panel P93 running approximately 85 ft. east to approximate Sta. 303+75.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI conducting vacuum box and repair activities for LLDPE previously installed on 8/3/16. In addition, two destruct samples were collected for laboratory analysis. One fusion weld destruct sample – DS-29 was collected from Panel P90 / P91. One extrusion weld destruct sample was also collected – DSX-13 from Panel P90 Repair R-401.
- While repair / vacuum box activities were being conducted ESI deployed the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed moving east through Panel P81 (approximate Sta. 306+20) up to Panel P86 (approximate Sta. 305+80). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/4/16 Photo Log for supporting photographs.
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 304+60 (Panel P93 installed on 8/3/16) to approximate Sta. 303+75. Refer to *Soil Subgrade Approval* forms from 8/4/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 3, 4, and 5 of the daily photo log for 8/4/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

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- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 304+60 (east of Panel P93) moving east to approximate Sta. 303+75. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/4/16 Photo Log for supporting photographs.
- Additionally, GCL was placed along the areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included a small area along the northern edge of SA-6 North east of Sta. 303+75. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/4/16 *Photograph Log*.
- Based on an LLDPE inventory completed by Entact, it was determined that approximately two additional rolls of 60-mil LLDPE would be required to complete the remaining area of SA-6 North. As such, three temporary panels were installed (to be replaced once new LLDPE rolls were received) from approximate Sta. 304+60 to approximate Sta. 303+75 (area of SA-6 North at upper elevation above the water table).
- After placement of GVL, three temporary panels were installed east of Panel P93 (installed on 8/3/16) and moving east. The three temporary panels were installed up to approximate Sta. 303+75 (did not cover the GCL or remaining area of subgrade to the east as permanent 60-mil panels will be installed continuing east from the temporary panel on 8/5/16.
- Note: since no permanent LLDPE was installed, and only temporary panels were placed, no repairs or non-destructive testing was conducted on the temporary panels.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/4/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct results for samples DS-29 and DSX-13.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, and 8/3/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-28. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-12. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

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Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/4/16
A3 – Photo Log	Pages 1 – 5	Total of 10 photos outlining pertinent daily observations and descriptions for 8/4/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/4/16
A5 – Subgrade Approval	Sheet 17 & ESI (8/4/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log		NA – no trial welds completed on 8/4/16
A7 – Panel Placement Log		NA – no permanent LLDPE panels on 8/4/16
A8 – Destruct Seam Testing COC	Sheet 3	Updated for destruct samples collected on 8/4/16
A9 – Seam/Non-Destruct. Test Log		NA – no non-destructive testing conducted as no permanent LLDPE panels were installed
A10 – Repair Log	Page 21	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/4/16
A11 – Conformance COC		NA for 8/4/16
A12 – Destructive Seam Field Test	Page 3	Updated with destruct samples collected on 8/4/16
A13 – Destruct. Sample Summary	Page 3	Destruct sample summary updated with samples collected on 8/4/16
A14 – Penetration & Edge Form		NA – No pipe boots / penetrations completed on 8/4/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/4/16
A17 – Spark Test Log		NA – no spark testing conducted on 8/4/16

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PHOTOGRAPHIC LOG
Photo #1 (08/04/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/4/16

Direction Taken:

SA-6 North – Destruct Sample DS-29 (Panel P90 / P91)

Description:

Fusion weld destruct sample DS-29 marked for laboratory analysis along Panel P90 / P91 seam.

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PHOTOGRAPHIC LOG
Photo #2 (08/04/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

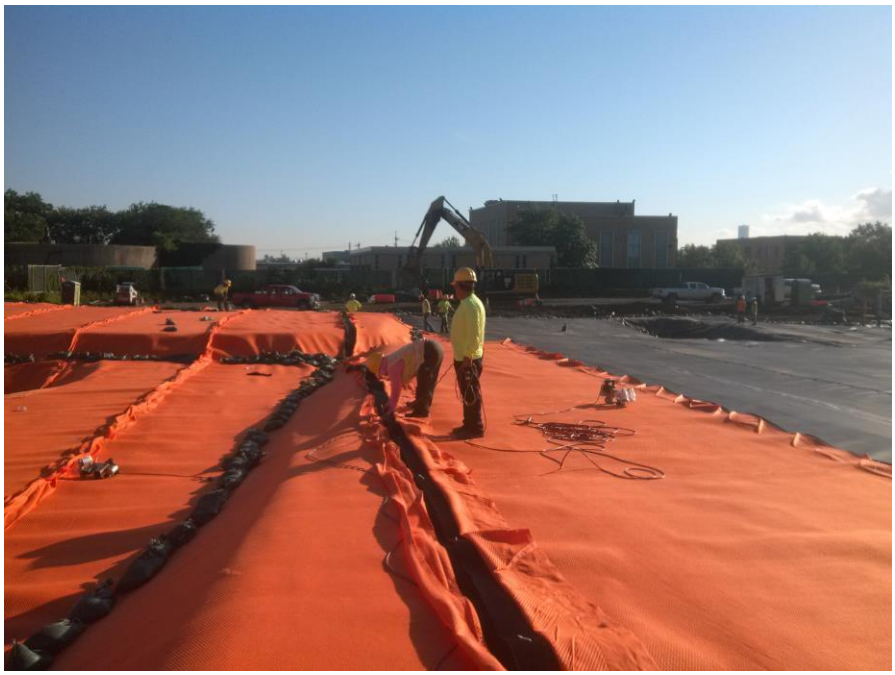
Date:
8/4/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 306+20).

Description:

Orange GDL being deployed across approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft., and top layer of geotextile sewn.



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PHOTOGRAPHIC LOG
Photo #3 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking east across SA-6 from along southern end of cap (approximate Sta. 304+60).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #4 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking south along SA-6 North from approximate center of cap (approximate Sta. 304+60).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #5 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking east / southeast along SA-6 North from approximate center of cap (from approximate Sta. 304+60).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #6 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 304+50).

Description:

ESI deploying GVL over approved soil subgrade. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #7 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 303+75).

Description:

ESI deploying GCL along northern edge of SA-6 North. GCL placed along areas of the cap within 1 ft. of the site water table (approximate El. 7) as shown on the design drawings.

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PHOTOGRAPHIC LOG
Photo #8 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 303+75).

Description:

GCL placed along areas below (to 1 ft. above) the site water table. GCL seams sealed with bentonite and leistered in place.

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PHOTOGRAPHIC LOG
Photo #9 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking north from approximate center of SA-6 North (approximate Sta. 304+40).

Description:

ESI deploying temporary LLDPE geomembrane panels. Temp panels consist of 40 mil LLDPE. Temp panels installed along upper elevation so that permanent panels could be placed along eastern end of site (lower elevation). Temp panels to be removed once new rolls of LLDPE material are received.

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PHOTOGRAPHIC LOG
Photo #10 (08/04/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 304+00).

Description:

Temporary 40-mil LLDPE panels installed up to approximate Sta. 303+75.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/5/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	75/85° F, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1745

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #24**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from the third temporary panel installed on 8/4/16 (approximate Sta. 303+75). Material to be placed from Temp Panel 3 running approximately 60 ft. east to approximate Sta. 303+15.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed moving east through Panel P86 (approximate Sta. 305+80) up to Panel P93 (approximate Sta. 304+60). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/5/16 Photo Log for supporting photographs.
- While GDL was being deployed, a puncture / penetration through the liner was fixed at Panel P36. The penetration was due to work activities outside of SA-6 North, as a grounding rod was driven through the liner. This penetration was recorded as a non-conformance issue, and is identified as Repair R-418 on the *Repair Report.*
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 303+75 (east of temporary panels installed on 8/4/16) to approximate Sta. 303+15. Refer to *Soil Subgrade Approval* forms from 8/5/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 5 to 8 of the daily photo log for 8/5/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

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- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 303+75 (east of temporary panels) moving east to approximate Sta. 303+15. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/5/16 Photo Log for supporting photographs. Note: GVL was placed along the southern end of SA-6 North at areas above the site water table (areas not covered by GCL).
- Additionally, GCL was placed along the northern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included an area along the northern edge of SA-6 North from Sta. 303+75 to Sta. 303+15. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/5/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east of the temporary panels (installed on 8/4/16). The LLDPE panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 303+75 (east of temporary panels) to approximate Sta. 303+15. A total of five panels were installed (P94, P95, P96, P97, and P98). Note: During placement of Panel P96 the LLDPE panel terminated along the southern end of SA-6 North, thus the remaining run of LLDPE was installed as Panel P97. Panels P94, P95, and P98 ran the entire width of SA-6 North (north to south) spanning approximately 235 ft.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, and smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/5/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 303+15, ESI began to conduct non-destructive testing in accordance with the project specifications. Refer to the 8/5/16 *Seam Control Form* for non-destructive testing details.
- ESI conducted repair activities for Panels P94 to P98 (installed on 8/5/16). A total of thirteen repairs (R-418 through R-430) were observed and fixed (according to the project specifications) from Panels P94 through P98. Refer to 8/5/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- ESI also completed the pipe boot construction for Injection Well 088-IW-02. Additional details are provided in the 8/5/16 Pipe Boot Forms. No destruct samples were collected on 8/5/16.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 10 (Sheet #10) – Penetration / puncture through LLDPE geomembrane
    - Penetration / puncture through LLDPE geomembrane from work activities outside of geosynthetic installation. Grounding rod driven through liner. Puncture exposed, and hole patched / repaired as per project specifications and outlined in the non-conformance log.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/5/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, and 8/4/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-29. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-13. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/5/16
A3 – Photo Log	Pages 1 – 8	Total of 15 photos outlining pertinent daily observations and descriptions for 8/5/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/5/16
A5 – Subgrade Approval	Sheet 18 & ESI (8/5/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 7	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/5/16
A7 – Panel Placement Log	Page 13	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/5/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 8/5/16
A9 – Seam/Non-Destruct. Test Log	Page 36	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 8/5/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A10 – Repair Log	Pages 21-22	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/5/16
A11 – Conformance COC		NA for 8/5/16
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 8/5/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 8/5/16
A14 – Penetration & Edge Form	8/15/16 Pipe Boot Form	Pipe boot / penetration form completed for Injection Well 088-IW-02
A16 – Notice of Non-Compliance	8/15/16 Sheet #10	One non-compliance issue identified as “Damage by Others” on Panel P36
A17 – Spark Test Log		NA – no spark testing conducted on 8/5/16

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PHOTOGRAPHIC LOG
Photo #1 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north / northwest from approximate center of SA-6 North (looking at approximate Sta. 305+80).

Description:

ESI deploying GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. and the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 305+70).

Description:

Orange GDL being deployed across approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft., and top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #3 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

SA-6 North – Repair R-418 (Panel P36)

Description:

Small penetration (<1/2”) through LLDPE geomembrane located at Panel P36. Small hole was patched repaired following project specs and recorded on non-conformance log.

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PHOTOGRAPHIC LOG
Photo #4 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

SA-6 North – Panel P36 (Repair R-418)

Description:

Penetration sealed with patch, extrusion weld, and vacuum box tested to confirm seal of weld (vacuum box test passed). Repair activities completed for penetration and recorded as R-418.

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PHOTOGRAPHIC LOG
Photo #5 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 303+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #6 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking east / southeast along SA-6 North (from approximate Sta. 303+75).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #7 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 303+50).

Description:

ESI deploying GCL along northern edge of SA-6 North. GCL placed along areas of the cap within 1 ft. of the site water table (approximate El. 7) as shown on the Design Drawings.

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PHOTOGRAPHIC LOG
Photo #8 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north along southern end of SA-6 North (approximate Sta. 303+50).

Description:

GCL being placed along northern end of cap at areas below (to 1 ft. above) the site water table. GCL seams sealed with bentonite and leistered in place.

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PHOTOGRAPHIC LOG
Photo #9 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking south from approximate center of SA-6 North (approximate Sta. 303+40).

Description:

ESI deploying GVL along southern end of SA-6 North (areas greater than 1 ft. above the site groundwater table). GVL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #10 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north along northern end of SA-6 North (approximate Sta. 303+40)

Description:

GCL deployed along northern end of SA-6 North. GVL overlapping GCL by 1 ft. and leistered in place.

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PHOTOGRAPHIC LOG
Photo #11 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 303+75)

Description:

ESI deploying LLDPE geomembrane over GVL / GCL.

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PHOTOGRAPHIC LOG
Photo #12 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

SA-6 North – Panel P94 / P95 seam

Description:

ESI conducting non-destructive testing (pressure testing) along Panel P94 / P95 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #13 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

SA-6 North – Panel P94

Description:

ESI conducting repair activities along Panel P94 (Repair R-423).

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PHOTOGRAPHIC LOG
Photo #14 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

SA-6 North – Injection Well 088-IW-02

Description:

ESI completing boot penetration for Injection Well 088-IW-02 located on Panel P97.

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PHOTOGRAPHIC LOG
Photo #15 (08/05/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/5/16

Direction Taken:

Looking north across SA-6 North

Description:

LLDPE geomembrane installed up to Panel P98 (approximate Sta. 303+15).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/8/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	85/95° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1215

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #25**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P98 installed on 8/5/16 (approximate Sta. 303+15). Material to be placed from Panel P98 running approximately 45 ft. east to approximate Sta. 302+70.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI completing vacuum box testing for repairs from Panels P94 to P98 (installed on 8/5/16). Additionally, two destruct samples were collected. One fusion weld destruct sample – DS-30 was collected from Panel P97 / P98, and one extrusion weld sample DSX-14 was collected from Panel P98 (Repair R-430).
- ESI deployed the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed moving east through Panel P93 and up to the temporary panels (installed on 8/4/16). Approximately 2 rolls of GDL were placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/8/16 Photo Log for supporting photographs.
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 303+15 (east of Panel P98 installed on 8/5/16) to approximate Sta. 302+70. Refer to *Soil Subgrade Approval* forms from 8/8/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.
- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile

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was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 303+15 (east of Panel P98) moving east to approximate Sta. 302+70. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/8/16 Photo Log for supporting photographs. Note: GVL was placed along the southern end of SA-6 North at areas above the site water table (areas not covered by GCL).

- Additionally, GCL was placed along the northern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included an area along the northern edge of SA-6 North from approximate Sta. 303+15 to Sta. 302+70. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/8/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east Panel P98 (installed on 8/5/16). The LLDPE panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 303+15 (east of Panel P98) to approximate Sta. 302+70. A total of two panels were installed (P99 and P100). Panels P99 and P100 ran the entire width of SA-6 North (north to south) spanning approximately 238 ft.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/8/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 302+70, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/8/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P99 and P100 (installed on 8/8/16) as outlined below.
- ESI conducted repair activities for Panels P99 and P100 (installed on 8/8/16). A total of seven repairs (R-431 through R-437) were observed and fixed (according to the project specifications) from Panels P99 to P100. Refer to 8/8/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs). These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.

Non-Conformance Items / Corrective Actions

- None Encountered

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/8/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DS-30 and DSX-14.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, and 8/5/16. ESI Forms still to be reviewed.

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- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-29. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-13. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/8/16
A3 – Photo Log	Pages 1 – 3	Total of 5 photos outlining pertinent daily observations and descriptions for 8/8/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/8/16
A5 – Subgrade Approval	Sheet 19 & ESI (8/8/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 7	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/8/16
A7 – Panel Placement Log	Page 13	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/8/16
A8 – Destruct Seam Testing COC	Sheet 4	Updated for destruct samples collected on 8/8/16
A9 – Seam/Non-Destruct. Test Log	Page 37	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 8/8/16
A10 – Repair Log	Page 22	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/8/16
A11 – Conformance COC		NA for 8/8/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A12 – Destructive Seam Field Test	Page 4	Updated with destruct samples collected on 8/8/16
A13 – Destruct. Sample Summary	Page 4	Destruct sample summary updated with samples collected on 8/8/16
A14 – Penetration & Edge Form		NA – no penetrations / pipe boots completed on 8/8/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues encountered on 8/8/16
A17 – Spark Test Log		NA – no spark testing conducted on 8/8/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

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PHOTOGRAPHIC LOG
Photo #1 (08/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/8/16

Direction Taken:

SA-6 North – Destruct Sample DSX-14

Description:

Extrusion weld destruct sample DSX-14 to be cut from Panel P98, Repair R-430. Sample DSX-14 listed as Repair R-432 on Repair Report.

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PHOTOGRAPHIC LOG
Photo #2 (08/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/8/16

Direction Taken:

SA-6 North – Destruct Sample DS-30

Description:

Fusion weld destruct sample DS-30 to be cut from Panel P97 / P98 seam for laboratory analysis.

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PHOTOGRAPHIC LOG
Photo #3 (08/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/8/16

Direction Taken:

Looking north along SA-6 (approximate Sta. 304+60).

Description:

ESI deploying two panels of orange GDL over approved LLDPE geomembrane. GDL placed up to temporary panels installed 8/4/16. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #4 (08/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/8/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 303+00).

Description:

GCL placed along the northern end of SA-6 North for areas below (to 1 ft. above) the water table. GVL placed at areas above the water table as per project specifications.

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PHOTOGRAPHIC LOG
Photo #5 (08/08/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/8/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 303+00).

Description:

GVL and GCL deployed over soil subgrade. GVL overlapping GCL by 1 ft.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/9/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	85/90° F, Clear
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1800

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #26**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale Novalis
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P100 installed on 8/8/16 (approximate Sta. 302+70). Material to be placed from Panel P100 running approximately 100 ft. east to approximate Sta. 301+70.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane. GDL was placed from Panel P94 (approximate Sta. 303+75), moving east through Panel P97 (approximate Sta. 303+15). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/9/16 Photo Log for supporting photographs.
- While GDL was being deployed, ESI also collected two destruct samples for laboratory analysis. Two fusion weld destruct samples – DS-31 was collected from Panel P79 / P80 and DS-32 was collected from Panel P86 / P87. These additional samples were collected to supplement the destruct sample data previously collected beyond failed destruct sample DS-26. DS-31 and DS-32 were collected between the destruct samples collected at 1,500 LF to provide additional sample information.
- Following the deployment of GDL, Langan and Entact conducted soil subgrade approval from approximate Sta. 302+70 (Panel P100 installed on 8/8/16) to approximate Sta. 301+70. Refer to *Soil Subgrade Approval* forms from 8/9/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". Refer to Photos 9 to 12 of the daily photo log for 8/9/2016, for supporting subgrade photos. The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

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By: Dan Bosworth

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- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 302+70 (east of Panel P100) moving east to approximate Sta. 301+70. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/9/16 Photo Log for supporting photographs.
- Additionally, GCL was placed along the northern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs), which included an area along the northern edge of SA-6 North from approximate Sta. 302+70 to Sta. 301+70. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/9/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east from Panel P100 (installed on 8/8/16) and moving east. The panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 302+70 (Panel P100) to approximate Sta. 301+70. A total of six panels were installed (P101, P102, P103, P104, P105, and P106). Note: During placement of Panel P101 the roll of LLDPE terminated near the southern end of SA-6 North, thus the remaining run of LLDPE was installed as P102. Similarly, during placement of Panel P104, the roll of LLDPE terminated near the northern end of SA-6 North and the remaining run of LLDPE was installed as P105. Panels P103 and P106 ran the entire width of SA-6 North (approx. 235 ft.) from north to south.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test) for each weld. The results of the pre-trial weld are provided in the 8/9/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 301+70, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/9/16 *Seam Control Form* for pressure testing details. Additionally, repair activities were conducted for Panels P100 to P106 (installed on 8/9/16)
- ESI conducted repair activities for Panels P100 to P106 (installed on 8/9/16). A total of eight repairs (R-438 through R-445) were observed and fixed (according to the project specifications) from Panels P100 through P106. Refer to 8/9/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds. Repair activities for Panels P100 to P106 to be completed on 8/10/16.
- ESI also conducted spark testing for seven pipe boots / penetrations total. Prior to spark testing, Entact conducted methane testing prior to spark testing and a concentration of 0.0% was measured at each location. Spark testing was completed for Extraction Pump Sta. 2, Gas Vent GV-2, Utility Corridor Drain Pipe, Injection Well 088-IW-02, and Injection Well 088-IW-03. The vertical welds and base of the boots were tested and no sparks were observed (thus the spark tests passed). During spark testing of Piezometer PZ4 and Well 115-E5-SO,a spark was observed during testing as the spark was able to arc to the wire through a section of vertical weld. Area was re-grinded, rewelded, and retested on 8/9/16 and spark retest passed.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 11 (Sheet #11) – Failed spark test along vertical weld of Piezometer PZ4
    - Failed spark test identified during spark testing of Piezometer PZ4. Spark able to arc to wire through section of vertical weld (thin weld). Weld to be grinded, re-welded, and re-tested on 8/9.

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By: Dan Bosworth

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Non-Conformance Items / Corrective Actions (continued)

- Non-Conformance No. 12 (Sheet #12) – Failed spark test along vertical weld of Well 115-E5-SO
    - Failed spark test identified during spark testing of Well 115-E5-SO. Spark able to arc to wire through section of vertical weld (thin weld). Weld to be grinded, re-welded, and re-tested on 8/9.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/9/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DS-31 and DS-32.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, and 8/8/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-30. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-14. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/9/16
A3 – Photo Log	Pages 1 – 9	Total of 17 photos outlining pertinent daily observations and descriptions for 8/9/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/9/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A5 – Subgrade Approval	Sheet 20 & ESI (8/9/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 7-8	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/9/16
A7 – Panel Placement Log	Pages 13 - 14	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/9/16
A8 – Destruct Seam Testing COC	Sheet 4	Updated for destruct samples collected on 8/9/16
A9 – Seam/Non-Destruct. Test Log	Pages 37-38	One seam control form provided by ESI and confirmed by Langan for air pressure testing conducted on 8/9/16
A10 – Repair Log	Pages 22-23	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/9/16
A11 – Conformance COC		NA for 8/9/16
A12 – Destructive Seam Field Test	Page 4	Updated with destruct samples collected on 8/9/16
A13 – Destruct. Sample Summary	Page 4	Destruct sample summary updated with samples collected on 8/9/16
A14 – Penetration & Edge Form		NA – No pipe boots / penetrations completed on 8/9/16
A16 – Notice of Non-Compliance	Sheet 11 & 12 (8/9/16)	Two non-compliance issues identified for failed spark tests on 8/9/16
A17 – Spark Test Log	8/9/16 Spark Test Logs	Seven spark test logs conducted for Extraction Pump Sta. 2 Manhole, Gas Vent GV-2, Piezometer PZ4, Utility Corridor Drain Pipe, Injection Well 088-IW-02, Injection Well 088-IW-03, and Well 115-E5-SO

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PHOTOGRAPHIC LOG
Photo #1 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Destruct Samples DS-31 and DS-32

Description:

Fusion weld destruct sample DS-31 cut from Panel P79 / P80 seam and fusion weld destruct sample DS-32 cut from Panel P86 / P87 seam for laboratory analysis

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PHOTOGRAPHIC LOG
Photo #2 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking south along SA-6 (approximate Sta. 303+75)

Description:

ESI deploying panels of orange GDL over approved LLDPE geomembrane. GDL placed from Panel P94 moving east through Panel P97 (installed on 8/5/16). GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #3 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Gas Vent GV-2

Description:

ESI conducting spark testing for Gas Vent GV-2. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted and no sparks were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #4 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Piezometer PZ-4

Description:

ESI conducting spark testing for Piezometer PZ4. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted. A spark was observed during testing and the area was grinded, rewelded, and retested and the spark retest passed.

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PHOTOGRAPHIC LOG
Photo #5 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Extraction Pump Station 2

Description:

ESI conducting spark testing for Extraction Pump Station 2. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted and no sparks were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #6 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Injection Well 088-IW-03

Description:

ESI conducting spark testing for Injection Well 088-IW-03. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted and no sparks were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #7 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Horizontal Drain Plug

Description:

ESI conducting spark testing for Horizontal Drain Plug. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted and no sparks were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #8 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North – Injection Well 088-IW-02

Description:

ESI conducting spark testing for Injection Well 088-IW-02. Prior to spark testing, methane testing was conducted and yielded a concentration of 0.0%, thus spark testing was conducted and no sparks were observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #9 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking east along SA-6 North from approximate center of cap (from approximate Sta. 302+70)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #10 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking south along SA-6 North from approximate center of cap (approximate Sta. 302+70)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #11 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (from approximate Sta. 302+70)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #12 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking north / northeast along northern end of SA-6 North (approximate Sta. 302+70)

Description:

ESI deploying GCL along northern edge of SA-6 North. GCL placed along areas of the cap within 1 ft. of the site water table (approximate El. 7) as shown on the design drawings.

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PHOTOGRAPHIC LOG
Photo #13 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking east along northern end of SA-6 North (toward approximate Sta. 301+70)

Description:

GCL placed along areas below (to 1 ft. above) the site water table. GCL seams sealed with bentonite and leistered in place.

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PHOTOGRAPHIC LOG
Photo #14 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking south / southeast from approximate center of SA-6 North (approximate Sta. 302+20)

Description:

ESI deploying GVL along southern end of SA-6 North (areas greater than 1 ft. above the site groundwater table). GVL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #15 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking north from approximate center of SA-6 North (approximate Sta. 301+70)

Description:

ESI deploying LLDPE geomembrane over GVL / GCL.

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PHOTOGRAPHIC LOG
Photo #16 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

Looking south from approximate center of SA-6 North (approximate Sta. 301+70)

Description:

LLDPE geomembrane installed up to Panel P106 (approximate Sta. 301+70).

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PHOTOGRAPHIC LOG
Photo #17 (08/09/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/9/16

Direction Taken:

SA-6 North Panel P103 / P104 /P105

Description:

ESI conducting non-destructive testing (pressure testing) along Panel P103 / P104 /P105 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/10/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	82/88° F, Overcast
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1315

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #27**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE) for area previously covered by temporary panels (area east of Panel P93). Temporary panels were removed, and new LLDPE was placed from Panel P93 (approximate Sta. 304+60) running approximately 85 ft. east to approximate Sta. 303+75 (subgrade previously approved on 8/4/16).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI continuing with repair activities for Panels P100 to P106 (installed on 8/9/16). The repairs were patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications. Additional details are outlined on the 8/10/16 *Repair Report.*
- ESI also collected two destruct samples from Panels P100 to P106 (installed on 8/9/16) for laboratory analysis. One fusion weld destruct samples – DS-33 was collected from Panel P104 / P106 and one extrusion weld destruct sample – DSX-15 was collected from Repair R-445 (Panel P104 / P106).
- While repair / vacuum box activities were being conducted ESI removed the temporary panels from approximate Sta. 304+60 to approximate Sta. 303+75 which were previously installed on 8/4/16. Note: soil subgrade approval for this area was also completed on 8/4/16 prior to the temporary panel placement. 16 oz. geotextile and GVL were also placed on 8/4/16 following subgrade approval.
- LLDPE geomembrane was installed continuing east from Panel P93 (installed on 8/4/16) up to Panel P94 (installed on 8/5/16). The new LLDPE panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 304+60 (east of Panel P93) to approximate Sta.303+75 (Panel P94) . A total of four panels were installed (P107, P108, P109, and P110). Note: During placement of Panel P109 the roll of LLDPE terminated near the northern end of SA-6 North, thus the remaining run of LLDPE was installed as P110. Panels P107 and P108 ran the entire width of SA-6 North (approximately 233 ft.) from north to south.

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By: Dan Bosworth

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- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture, smooth to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing for each weld (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/10/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 303+75, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/10/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P107 to P110 (installed on 8/10/16)
- ESI conducted repair activities for Panels P107 to P110 (installed on 8/10/16), along with the repair activities for Panels P100 to P106 (installed on 8/9/16). A total of twenty-two repairs (R-446 through R-467) were observed and fixed (according to the project specifications). Refer to 8/10/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- ESI also completed pipe boot / penetrations for Gas Vent GV-1 and Well 115-E4-SO. Additional details are provided in the 8/10/16 Pipe Boot Construction Logs.
- One fusion weld sample – DS-34 was also collected from Panels P107 to P110 (installed on 8/11/16) from Panel P94 / P110 seam for laboratory analysis.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 13 (Sheet #13) – Subgrade irregularity identified as R-457 on *Repair Log*
    - Stone identified underneath LLDPE geomembrane located on Panel P107 / P108. Stone was subsequently removed, and hole was patched / repaired following project specs as further described in *Sheet 13 Notice of Non-Compliance.*

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/10/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DS-33, DS-34, and DSX-15.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, 8/8/16, and 8/9/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-32. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-14. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

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By: Dan Bosworth

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Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/10/16
A3 – Photo Log	Pages 1 – 4	Total of 8 photos outlining pertinent daily observations and descriptions for 8/10/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/10/16
A5 – Subgrade Approval		NA – no subgrade approval for 8/10/16. Subgrade previously approved on 8/4/16 prior to temp panel placement
A6 – Trial Weld Log	Page 8	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/10/16
A7 – Panel Placement Log	Pages 14 - 15	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/10/16
A8 – Destruct Seam Testing COC	Sheet 4	Updated for destruct samples collected on 8/10/16
A9 – Seam/Non-Destruct. Test Log	Pages 39-40	One seam control form provided by ESI and confirmed by Langan for pressure testing conducted on 8/10/16
A10 – Repair Log	Pages 23-24	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/10/16
A11 – Conformance COC		NA for 8/10/16
A12 – Destructive Seam Field Test	Page 4	Updated with destruct samples collected on 8/10/16
A13 – Destruct. Sample Summary	Page 4	Destruct sample summary updated with samples collected on 8/10/16
A14 – Penetration & Edge Form	8/10/16 Pipe Boot Forms	Pipe boots for Gas Vent GV-1 and Well 115-E4-SO completed on 8/10/16
A16 – Notice of Non-Compliance	Sheet 13	Subgrade irregularity identified as non-compliance issue on 8/10/16
A17 – Spark Test Log		NA – no spark testing conducted on 8/10/16

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PHOTOGRAPHIC LOG
Photo #1 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/10/16

Direction Taken:

SA-6 North – Destruct Sample DS-33

Description:

Fusion weld destruct sample to be collected from Panel Seam P104 / P106 (installed on 8/9/16), for laboratory analysis.

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PHOTOGRAPHIC LOG
Photo #2 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/10/16

Direction Taken:

SA-6 North – Destruct Sample DSX-15

Description:

Extrusion weld destruct sample DSX-15 collected from Repair R-445 located on Panel P104 / P106 seam. Sample location patched, sealed with extrusion weld, and vacuum box tested.

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PHOTOGRAPHIC LOG
Photo #3 (08/10/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/10/16

Direction Taken:

SA-6 North – Panel Seam P102 / P103 / P104

Description:

ESI conducting repair activities for seam joint at Panel P102 / P103 / P104 (panels installed on 8/9/16).

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PHOTOGRAPHIC LOG
Photo #4 (08/10/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/10/16

Direction Taken:

Looking south along SA-6 (approximate Sta. 304+60)

Description:

ESI deploying new panels of LLDPE east of Panel P93. Temporary panels removed and new LLDPE panels installed.

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PHOTOGRAPHIC LOG
Photo #5 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/10/16

Direction Taken:

Looking south along SA-6 North from southern end of cap (approximate Sta. 304+60)

Description:

ESI conducting fusion welding along Panel Seam P93 and Panel P107 (new LLDPE panel replaced temporary panel).

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PHOTOGRAPHIC LOG
Photo #6 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/10/16

Direction Taken:

SA-6 North – Panel Seam P93 / P107

Description:

ESI conducting non-destructive testing (pressure testing) along Panel P93 / P107 seam. Seam pressurized to 30 psi and held for 5 minutes with less than 4 psi loss.

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PHOTOGRAPHIC LOG
Photo #7 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/10/16

Direction Taken:

SA-6 North – Panel P110 (approx. Sta. 303.75)

Description:

ESI conducting custom fit repairs along Panel P110.

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PHOTOGRAPHIC LOG
Photo #8 (08/10/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/4/16

Direction Taken:

SA-6 North – Panel P110

Description:

ESI conducting custom fit repairs along Panel P110.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/11/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	85/90° F, Overcast, Humid, Iso. Storms
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1715

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #28**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P106 installed on 8/9/16 (approximate Sta. 301+70). Material to be placed from Panel P106 running approximately 45 ft. east to approximate Sta. 301+25.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI conducting vacuum box testing and "Add On" repair activities for Panels P94 to P104. ESI completed Add On repairs along the southern end of SA-6 North. Additional LLDPE was installed so that the cap extended a minimum of 1 ft. beyond the edges of the SCB wall. These repairs were recorded and documented on the 8/11/16 *Repair Report.*
- Following repair activities, ESI placed geocomposite drainage layer (GDL) continuing east of Panel P93. GDL was placed over Panels P107 to P110 (installed on 8/10/16) from approximate Sta. 304+60 to approximate Sta. 303+75. GDL was placed according to the project specs with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.
- Prior to soil subgrade approval, the edge of Panel P106 (installed on 8/9/16) was pulled back to expose the underlying GCL layer. A small portion of the GCL had become saturated due to overnight storms. The saturated GCL was cut and exposed to dry the GCL and soil subgrade. A new piece of GCL was then installed over the saturated GCL, secured with bentonite, and leistered in place. See Photos 6 & 7 in 8/11/6 *Photograph Log.*
- Following the GCL activities, Langan and Entact conducted soil subgrade approval from approximate Sta. 301+70 (east of Panel P106 installed on 8/9/16) to approximate Sta. 301+25. Refer to *Soil Subgrade Approval* forms from 8/11/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 301+75 (east of Panel P106) moving east to approximate Sta. 301+25. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/11/16 Photo Log for supporting photographs. Note: GVL was placed along the southern end of SA-6 North at areas above the site water table (areas not covered by GCL).
- Additionally, GCL was placed along the northern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included an area along the northern edge of SA-6 North from approximate Sta. 301+75 to Sta. 301+25. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/11/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east Panel P106 (installed on 8/9/16). The LLDPE panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 301+75 (east of Panel P106) to approximate Sta. 301+25. A total of two panels were installed (P111 and P112). Panels P111 and P112 ran the entire width of SA-6 North (north to south) spanning approximately 237 ft.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/11/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 301+25, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/11/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P111 and P112 (installed on 8/11/16)
- ESI completed repair activities for Panels P94 to P104 (Add On repairs along southern end of the cap) and Panels P111 & P112 (installed on 8/11/16). A total of twenty-one repairs (R-468 through R-485 and R-495 to R-497) were observed and fixed (according to the project specifications). Refer to the 8/11/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- No destruct samples collected on 8/11/16.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/11/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

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By: Dan Bosworth

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, 8/8/16, 8/9/16, and 8/10/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-34. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-15. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/11/16
A3 – Photo Log	Pages 1 – 8	Total of 16 photos outlining pertinent daily observations and descriptions for 8/11/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/11/16
A5 – Subgrade Approval	Sheet 21 & ESI (8/11/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 8	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/11/16
A7 – Panel Placement Log	Page 15	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/11/16
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 8/11/16
A9 – Seam/Non-Destruct. Test Log	Pages 40-42	One seam control form provided by ESI and confirmed by Langan for pressure testing conducted on 8/11/16
A10 – Repair Log	Pages 24-25	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/11/16

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By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A11 – Conformance COC		NA for 8/11/16
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 8/11/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 8/11/16
A14 – Penetration & Edge Form		NA – No pipe boots / penetrations completed on 8/11/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/11/16
A17 – Spark Test Log		NA – no spark testing conducted on 8/11/16

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By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking west along southern end of SA-6 North

Description:

ESI completing “Add On” repairs along southern end of SA-6 North. Additional LLDPE added for cap to extend minimum of 1 ft. beyond edge of SCB wall.

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PHOTOGRAPHIC LOG
Photo #2 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking west along southern edge of SA-6 North

Description:

Add on panels installed via fusion welding. Repairs recorded on repair report, and seams pressure tested (as per project specs).

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PHOTOGRAPHIC LOG
Photo #3 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

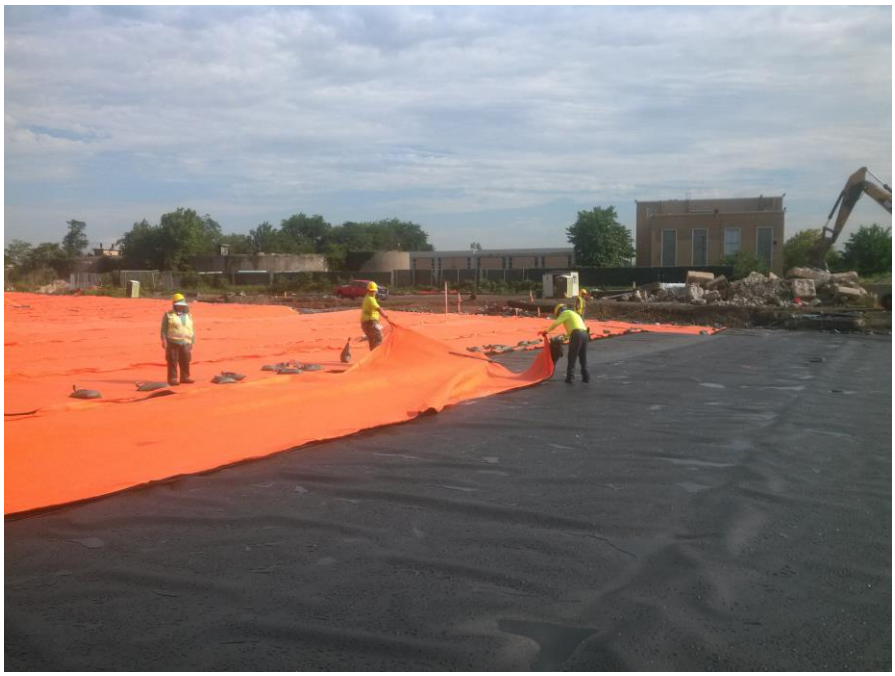
Date:
8/11/16

Direction Taken:

Looking north / northwest along SA-6 North (approximate Sta. 304+60)

Description:

ESI deploying GDL over approved LLDPE geomembrane (Panels P107 to P110 installed on 8/10/16). GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.



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PHOTOGRAPHIC LOG
Photo #4 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 304+20)

Description:

ESI installing GDL with white plastic fasteners spaced at a maximum of 5 ft. Top layer of geotextile to be sewn.

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PHOTOGRAPHIC LOG
Photo #5 (08/11/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/11/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 303+95)

Description:

ESI deploying orange GDL over Panels P107 to P110. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #6 (08/11/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/11/16

Direction Taken:

Looking north along edge of Panel P106 (approximate Sta. 301+70)

Description:

Edge of GCL under Panel P106 previously installed on 8/9/16. Small portion of GCL saturated from rainstorm. Area of GCL exposed to dry. Additional piece of GCL to be placed over saturated area (once dry).

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PHOTOGRAPHIC LOG
Photo #7 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking north along edge of Panel P106 (approximate Sta. 301+70)

Description:

Additional piece of GCL installed over GCL previously saturated. Edges of piece leisterd in place and sealed with bentonite.

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PHOTOGRAPHIC LOG
Photo #8 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 301+70).

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #9 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking south from approximate center of SA-6 North (approximate Sta. 301+70)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #10 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 301+70)

Description:

ESI deploying GCL for areas below (to 1 ft. above) the site water table. GCL installed along northern end of cap. Seams sealed with granular bentonite and leisterd in place.

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PHOTOGRAPHIC LOG
Photo #11 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking south along SA-6 North (from approximate Sta. 301+70).

Description:

GCL deployed along northern end of cap as shown on design drawings.

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PHOTOGRAPHIC LOG
Photo #12 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 301+25).

Description:

GVL deployed along southern end of cap at areas above the site water table. GVL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #13 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

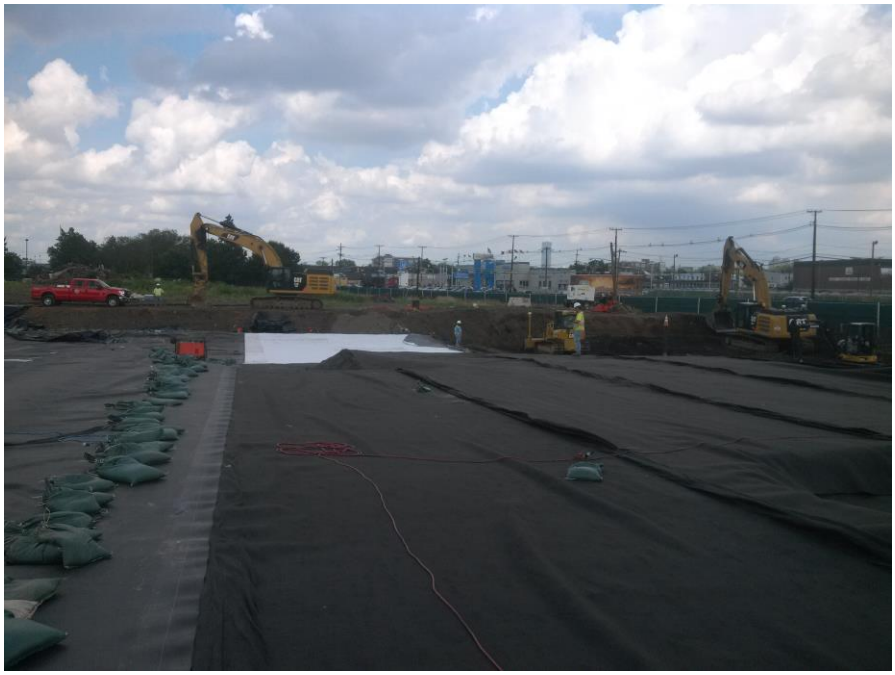
Date:
8/11/16

Direction Taken:

Looking north across SA-6 North (from approximate Sta. 301+70).

Description:

GCL and GVL installed and ready for LLDPE panel placement.



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PHOTOGRAPHIC LOG
Photo #14 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

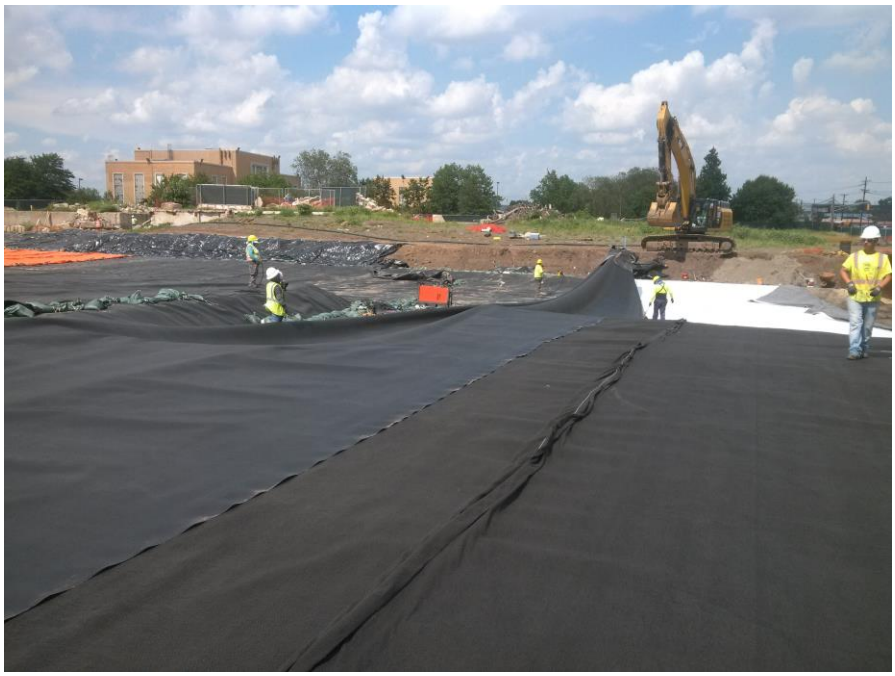
Date:
8/11/16

Direction Taken:

Looking north / northwest across SA-6 North (from approximate Sta. 301+40).

Description:

LLDPE geomembrane being installed over GCL and GVL.



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PHOTOGRAPHIC LOG
Photo #15 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

SA-6 North – Panel P106 / P111 seam

Description:

ESI conducting fusion welding along Panel P106 / P111 seam.

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PHOTOGRAPHIC LOG
Photo #16 (08/11/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/11/16

Direction Taken:

SA-6 North – Repair R-481 (Panel P111 / P112)

Description:

ESI conducting repair activities along Panel P111 and P112 (installed on 8/11/16).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.	**DATE:**	8/12/2016
PROJECT:	SA-6 North Capping		**WEATHER:**	85/98° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement	**TIME:**	0645 – 1730

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #29**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P112 installed on 8/11/16 (approximate Sta. 301+25). Material to be placed from Panel P112 running approximately 45 ft. east to approximate Sta. 300+80.
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI deploying orange geocomposite drainage layer (GDL) continuing east from Panel P98. GDL was placed over Panels P99 to P106 (installed on 8/8/16 and 8/9/16) from approximate Sta. 303+15 (Panel P99) to approximate Sta. 301+70 (Panel P106). GDL was placed according to the project specs with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.
- While GDL was being deployed ESI also conducted vacuum box testing and minor repairs for Panels P111 and P112 (installed on 8/11/16). Additional details are provided in the 8/12/16 *Repair Report.*
- ESI also completed spark testing for Gas Vent GV-1 and Well 115-E4-SO. Prior to spark testing, methane testing was completed by AmecFW and a concentration of 0.0% was measured for both boots. Spark testing was then completed for Gas Vent GV-1 along the base of the boot and vertical weld and no sparks were observed (spark test passed). During spark testing of Well 115-E4-SO a spark was observed along the edge of the vertical weld as the extrusion weld was not centered over the copper wire. This area was marked by ESI, grinded, re-welded, and retested. No sparks were observed during the spark retest thus the retest passed.
- Prior to soil subgrade approval, the edge of Panel P112 (installed on 8/11/16) was pulled back to expose the underlying GCL layer. A small portion of the GCL had become saturated due to overnight storms. The saturated GCL was cut and exposed to dry the GCL and soil subgrade. A new piece of GCL was then installed over the saturated GCL, secured with bentonite, and leistered in place.
- Following the GCL activities, Langan and Entact conducted soil subgrade approval from approximate Sta. 301+25 (east of Panel P112 installed on 8/11/16) to approximate Sta. 300+80. Refer to *Soil Subgrade Approval* forms from 8/12/16 for additional details.

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During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any loose material greater than ½". The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 301+25 (east of Panel P112) moving east to approximate Sta. 300+80. GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/12/16 Photo Log for supporting photographs. Note: GVL was placed along the southern end of SA-6 North at areas above the site water table (areas not covered by GCL).
- Additionally, GCL was placed along the northern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included an area along the northern edge of SA-6 North from approximate Sta. 301+25 to approximate Sta. 300+80. GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/12/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east of Panel P112 (installed on 8/12/16). The LLDPE panels were oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 301+25 (east of Panel P112) to approximate Sta. 300+80. A total of two panels were installed (P113 and P114). Panels P113 and P114 ran the entire width of SA-6 North (north to south) spanning approximately 233 ft.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each weld). The results of the pre-trial weld are provided in the 8/12/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 300+80, ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/12/16 *Seam Control Form* for non-destructive testing details. Additionally, repair activities were conducted for Panels P113 and P114 (installed on 8/12/16)
- ESI completed repair activities for Panels P113 to P114 (installed on 8/12/16). A total of seven repairs (R-486 through R-489 and R-492, R-493, and R-494) were observed and fixed (according to the project specifications). Refer to the 8/12/16 *Repair Report* for additional details. Repairs were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- ESI also completed pipe boot / penetrations for Access Manhole Sta. 18+00 and Injection Well 088-IW-01. Additional details are provided in the 8/12/16 Pipe Boot Forms.
- No destruct samples collected on 8/12/16.

Non-Conformance Items / Corrective Actions

- Non-Conformance No. 14 (Sheet #14) – Failed spark test along vertical weld of Well 115-E4-SO
    - Failed spark test identified during spark testing of Well 115-E4-SO. Spark observed along edge of extrusion weld (weld not centered over wire). Area was grinded, rewelded, and retested and no sparks were observed during spark retest (spark retest passed).

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Action Items – Pending

- Complete Daily Report and Photo Log (for 8/12/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, 8/8/16, 8/9/16, 8/10/16, and 8/11/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-34. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-15. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/12/16
A3 – Photo Log	Pages 1 – 8	Total of 16 photos outlining pertinent daily observations and descriptions for 8/12/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/12/16
A5 – Subgrade Approval	Sheet 22 & ESI (8/12/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Pages 8-9	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/12/16
A7 – Panel Placement Log	Page 15	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/12/16

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A8 – Destruct Seam Testing COC		NA – no destruct samples collected on 8/12/16
A9 – Seam/Non-Destruct. Test Log	Pages 42-43	One seam control form provided by ESI and confirmed by Langan for pressure testing conducted on 8/12/16
A10 – Repair Log	Page 25	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/12/16
A11 – Conformance COC		NA for 8/12/16
A12 – Destructive Seam Field Test		NA – no destruct samples collected on 8/12/16
A13 – Destruct. Sample Summary		NA – no destruct samples collected on 8/12/16
A14 – Penetration & Edge Form	8/12/16 Pipe Boot Forms	Pipe boots / penetrations completed for Access Manhole Sta. 18+00 and Injection Well 088-IW-01
A16 – Notice of Non-Compliance	Sheet 14	One failed spark test for Well 115-E4-SO identified on 8/12/16
A17 – Spark Test Log	8/12/16 Spark Test Logs	Spark testing for Gas Vent GV-1 and Well 115-E4-SO completed on 8/12/16

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PHOTOGRAPHIC LOG
Photo #1 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 302+70)

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #2 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

SA-6 North (northern end of SA-6 North) Repair R-480

Description:

ESI conducting vacuum box testing activities for repairs completed on 8/11/16 for Panels P111 and P112 (installed on 8/11/16).

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PHOTOGRAPHIC LOG
Photo #3 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

SA-6 North – Gas Vent GV-1

Description:

ESI conducting spark testing for Gas Vent GV-1. Base of boot and vertical weld was tested and no sparks were observed. Spark test passed.

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PHOTOGRAPHIC LOG
Photo #4 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

SA-6 North – Well 115-E4-SO

Description:

Entact measuring methane concentration for Well 115-E4-SO prior to spark testing. Concentration of 0.0% measured underneath boot.

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PHOTOGRAPHIC LOG
Photo #5 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

SA-6 North – Well 115-E4-SO

Description:

ESI conducting spark testing along vertical weld at Well 115-EI-SO. Spark identified during testing of the vertical seam (extrusion bead off-center of boot). Area was grinded, rewelded, and re-tested and spark retest passed.

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PHOTOGRAPHIC LOG
Photo #6 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

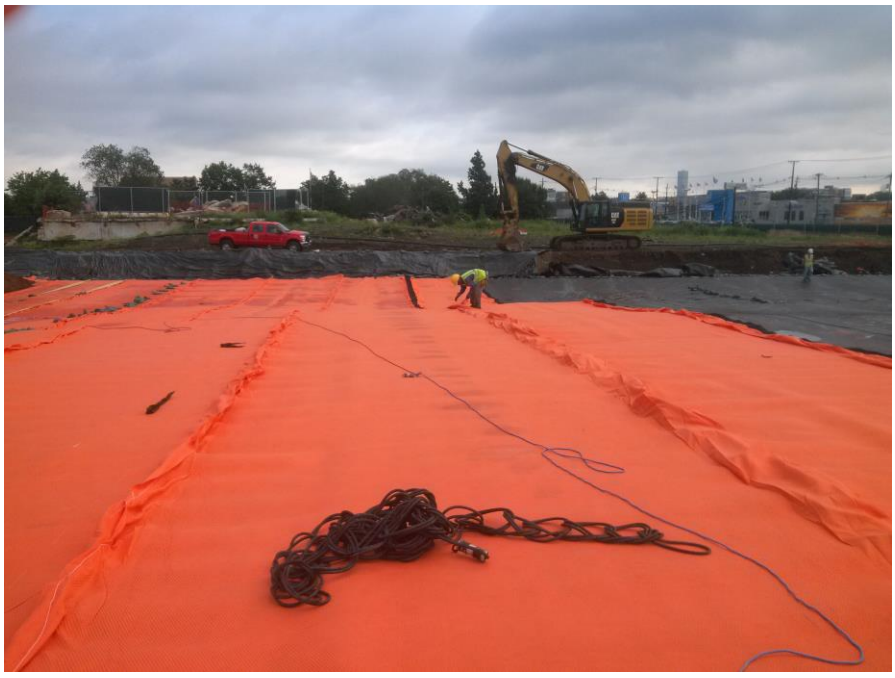
Date:
8/12/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 302+00)

Description:

Orange GDL deployed up to Panel P106 (approximate Sta. 301+70). GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with top layer of geotextile sewn.



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PHOTOGRAPHIC LOG
Photo #7 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north along Panel P112 (approximate Sta. 301+25)

Description:

Edge of Panel P112 (installed on 8/11/6) pulled back to expose GCL. Small area of GCL saturated from overnight rain. GCL cut, exposed, and left to dry. Additional piece of GCL to be installed over saturated area.

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PHOTOGRAPHIC LOG
Photo #8 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 301+25)

Description:

Entact applying calcium cement to solidify soil subgrade. Area around GCL reworked and re-compacted to project specs.

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PHOTOGRAPHIC LOG
Photo #9 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north from approximate center of SA-6 North (approximate Sta. 301+25)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #10 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking south across SA-6 North (approximate Sta. 301+25)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #11 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north / northeast from southern end of cap (approximate Sta. 301+25)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2”).

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PHOTOGRAPHIC LOG
Photo #12 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 301+00).

Description:

ESI deploying GCL for areas below (to 1 ft. above) the site water table. GCL secured with granular bentonite and leistered in place.

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PHOTOGRAPHIC LOG
Photo #13 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north along SA-6 North from approximate center of cap (approximate Sta. 300+80)

Description:

ESI deploying GVL over southern end of SA-6 North (areas above the site water table) and GCL along northern end of cap (areas below to 1 ft. above site water table).

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PHOTOGRAPHIC LOG
Photo #14 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 301+25)

Description:

ESI deploying LLDPE geomembrane over GVL and GCL.

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PHOTOGRAPHIC LOG
Photo #15 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

Looking north / northeast along SA-6 North (toward approximate Sta. 301+00)

Description:

LLDPE geomembrane Panels P113 and P114 installed up to approximate Sta. 300+80

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PHOTOGRAPHIC LOG
Photo #16 (08/12/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/12/16

Direction Taken:

SA-6 North – Injection Well 088-IW-01

Description:

ESI completing pipe boot / penetration for Injection Well 088-IW-01.

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/13/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	85/98° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1800

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #30**
AmecFW: Philemon Onyango, Josh Boynton
Langan: Dan Bosworth
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of 16 oz. geotextile, geocomposite venting layer (GVL), and 60-mil geomembrane liner (LLDPE), continuing east from Panel P114 installed on 8/12/16 (approximate Sta. 300+80). Material to be placed from Panel P114 running approximately 80 ft. east to approximate Sta. 300+00 (east end of SA-6 North).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI conducting vacuum box testing and minor repair activities for Panels P113 / P114 (installed on 8/12/16). Repairs were patched, extrusion welded, and vacuum box tested as per project specifications. Additional details are outlined on the 8/13/16 *Repair Report*. Additionally, two destruct samples were collected. One fusion weld destruct sample DS-35 was collected from Panel P112 / P113, and one extrusion weld destruct sample – DSX-16 was collected from Panel P112 (Repair R-478)
- While repair activities were being completed ESI deployed orange geocomposite drainage layer (GDL) continuing east from Panel P106. GDL was placed over Panels P106 (approximate Sta. 301+70) to approximate Sta. 300+80 (Panel P114). GDL was placed according to the project specs with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn. Note: repairs were completed for Panels P113 / P114 in the early morning and were surveyed and verified before GDL was deployed over the panels later in the morning.
- ESI also completed spark testing for Access Manhole Sta. 18+00 and Injection Well 088-IW-01. Prior to spark testing, methane testing was completed by AmecFW and a concentration of 0.0% was measured for both boots. Spark testing was then completed along the base of the boot and vertical weld for both locations. No sparks were observed during either test (spark tests passed).
- Following the GDL activities, Langan and Entact conducted soil subgrade approval from approximate Sta. 300+80 (east of Panel P114 installed on 8/12/16) to approximate Sta. 300+00 (east end of cap). Refer to *Soil Subgrade Approval* forms from 8/13/16 for additional details. During subgrade observation, the subgrade area was transected in approximate 200 ft. by 8 ft. sections and based on visual observation, the soil subgrade appeared to be firm and unyielding with no soft / wet areas observed. Furthermore, miscellaneous debris (rocks, debris, etc.) were removed so that the surface was generally free of any

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loose material greater than ½". The area was also previously surveyed and subsequently approved by AmecFW prior to LLDPE placement.

- Following subgrade approval, GVL and LLDPE placement began with ESI placing the 16 oz. geotextile at the boundaries of the SA-6 North Cap over the sheet pile and surrounding barrier walls. The geotextile was overlapped approximately 1 ft. outside of the cap (remaining roll width inside), as outlined in the project specifications. After the 16 oz. geotextile was placed, GVL was installed from approximate Sta. 300+80 (east of Panel P114) moving east to approximate Sta. 300+00 (east end of cap). GVL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top layer of geotextile was sewn along the seams (according to the project specifications). Refer to 8/13/16 Photo Log for supporting photographs. Note: GVL was placed along the southern end of SA-6 North at areas above the site water table (areas not covered by GCL).
- Additionally, GCL was placed along the northern and eastern end of SA-6 North at areas below (to 1 ft. above) the water table (as shown on the drawings and outlined in the project specs). This included an area along the northern edge of SA-6 North from approximate Sta. 300+80 to approximate Sta. 300+00 (east end of cap). GCL was overlapped a minimum of 1 ft. along the seams with granular bentonite placed along the edges. Supporting photos are provided in the 8/13/16 *Photograph Log*.
- After placement of GVL and GCL, LLDPE geomembrane was installed continuing east of Panel P114 (installed on 8/12/16). The LLDPE panels were generally oriented from north to south (as proposed in the approved Panel Layout) and were installed from approximate Sta. 300+80 (east of Panel P114) to approximate Sta. 300+00. A total of five panels were installed (P115, P116, P117, P118, and P119). Panels P116, P117, P118, and P119 were oriented northwest/southeast and were placed to fill in the triangle area along the southeast portion of the cap. Panel P115 ran the entire width of SA-6 North (north to south) spanning approximately 235 ft.
- Adjacent LLDPE geomembrane seams were overlapped a minimum of four inches for fusion welding (according to the project specifications). Prior to welding activities, trial welds (smooth to smooth, texture to texture) were conducted to confirm that the equipment met the required specifications. At least six 1-inch specimens were collected for several welds for peel and shear testing (minimum of 3 samples for each test). The results of the pre-trial weld are provided in the 8/13/16 *Trial Weld Log.*
- Upon completion of geomembrane panel placement to approximate Sta. 300+00 (east end of cap), ESI conducted non-destructive testing in accordance with the project specifications. Refer to the 8/13/16 *Seam Control Form* for non-destructive testing details.
- Temporary patches were leistered in place for Panels P115 to P119, but no repair activities (extrusion welding) were completed on 8/13/16 (to be finished Monday – 8/15/16). ESI completed repair activities for Panels P113 to P114 (installed on 8/12/16). A total of seven repairs (R-490, R-491, R-498 to R-502) were observed and fixed (according to the project specifications). Refer to the 8/13/16 *Repair Report* for additional details. Repairs were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.

Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/13/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DSX-16 and DS-35.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, 8/8/16, 8/9/16, 8/10/16, 8/11/16, and 8/12/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-34. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-15. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/13/16
A3 – Photo Log	Pages 1 – 8	Total of 16 photos outlining pertinent daily observations and descriptions for 8/13/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/13/16
A5 – Subgrade Approval	Sheet 23 & ESI (8/13/16)	Two subgrade approval forms provided. One by Independent QA and one from Geosynthetic Installer
A6 – Trial Weld Log	Page 9	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/13/16
A7 – Panel Placement Log	Pages 15 - 16	One panel placement log provided by ESI and confirmed by Langan for panels placed on 8/13/16
A8 – Destruct Seam Testing COC	Sheet 4	Updated with destruct samples collected on 8/13/16
A9 – Seam/Non-Destruct. Test Log	Pages 43-44	One seam control form provided by ESI and confirmed by Langan for pressure testing conducted on 8/13/16
A10 – Repair Log	Pages 25-26	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/13/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed (continued)

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A11 – Conformance COC		NA for 8/13/16
A12 – Destructive Seam Field Test	Page 4	Updated with destruct samples collected on 8/13/16
A13 – Destruct. Sample Summary	Page 4	Destruct sample summary updated with samples collected on 8/13/16
A14 – Penetration & Edge Form		NA – no boots / penetrations completed on 8/13/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/13/16
A17 – Spark Test Log	8/13/16 Spark Test Forms	Spark testing completed for Access Manhole Sta. 18+00 and Injection Well 088-IW-01

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (08/13/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/13/16

Direction Taken:

SA-6 North – Repair R-498

Description:

ESI conducting repair activities for wrinkles and custom fit repairs on Panel P113

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PHOTOGRAPHIC LOG
Photo #2 (08/13/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/13/16

Direction Taken:

SA-6 North – Access Manhole Sta. 18+00

Description:

Entact conducting methane testing for Access Manhole Sta. 18+00. Methane concentration of 0.0% measured.

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PHOTOGRAPHIC LOG
Photo #3 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

SA-6 North – Access Manhole Sta. 18+00

Description:

ESI conducting spark testing for Access Manhole Sta. 18+00. Base of boot and vertical weld tested and no sparks were observed (passed spark test). Additional welds on boot were vacuum box tested.

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PHOTOGRAPHIC LOG
Photo #4 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

SA-6 North – Injection well 088-IW-01

Description:

ESI conducting spark testing for Injection Well 088-IW-01. Base of boot and vertical weld spark tested and no sparks were observed (passed spark test).

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PHOTOGRAPHIC LOG
Photo #5 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

SA-6 North – Destruct Sample DS-35

Description:

Repair activities being completed for destruct sample DS-35 (marked on 8/12/16).

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PHOTOGRAPHIC LOG
Photo #6 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north / northwest along SA-6 (at approximate Sta. 301+70)

Description:

ESI deploying orange GDL over approved LLDPE geomembrane.

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PHOTOGRAPHIC LOG
Photo #7 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north across SA-6 North (toward approximate Sta. 300+80)

Description:

ESI deploying orange GDL over approved LLDPE up to Panel P114 (approximate Sta. 300+80).

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PHOTOGRAPHIC LOG
Photo #8 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north across SA-6 North from southern end of cap (approximate Sta. 300+40)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #9 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north across SA-6 North from approximate center of cap (approximate Sta. 300+80)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #10 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north / northeast across SA-6 North (approximate Sta. 300+80)

Description:

Soil subgrade prepared by Entact. Soil firm and unyielding, and graded, compacted and free of debris (>1/2").

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PHOTOGRAPHIC LOG
Photo #11 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 300+80)

Description:

ESI deploying GCL along northern and eastern end of SA-6 North for areas below (to 1 ft. above the site water table). GCL secured with granular bentonite along the seams and leistered in place.

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PHOTOGRAPHIC LOG
Photo #12 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 304+50).

Description:

GCL placed along northern end of SA-6 for areas below to 1 ft. above the site water table. GVL placed along southern end of cap for areas above the site water table.

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PHOTOGRAPHIC LOG
Photo #13 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 300+20)

Description:

ESI sewing top layer of geotextile for GVL at areas above the site water table.

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PHOTOGRAPHIC LOG
Photo #14 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 300+80)

Description:

ESI deploying LLDPE geomembrane over GVL and GCL layers.

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PHOTOGRAPHIC LOG
Photo #15 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/13/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 300+60)

Description:

LLDPE geomembrane installed over GVL and GCL to east end of cap (approximate Sta. 300+00)

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PHOTOGRAPHIC LOG
Photo #16 (08/13/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

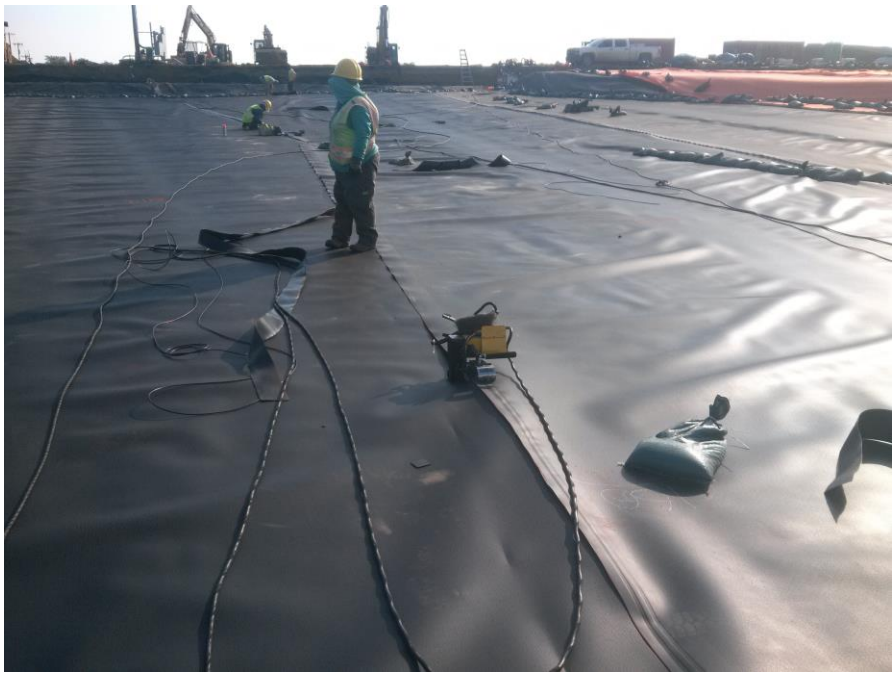
Date:
8/13/16

Direction Taken:

Looking south along SA-6 North (approximate Sta. 300+40)

Description:

ESI conducting fusion welding between Panel P115 / P118 seam.



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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/15/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	82/92° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Geocomposite & LLDPE Placement		**TIME:**	0645 – 1500

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #31** **AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of placement of geocomposite drainage layer (GDL) over approved LLDPE geomembrane (Panel P115 to P119). Note: LLDPE geomembrane installation complete up to east end of cap (Panels P115 to P119).
- Prior to Site activities, a daily health & safety (H&S) tailgate meeting was conducted with onsite personnel and contractors regarding work to be completed and potential hazards / complications that may be encountered during daily activities. Appropriate personal protective equipment (PPE) was donned (hard hat, safety vest, gloves, eyeglasses, and tyvek suit) prior to entering the work area (SA-6 capping area). It should be noted that after GVL has been placed on SA-6, modified level D PPE (tyvek suit, rubber boots, etc.) was not required.
- Site activities commenced with ESI completing repair activities and vacuum box testing for Panels P115 to P119 (installed on 8/13/16). A total of twelve repairs were (R-503 to R-514) observed and fixed according to the project specifications. Refer to the 8/15/16 *Repair Report* for additional details. In general, the majority of the repairs were cuts that were made on the geomembrane to allow the cap to conform to the contours of SA-6 North grade (custom fit repairs), as well as seam joint patches. These areas were subsequently patched and sealed with extrusion welds, with vacuum box testing then conducted as outlined in the project specifications.
- A total of two destruct samples were collected. One destruct sample DS-36 was collected from Panel P117 / P118 seam and one extrusion weld destruct sample – DSX-17 was collected from Panel P118 (Repair R-505) for laboratory analysis.
- ESI also completed the boot construction for Piezometer PZ2. Following the boot completion, methane / spark testing for Piezometer PZ2 was completed. Methane testing was conducted prior to spark testing and a concentration of 0.0% was measured. Spark testing was then conducted along the base of the boot and vertical weld and no sparks were observed (spark test passed). Additional details are provided in the Piezometer PZ2 boot construction log and the 8/15 *Spark Test Log.*
- After repair activities were completed, the as-built information including repair locations, distances, etc. was verified and ESI deployed the orange geocomposite drainage layer (GDL), over the previously installed LLDPE geomembrane (Panels P115 to P119). GDL was placed from approximate Sta. 300+80 to the east end of SA-6 North (approximate Sta. 300+00). GDL was placed according to the project specifications with white plastic fasteners spaced at a maximum of 5 ft. Additionally the top panel of geotextile was sewn along the seams (according to the project specifications). Refer to 8/15/16 Photo Log for supporting photographs.

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Non-Conformance Items / Corrective Actions

- None Encountered.

Action Items – Pending

- Complete Daily Report and Photo Log (for 8/15/16). Review and confirm supporting QA paperwork (soil subgrade approval, trail weld log, panel placement, notice of non-compliance, etc.).
- Review laboratory destruct sample results for DSX-17 and DS-36.

Action Items – Weekly Completions

- Completed Daily Report, Photo Log, and Soil Subgrade Approval for 6/22/16, 6/23/16, 6/24/16, 6/27/16, 6/29/16, 6/30/16, 7/1/16, 7/6/16, 7/7/16, 7/8/16, 7/11/16, 7/12/16, 7/13/16, 7/14/16, 7/15/16, 7/18/16, 7/25/16, 7/28/16 8/2/16, 8/3/16, 8/4/16, 8/5/16, 8/8/16, 8/9/16, 8/10/16, 8/11/16, 8/12/16, and 8/13/16. ESI Forms still to be reviewed.
- Reviewed laboratory data for fusion weld destruct samples DS-1 through DS-35. Reviewed laboratory data for extrusion weld destruct sample DSX-1 through DSX-16. Laboratory results generally in compliance with project specifications with the exception of DS-26. Destruct sample DS-26B passed for peel and shear.

Near Misses / Incidents

- None Encountered

Future Activities Scheduled

- Continue subgrade preparation work for remaining areas of SA-6 North continuing east. Continue with subgrade observation to confirm if subgrade is graded, compacted, and free of debris, as well as surveyed (to be completed by AmecFW / Maser) to specifications.
- Continue with GVL and LLDPE geomembrane placement moving east along SA-6 North.

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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Daily QA Documents Completed

Appendix / QA Forms	***Sheet / Page Numbers***	***Comments***
A1 – Certificate of Completion		To be completed at termination of project
A2 – Receiving and Inspection		NA – no new material delivered on 8/15/16
A3 – Photo Log	Pages 1 – 4	Total of 8 photos outlining pertinent daily observations and descriptions for 8/15/16
A4 – Geosynthetic Inventory Log		Completed to date; no updates from 8/15/16
A5 – Subgrade Approval		NA – no subgrade approval completed on 8/15/16
A6 – Trial Weld Log	Page 9	One trial weld log provided by ESI and confirmed by Langan for prewelds completed up to 8/13/16
A7 – Panel Placement Log		NA – no new LLDPE geomembrane panels placed on 8/15/16
A8 – Destruct Seam Testing COC	Sheet 4	Updated with destruct samples collected on 8/15/16
A9 – Seam/Non-Destruct. Test Log		NA – no pressure testing completed on 8/15/16
A10 – Repair Log	Page 26	One repair log provided by ESI and confirmed by Langan for repairs completed for 8/15/16
A11 – Conformance COC		NA for 8/15/16
A12 – Destructive Seam Field Test	Page 4	Updated with destruct samples collected on 8/15/16
A13 – Destruct. Sample Summary	Page 4	Destruct sample summary updated with samples collected on 8/15/16
A14 – Penetration & Edge Form	8/15/16 Boot Form	LLDPE geomembrane boot for Piezometer PZ2 completed on 8/15/16
A16 – Notice of Non-Compliance		NA – no non-compliance issues observed on 8/15/16
A17 – Spark Test Log	8/15/16 Spark Test Logs	Spark testing for Piezometer PZ2 completed on 8/15/16

Cc: Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

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PHOTOGRAPHIC LOG
Photo #1 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

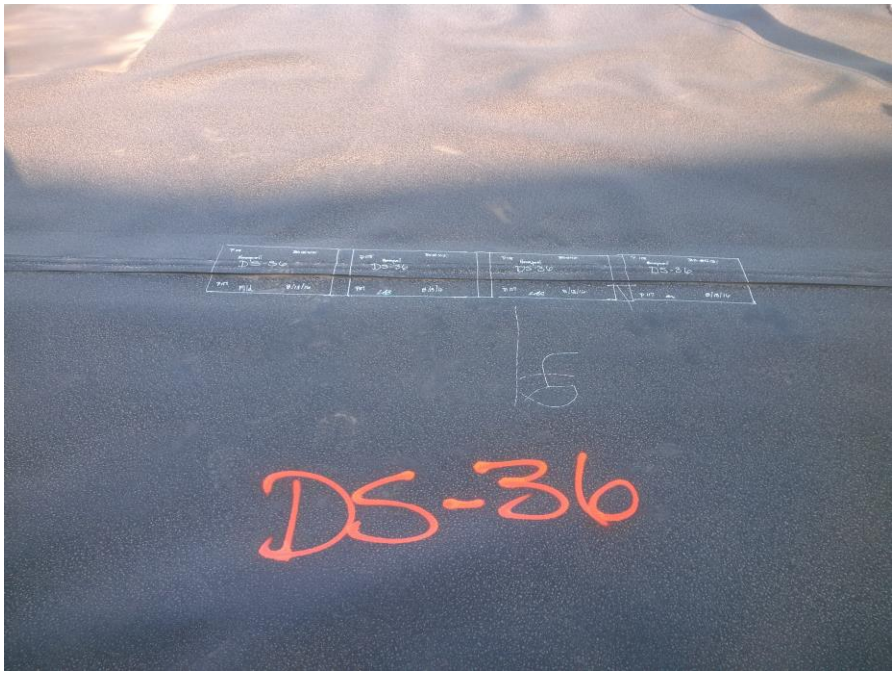
Date:
8/15/16

Direction Taken:

SA-6 North – Destruct Sample DS-36

Description:

Fusion weld destruct sample DS-36 located on Panel P117 / P118 seam to be cut for laboratory analysis.



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PHOTOGRAPHIC LOG
Photo #2 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

SA-6 North – Repair R-512

Description:

ESI conducting vacuum box testing for Repair R-512 (seam joint for Panels P115 / P116 / P118).

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PHOTOGRAPHIC LOG
Photo #3 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

SA-6 North – Destruct Sample DS-36

Description:

Patch / repair activities completed for Destruct Sample DS-36 located on Panel P117 / P118 seam.

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PHOTOGRAPHIC LOG
Photo #4 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

SA-6 North – Piezometer PZ2

Description:

Entact conducting methane testing for Piezometer PZ2. Concentration of 0.0% measured at pipe boot, thus spark testing was subsequently completed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #5 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

SA-6 North – Piezometer PZ2

Description:

ESI conducting spark testing for Piezometer PZ2. Base of boot and vertical weld tested and no sparks observed (spark test passed).

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PHOTOGRAPHIC LOG
Photo #6 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

Looking south / southwest along SA-6 (twoard approximate Sta. 300+50)

Description:

ESI deploying orange GDL over approved LLDPE geomembrane. GDL secured with white plastic fasteners spaced at a maximum of 5 ft. with the top layer of geotextile sewn.

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PHOTOGRAPHIC LOG
Photo #7 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

Looking north along SA-6 North (approximate Sta. 300+50)

Description:

ESI conducting deploying orange GDL over approved LLDPE geomembrane (Panels P115 to P119).

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PHOTOGRAPHIC LOG
Photo #8 (08/15/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/15/16

Direction Taken:

Looking north across SA-6 North (approximate Sta. 300+50)

Description:

Orange GDL placed up to approximate Sta. 300+00 (east end of cap).

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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/17/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	82/92° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Final Site Walk / Observation		**TIME:**	0745 – 1015

CONTRACTOR & EQUIPMENT: **ENTACT & ESI** *Equipment:* Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)	**PERSONNEL ON SITE:** **Day #32** **AmecFW**: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton **Langan:** Dan Bosworth, Jeff Stoicescu **ENTACT / ESI**: Keith Goisse, Caroline Panico

Site Activities

- Langan (Dan Bosworth and Jeff Stoicescu) onsite for final site walk of SA-6 North to observe completed geosynthetic components of SA-6 North capping activities.
- Langan conducted a site walk of the completed SA-6 North cap spanning from the west end (approximate. Sta. 319+00) to the east end (approximate Sta. 300+00). During the site walk, the following conditions were observed (in relation to the geosynthetic components of the cap installation):
    - Condition 1: The final GDL geotextile wrap around Gas Vent GV-2 was cut and gas vent was exposed.
    - Action Item: Based on discussions with Entact, the GDL was cut so that the construction of the gas vent could be completed. Entact plans to conduct leistering activities to reseal the geotextile wrap and secure the GDL.
    - Condition 2: Wrinkles were observed along the east end of the cap (approximate Sta. 300+00) due to the spreading of cover soils over the GDL.
    - Action Item: Entact to attempt to work out wrinkles to the east end of the cap. If wrinkles cannot be removed, ESI will return to the site to cut the geomembrane and complete patch / repair activities.
    - Condition 3: LLDPE was pulled taught along the slopes / contour changes along SA-6 North for areas where cover soil was being placed. During placement of cover soil, sand bags were removed from the cap so that the cover soil could be placed over the GDL. However, for areas where cover soil was not completed by the end of the day, the sand bags were not returned and the geosynthetic material was left un-weighted, thus causing the LLDPE to trampoline.
    - Action Item: Entact to ensure that areas not covered with cover soil at the end of the day will be secured with sand bags.
- Above items shall be reviewed on Friday (8/19).
- Additional details are outlined in the 8/17/16 *Photograph Log.*

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

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PHOTOGRAPHIC LOG
Photo #1 (08/17/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/17/16

Direction Taken:

SA-6 North – Gas Vent GV-2

Description:

Orange GDL cover cut on Gas Vent GV-2 by Entact to complete construction of gas vent. GDL to be re-leistered by Entact.

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PHOTOGRAPHIC LOG
Photo #2 (08/17/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/17/16

Direction Taken:

Looking north along northern end of SA-6 North; east end of cap (approximate Sta. 300+00)

Description:

Wrinkles observed along east end of cap from placement of cover soil. Entact to try and work wrinkles out to the east end of cap.

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PHOTOGRAPHIC LOG
Photo #3 (08/17/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/17/16

Direction Taken:

SA-6 North – east end of cap (approximate Sta. 300+00).

Description:

Wrinkle / crease observed along east end of cap (approximate Sta. 300+00).

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PHOTOGRAPHIC LOG
Photo #4 (08/17/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/17/16

Direction Taken:

Looking south along east end of SA-6 North (approximate Sta. 300+00)

Description:

Location of wrinkles observed along east end of cap due to placement of cover soil.

LANGAN
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SITE OBSERVATION REPORT

PROJECT No.:	10053001	**CLIENT:** Honeywell International, Inc.		**DATE:**	8/19/2016
PROJECT:	SA-6 North Capping			**WEATHER:**	85/95° F, Sunny, Humid
LOCATION:	60 Kellogg St., Jersey City New Jersey	**TASK.:** Final Site Walk / Observation		**TIME:**	0815 – 1230

CONTRACTOR & EQUIPMENT:
ENTACT & ESI
Equipment: Dozers, Steel Drum Rollers, Skytrak 10 Forklift, Deere 333E Bobcat, Misc. Hand Tools (shovels, rakes)

PERSONNEL ON SITE: **Day #33**
AmecFW: Stu Bills, Dave Ambrose, Philemon Onyango, Josh Boynton
Langan: Dan Bosworth, Kale Novalis
ENTACT / ESI: Keith Goisse, Caroline Panico

Site Activities

- Langan onsite for observation of wrinkle repair along the east end of the cap (approximate Sta. 300+00) due to the spreading of cover soils over the GDL.
- ESI completed repairs of wrinkles along the east end of the cap (approximate Sta. 300+00) as outlined in the 8/17/16 Report. Upon cutting of the GDL layer it was observed that the wrinkles were contained to the GDL only with no observed damage to the LLDPE or soil subgrade. As such, the GDL layer was cut, flattened, and leistered. No repairs to the LLDPE were required.
- Additional details are outlined in the 8/19/16 *Photograph Log.*

Cc Jeff Stoicescu, Rory Johnston, Geoff Shallard, Stu Bills, Dave Ambrose

By: Dan Bosworth

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

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PHOTOGRAPHIC LOG
Photo #1 (08/19/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/19/16

Direction Taken:

Looking south along SA-6 (approximate Sta. 300+00)

Description:

Wrinkles observed along the east end of the cap (approximate Sta. 300+00) due to the spreading of cover soils over the GDL.

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PHOTOGRAPHIC LOG
Photo #2 (08/19/2016)

Project:	Location:	Project No.
Honeywell SA-6 North Capping	SA-6 North (North of SA-7.) Jersey City, New Jersey	**100530001**

Date:
8/19/16

Direction Taken:

Looking south along SA-6 (approximate Sta. 300+00)

Description:

Wrinkles observed along the east end of the cap (approximate Sta. 300+00) due to the spreading of cover soils over the GDL.

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PHOTOGRAPHIC LOG
Photo #3 (08/19/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/19/16

Direction Taken:

Looking north along SA-6 (approximate Sta. 300+00)

Description:

Repaired wrinkles observed along the east end of the cap (approximate Sta. 300+00) by pulling GDL and LLDPE.

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PHOTOGRAPHIC LOG
Photo #4 (08/19/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/19/16

Direction Taken:

Looking north / northwest along SA-6 (approximate Sta. 300+00)

Description:

Wrinkles observed along the east end of the cap (approximate Sta. 300+00) only on GDL. No wrinkles observed on LLDPE.

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PHOTOGRAPHIC LOG
Photo #5 (08/19/2016)

Project: Honeywell SA-6 North Capping	**Location:** SA-6 North (North of SA-7.) Jersey City, New Jersey	**Project No.** **100530001**

Date:
8/19/16

Direction Taken:

Looking north along SA-6 (approximate Sta. 300+00)

Description:

Finished repairs of wrinkles observed along the east end of the cap (approximate Sta. 300+00) with leistering of cut GDL section.

Appendix F
GCL to Barrier Wall Connection Logs

Honeywell

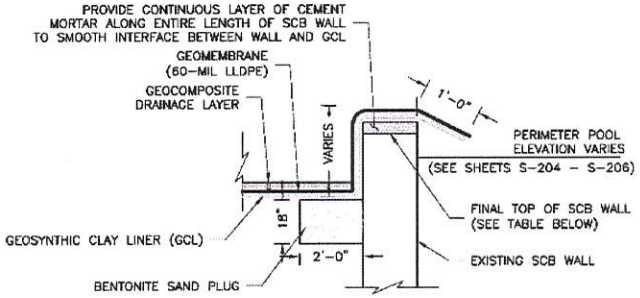
STUDY AREA 6 - CAP INSTALLATION

amec foster wheeler

Project: Study Area 6 North

Date: 08/4/16

QA - GCL to Barrier Wall Connection Detail



BELOW GROUNDWATER

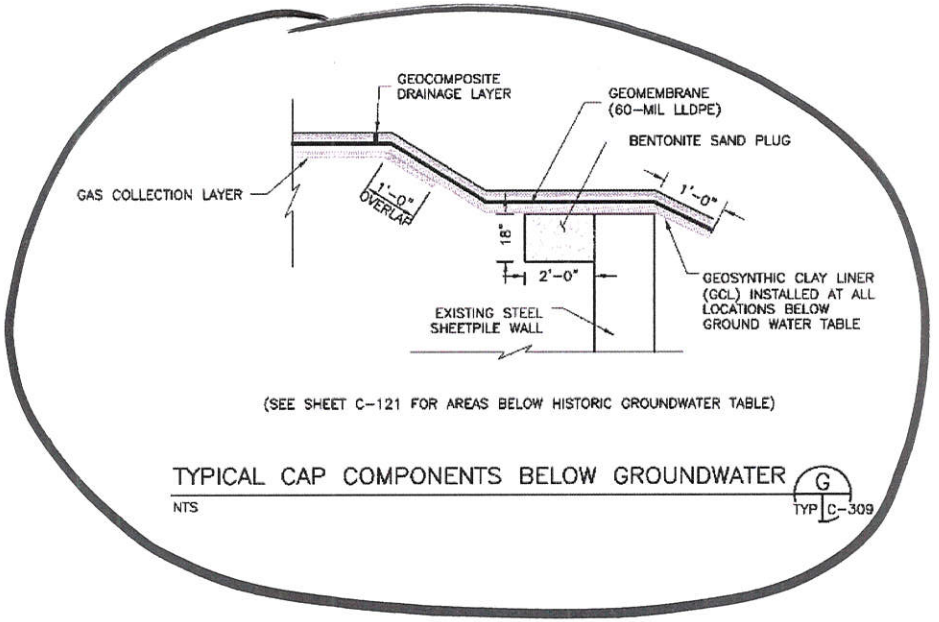
GCL AREAS STA 0+00 TO STA 3+22

TYPICAL EDGE DETAIL – LINER BELOW FINAL SCB ELEVATION

NTS

BN C-121 C-309

STA	FINAL SCB WALL ELEVATION
0+00 TO 3+22	8.75 FEET
REMAINING LENGTH	SCB WALL TO BE CUT AT LINER GRADE BUT IN NO CASE SHALL SCB WALL BE CUT LOWER THAN 0.75 FEET ABOVE THE PERIMETER POOL ELEVATIONS



(SEE SHEET C-121 FOR AREAS BELOW HISTORIC GROUNDWATER TABLE)

TYPICAL CAP COMPONENTS BELOW GROUNDWATER

NTS

G TYP C-309

***Check applicable Detail:**

X Box Cut Dimension

X Barrier wall clean/exposed

X Sand Bentonite Mix

Location:

- **Soil Cement Wall stations 5+60 to 5+90 (approximately).**
- **North side of south cap near Route 440 along the HB Wall.**

Comments:

- Photos captured Amec Foster Wheeler.

AmecFW QA Signature: _____

Honeywell

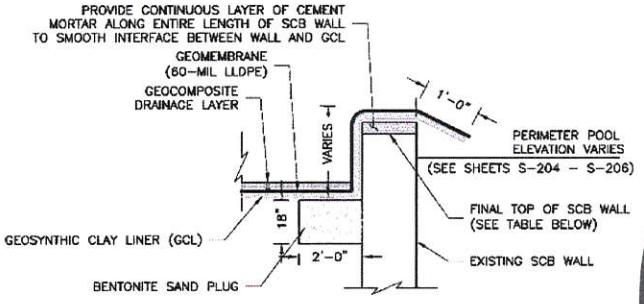
STUDY AREA 6 - CAP INSTALLATION

amec foster wheeler

Project: Study Area 6 North

Date: 08/11/16

QA - GCL to Barrier Wall Connection Detail



BELOW GROUNDWATER

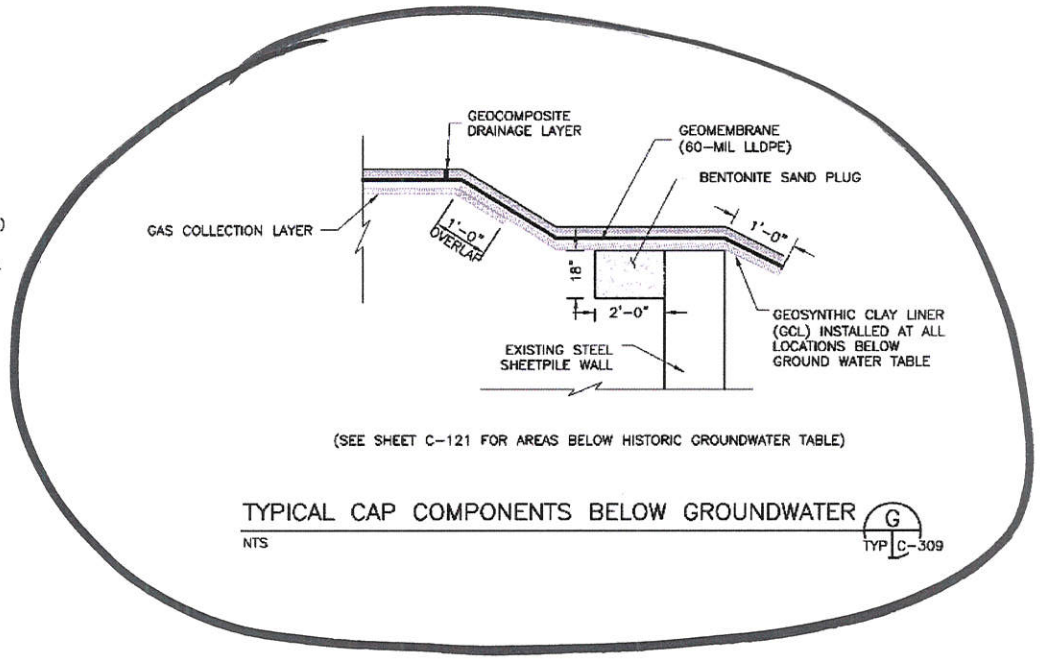
GCL AREAS STA 0+00 TO STA 3+22

TYPICAL EDGE DETAIL – LINER BELOW FINAL SCB ELEVATION

NTS

BN C-121 C-309

STA	FINAL SCB WALL ELEVATION
0+00 TO 3+22	8.75 FEET
REMAINING LENGTH	SCB WALL TO BE CUT AT LINER GRADE BUT IN NO CASE SHALL SCB WALL BE CUT LOWER THAN 0.75 FEET ABOVE THE PERIMETER POOL ELEVATIONS



(SEE SHEET C-121 FOR AREAS BELOW HISTORIC GROUNDWATER TABLE)

TYPICAL CAP COMPONENTS BELOW GROUNDWATER

NTS

G TYP C-309

***Check applicable Detail:**

X Box Cut Dimension

X Barrier wall clean/exposed

X Sand Bentonite Mix

Location:

- **Soil Cement Wall stations 2+92 to 3+26 (approximately).**
- **North side of south cap near Route 440 along the HB Wall.**

Comments:

- Photos captured Amec Foster Wheeler.

AmecFW QA Signature: _____

Appendix G
ESI Panel Placement Logs

Daily Panel Placement Page 1

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-1	Roll # G15F443031		
Final Length Avg.	37.50	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	38.50	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 22 | 21 | 54 | 55 | 22.5 | 23

Notes:

Initial SF	886	Lineal Feet Trench	
Final SF	844		

Panel # P-2	Roll # G15F443031		
Final Length Avg.	161.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	162.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 162 | 161 | 161 | 162 | 22.5 | 23

Notes:

Initial SF	3,726	Lineal Feet Trench	
Final SF	3,623		

Panel # P-3	Roll # G15F443031		
Final Length Avg.	162.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	163.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 162 | 161 | 163 | 164 | 22.5 | 23

Notes:

Initial SF	3,749	Lineal Feet Trench	
Final SF	3,645		

Panel # P-4	Roll # G15F443031		
Final Length Avg.	96.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	97.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 96 | 95 | 97 | 98 | 22.5 | 23

Notes:

Initial SF	2,231	Lineal Feet Trench	
Final SF	2,160		

Panel # P-5	Roll # G15F445054		
Final Length Avg.	68.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	69.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 69 | 68 | 68 | 69 | 22.5 | 23

Notes:

Initial SF	1,587	Lineal Feet Trench	
Final SF	1,530		

Panel # P-6	Roll # G15F445054		
Final Length Avg.	167.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	168.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 167 | 166 | 168 | 169 | 22.5 | 23

Notes:

Initial SF	3,864	Lineal Feet Trench	
Final SF	3,758		

Panel # P-7	Roll # G15F445054		
Final Length Avg.	170.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	171.00	LF	
Initial Width Avg.	23.00	LF	

23 | 22.5 | 170 | 169 | 171 | 172 | 22.5 | 23

Notes:

Initial SF	3,933	Lineal Feet Trench	
Final SF	3,825		

Panel # P-8	Roll # G154445054		
Final Length Avg.	68.50	LF	
Final Width Avg.	22.53	LF	
Initial Length Avg.	69.50	LF	
Initial Width Avg.	23.00	LF	

23 | 22.57 | 68 | 67 | 70 | 71 | 22.5 | 23

Notes:

Initial SF	1,599	Lineal Feet Trench	
Final SF	1,544		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**20,927**	**SF**
Total Pay Area This Page	**20,927**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	-	SF
Total Panel SF To Date	20,927	SF
Total Pay Area To Date Including Anchor Trench	**20,927**	
Initial Quantity Previous	-	SF
Initial Quantity This Page	21,574	SF
Initial Quantity To Date	21,574	SF

Daily Panel Placement Page 2

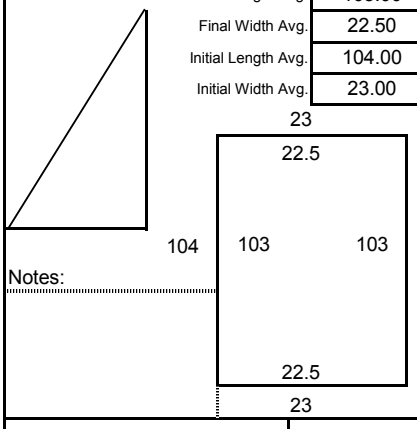
Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

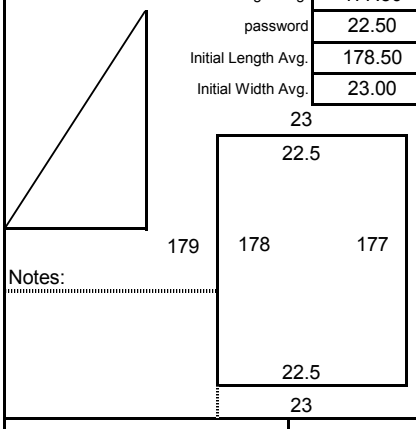
Panel # P-9	Roll # G15F444052		
Final Length Avg.	103.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	104.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	2,392	Lineal Feet Trench	
Final SF	2,318		

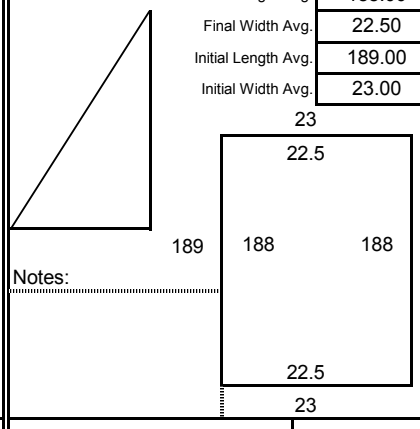
Panel # P-10	Roll # G15F444052		
Final Length Avg.	177.50	LF	
password	22.50	LF	
Initial Length Avg.	178.50	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	4,106	Lineal Feet Trench	
Final SF	3,994		

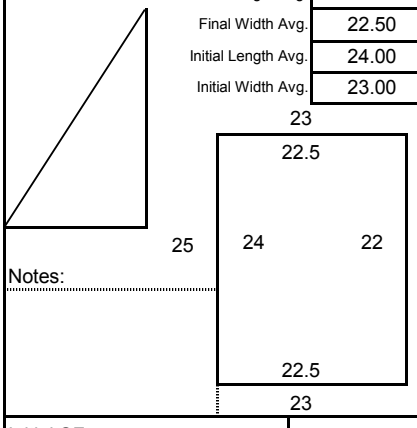
Panel # P-11	Roll # G15F444052		
Final Length Avg.	188.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	189.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	4,347	Lineal Feet Trench	
Final SF	4,230		

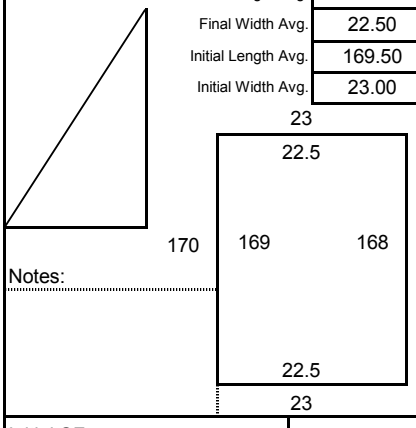
Panel # P-12	Roll # G15F444052		
Final Length Avg.	23.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	24.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	552	Lineal Feet Trench	
Final SF	518		

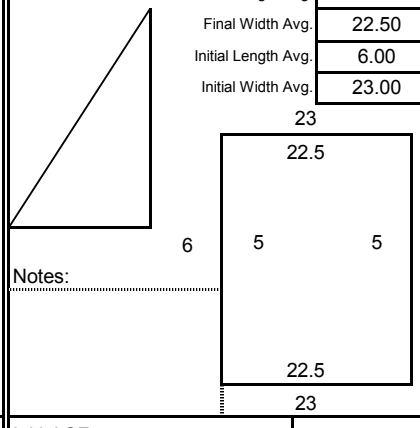
Panel # P-13	Roll # G15F442018		
Final Length Avg.	168.50	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	169.50	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	3,899	Lineal Feet Trench	
Final SF	3,791		

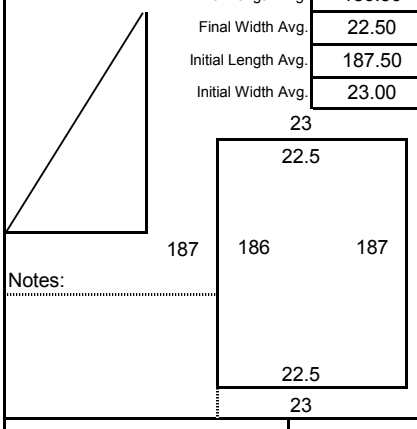
Panel # P-14 A	Roll # G15F442018		
Final Length Avg.	5.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	6.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	138	Lineal Feet Trench	
Final SF	113		

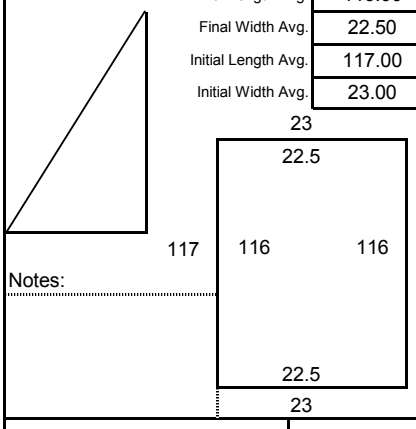
Panel # P-14	Roll # G15F442018		
Final Length Avg.	186.50	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	187.50	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	4,313	Lineal Feet Trench	
Final SF	4,196		

Panel # P-15	Roll # G15F442018		
Final Length Avg.	116.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	117.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	2,691	Lineal Feet Trench	
Final SF	2,610		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**21,769**	**SF**
Total Pay Area This Page	**21,769**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	20,927	SF
Total Panel SF To Date	42,696	SF
Total Pay Area To Date Including Anchor Trench	**42,696**	
Initial Quantity Previous	21,574	SF
Initial Quantity This Page	22,437	SF
Initial Quantity To Date	44,011	SF

Daily Panel Placement Page 3

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-16 Roll # G15F442023

Final Length Avg.	74.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	75.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 75 74 75 76 / 22.5 / 23

Notes:

Initial SF	1,737	Lineal Feet Trench	
Final SF	1,676		

Panel # P-17 Roll # G15F442023

Final Length Avg.	192.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	193.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 193 192 193 194 / 22.5 / 23

Notes:

Initial SF	4,451	Lineal Feet Trench	
Final SF	4,331		

Panel # P-18 Roll # G15F442023

Final Length Avg.	195.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	196.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 195 194 196 197 / 22.5 / 23

Notes:

Initial SF	4,508	Lineal Feet Trench	
Final SF	4,388		

Panel # P-19 Roll # G15F442019

Final Length Avg.	197.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	198.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 198 197 198 199 / 22.5 / 23

Notes:

Initial SF	4,566	Lineal Feet Trench	
Final SF	4,444		

Panel # P-20 Roll # G15F442019

Final Length Avg.	196.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	197.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 194 193 199 200 / 22.5 / 23

Notes:

Initial SF	4,531	Lineal Feet Trench	
Final SF	4,410		

Panel # P-21 Roll # G15F442019

Final Length Avg.	99.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	100.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 100 99 99 100 / 22.5 / 23

Notes:

Initial SF	2,300	Lineal Feet Trench	
Final SF	2,228		

Panel # P-22 Roll # G15F442026

Final Length Avg.	99.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	100.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 100 99 99 100 / 22.5 / 23

Notes:

Initial SF	2,300	Lineal Feet Trench	
Final SF	2,228		

Panel # P-23 Roll # G15F442026

Final Length Avg.	199.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	200.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 200 199 200 201 / 22.5 / 23

Notes:

Initial SF	4,612	Lineal Feet Trench	
Final SF	4,489		

Material in Anchor Trench

Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**28,193**	**SF**
Total Pay Area This Page	**28,193**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	42,696	SF
Total Panel SF To Date	70,889	SF
Total Pay Area To Date Including Anchor Trench	**70,889**	
Initial Quantity Previous	44,011	SF
Initial Quantity This Page	29,003	SF
Initial Quantity To Date	73,014	SF

Daily Panel Placement Page 4

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-24 Roll # G15F442026

Final Length Avg.	186.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	187.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 186 / 185 / 188 / 189 / 22.5 / 23

Notes:

Initial SF	4,313	Lineal Feet Trench	
Final SF	4,196		

Panel # P-25 Roll # G15F444043

Final Length Avg.	17.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	18.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 18 / 17 / 17 / 18 / 22.5 / 23

Notes:

Initial SF	414	Lineal Feet Trench	
Final SF	383		

Panel # P-26 Roll # G15F444043

Final Length Avg.	202.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	203.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 206 / 205 / 200 / 201 / 22.5 / 23

Notes:

Initial SF	4,681	Lineal Feet Trench	
Final SF	4,556		

Panel # P-27 Roll # G15F444043

Final Length Avg.	213.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	214.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 213 / 212 / 214 / 215 / 22.5 / 23

Notes:

Initial SF	4,922	Lineal Feet Trench	
Final SF	4,793		

Panel # P-28 Roll # G15F444051

Final Length Avg.	212.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	213.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 214 / 213 / 212 / 213 / 22.5 / 23

Notes:

Initial SF	4,911	Lineal Feet Trench	
Final SF	4,781		

Panel # P-29 Roll # G15F444051

Final Length Avg.	213.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	214.50	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 214 / 213 / 214 / 215 / 22.5 / 23

Notes:

Initial SF	4,934	Lineal Feet Trench	
Final SF	4,804		

Panel # P-30 Roll # G15F444051

Final Length Avg.	56.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	57.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 57 / 56 / 56 / 57 / 22.5 / 23

Notes:

Initial SF	1,311	Lineal Feet Trench	
Final SF	1,260		

Panel # P-31 Roll # G15F444044

Final Length Avg.	159.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	160.00	LF
Initial Width Avg.	23.00	LF

23 / 22.5 / 160 / 159 / 159 / 160 / 22.5 / 23

Notes:

Initial SF	3,680	Lineal Feet Trench	
Final SF	3,578		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**28,350**	**SF**
Total Pay Area This Page	**28,350**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	70,889	SF
Total Panel SF To Date	99,239	SF
Total Pay Area To Date Including Anchor Trench	**99,239**	
Initial Quantity Previous	73,014	SF
Initial Quantity This Page	29,164	SF
Initial Quantity To Date	102,178	SF

Daily Panel Placement **Page** 5

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

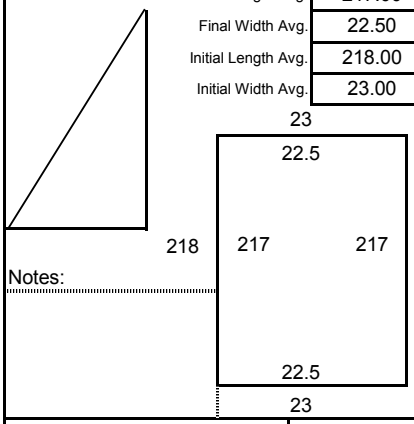
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-32 Roll # G15F444044

Final Length Avg.	217.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	218.00	LF
Initial Width Avg.	23.00	LF

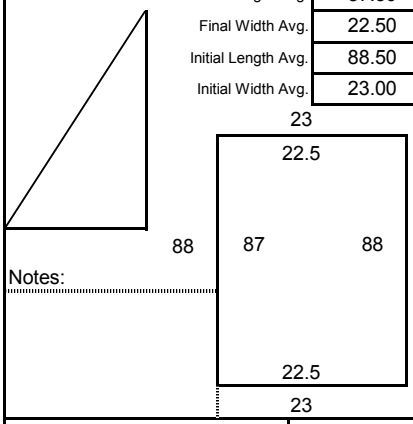


Notes:

Initial SF	5,014	Lineal Feet Trench	
Final SF	4,883		

Panel # P-33 Roll # G15F444044

Final Length Avg.	87.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	88.50	LF
Initial Width Avg.	23.00	LF

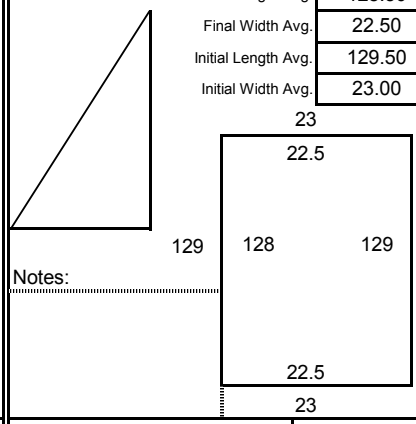


Notes:

Initial SF	2,036	Lineal Feet Trench	
Final SF	1,969		

Panel # P-34 Roll # G15F444053

Final Length Avg.	128.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	129.50	LF
Initial Width Avg.	23.00	LF

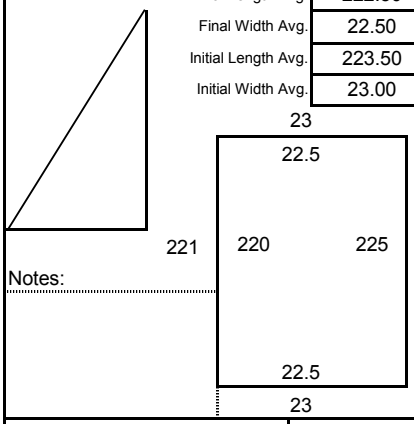


Notes:

Initial SF	2,979	Lineal Feet Trench	
Final SF	2,891		

Panel # P-35 Roll # G15F444053

Final Length Avg.	222.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	223.50	LF
Initial Width Avg.	23.00	LF

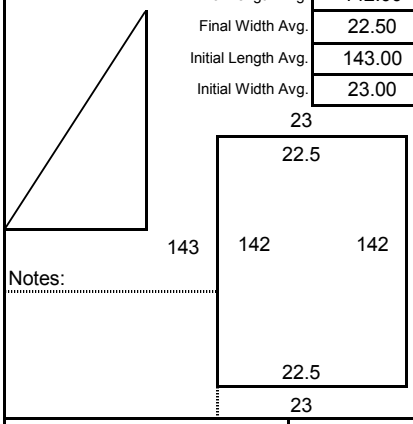


Notes:

Initial SF	5,141	Lineal Feet Trench	
Final SF	5,006		

Panel # P-36 Roll # G15F444053

Final Length Avg.	142.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	143.00	LF
Initial Width Avg.	23.00	LF

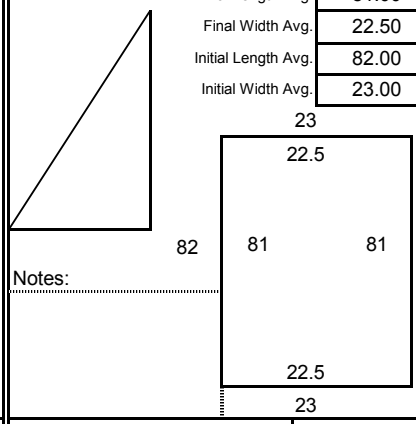


Notes:

Initial SF	3,289	Lineal Feet Trench	
Final SF	3,195		

Panel # P-37 Roll # G15F444046

Final Length Avg.	81.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	82.00	LF
Initial Width Avg.	23.00	LF

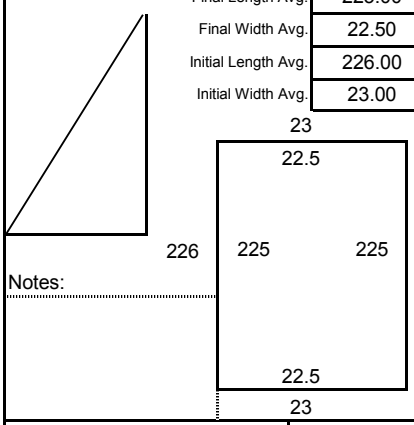


Notes:

Initial SF	1,886	Lineal Feet Trench	
Final SF	1,823		

Panel # P-38 Roll # G15F444046

Final Length Avg.	225.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	226.00	LF
Initial Width Avg.	23.00	LF

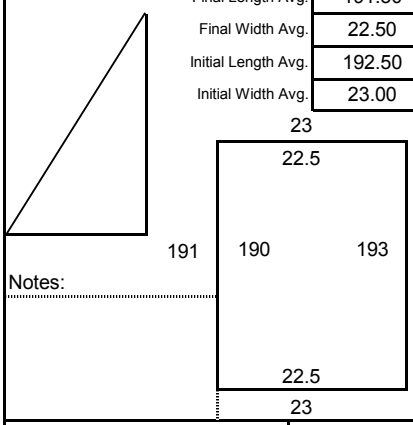


Notes:

Initial SF	5,198	Lineal Feet Trench	
Final SF	5,063		

Panel # P-39 Roll # G15F444046

Final Length Avg.	191.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	192.50	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	4,428	Lineal Feet Trench	
Final SF	4,309		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**29,138**	**SF**
Total Pay Area This Page	**29,138**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	99,239	SF
Total Panel SF To Date	128,376	SF
Total Pay Area To Date Including Anchor Trench	**128,376**	
Initial Quantity Previous	102,178	SF
Initial Quantity This Page	29,969	SF
Initial Quantity To Date	132,147	SF

Daily Panel Placement Page 6

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

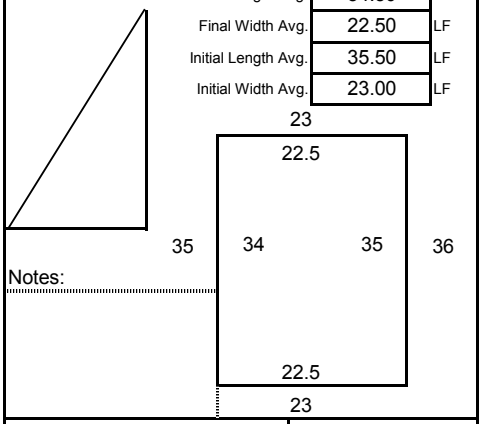
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-40 Roll # G15F445055

Final Length Avg.	34.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	35.50	LF
Initial Width Avg.	23.00	LF

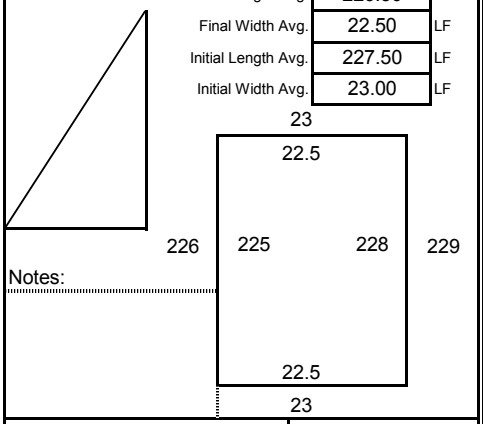


Notes:

Initial SF	817	Lineal Feet Trench
Final SF	776	

Panel # P-41 Roll # G15F445055

Final Length Avg.	226.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	227.50	LF
Initial Width Avg.	23.00	LF

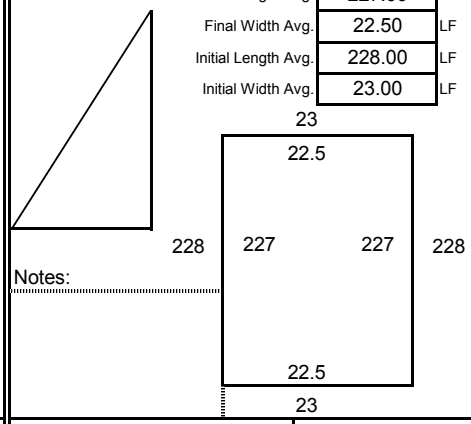


Notes:

Initial SF	5,233	Lineal Feet Trench
Final SF	5,096	

Panel # P-42 Roll # G15F445055

Final Length Avg.	227.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	228.00	LF
Initial Width Avg.	23.00	LF

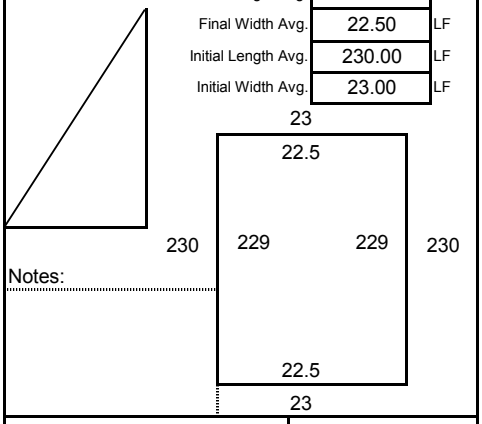


Notes:

Initial SF	5,244	Lineal Feet Trench
Final SF	5,108	

Panel # P-43 Roll # G15F444045

Final Length Avg.	229.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	230.00	LF
Initial Width Avg.	23.00	LF

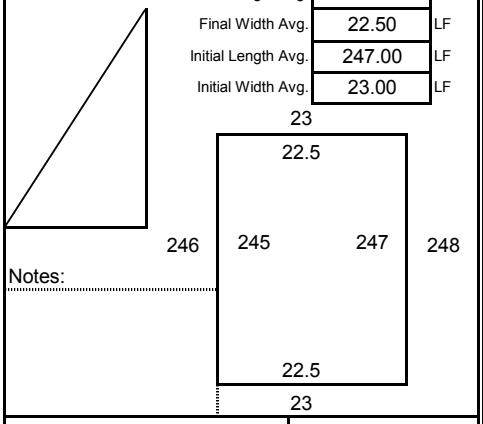


Notes:

Initial SF	5,290	Lineal Feet Trench
Final SF	5,153	

Panel # P-44 Roll # G15F444045

Final Length Avg.	246.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	247.00	LF
Initial Width Avg.	23.00	LF

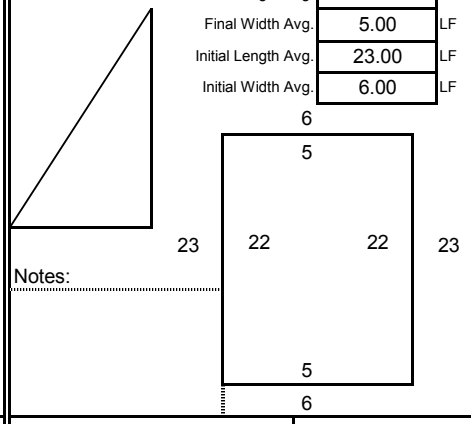


Notes:

Initial SF	5,681	Lineal Feet Trench
Final SF	5,535	

Panel # P-44A Roll # G15F445056

Final Length Avg.	22.00	LF
Final Width Avg.	5.00	LF
Initial Length Avg.	23.00	LF
Initial Width Avg.	6.00	LF

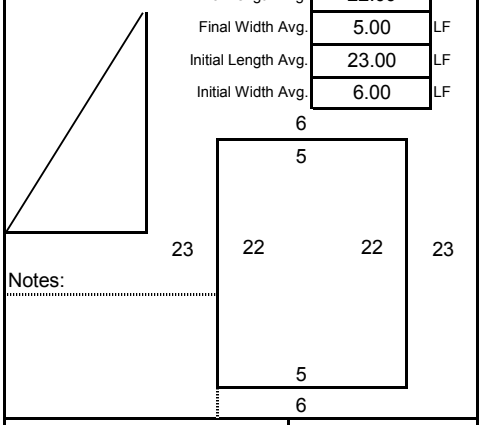


Notes:

Initial SF	138	Lineal Feet Trench
Final SF	110	

Panel # P-44B Roll # G15F445056

Final Length Avg.	22.00	LF
Final Width Avg.	5.00	LF
Initial Length Avg.	23.00	LF
Initial Width Avg.	6.00	LF

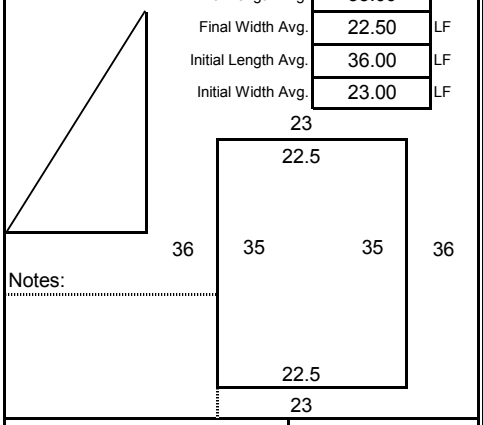


Notes:

Initial SF	138	Lineal Feet Trench
Final SF	110	

Panel # P-45 Roll # G15F443028

Final Length Avg.	35.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	36.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	828	Lineal Feet Trench
Final SF	788	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**22,675**	**SF**
Total Pay Area This Page	**22,675**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	128,376	SF
Total Panel SF To Date	151,051	SF
Total Pay Area To Date Including Anchor Trench	**151,051**	
Initial Quantity Previous	132,147	SF
Initial Quantity This Page	23,368	SF
Initial Quantity To Date	155,515	SF

Daily Panel Placement **Page** 7

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

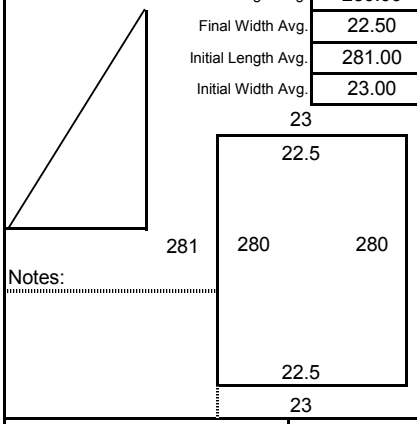
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-46 Roll # G15F443028

Final Length Avg.	280.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	281.00	LF
Initial Width Avg.	23.00	LF

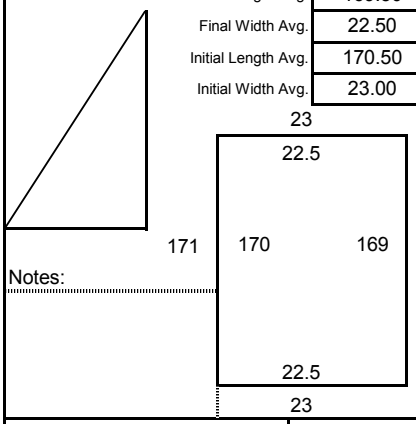


Notes:

Initial SF	6,463	Lineal Feet Trench	
Final SF	6,300		

Panel # P-47 Roll # G15F443028

Final Length Avg.	169.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	170.50	LF
Initial Width Avg.	23.00	LF

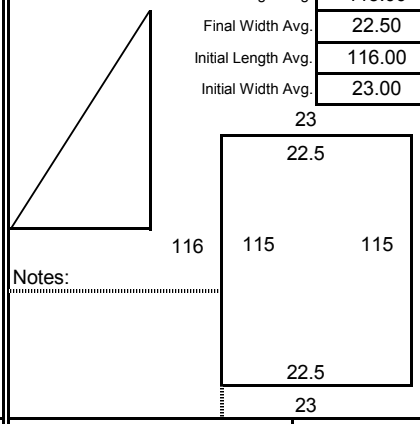


Notes:

Initial SF	3,922	Lineal Feet Trench	
Final SF	3,814		

Panel # P-48 Roll # G15F445056

Final Length Avg.	115.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	116.00	LF
Initial Width Avg.	23.00	LF

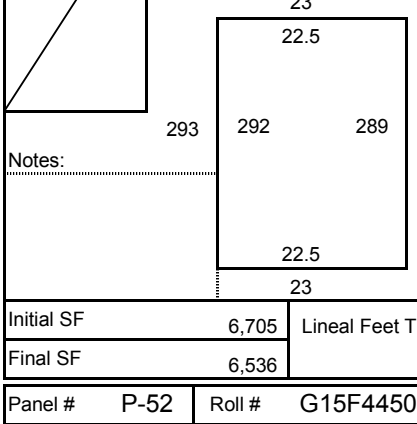


Notes:

Initial SF	2,668	Lineal Feet Trench	
Final SF	2,588		

Panel # P-49 Roll # G15F445056

Final Length Avg.	290.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	291.50	LF
Initial Width Avg.	23.00	LF

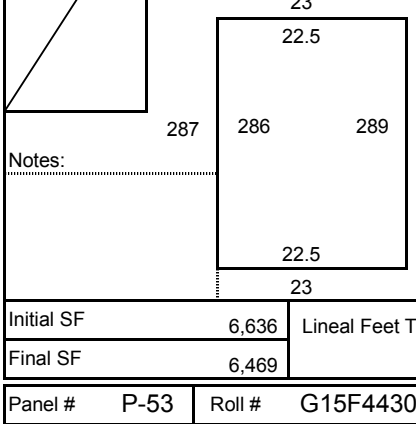


Notes:

Initial SF	6,705	Lineal Feet Trench	
Final SF	6,536		

Panel # P-50 Roll # G15F442021

Final Length Avg.	287.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	288.50	LF
Initial Width Avg.	23.00	LF

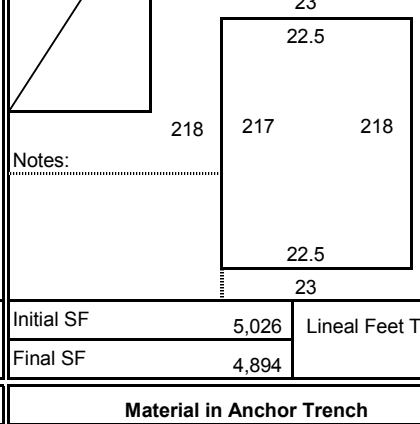


Notes:

Initial SF	6,636	Lineal Feet Trench	
Final SF	6,469		

Panel # P-51 Roll # G15F442021

Final Length Avg.	217.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	218.50	LF
Initial Width Avg.	23.00	LF

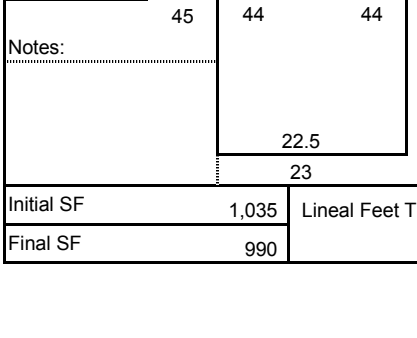


Notes:

Initial SF	5,026	Lineal Feet Trench	
Final SF	4,894		

Panel # P-52 Roll # G15F445056

Final Length Avg.	44.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	45.00	LF
Initial Width Avg.	23.00	LF

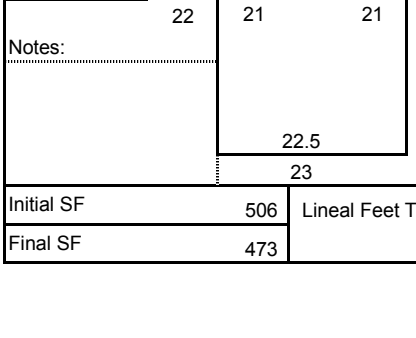


Notes:

Initial SF	1,035	Lineal Feet Trench	
Final SF	990		

Panel # P-53 Roll # G15F443037

Final Length Avg.	21.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	22.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	506	Lineal Feet Trench	
Final SF	473		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**32,063**	**SF**
Total Pay Area This Page	**32,063**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	151,051	SF
Total Panel SF To Date	183,114	SF
Total Pay Area To Date Including Anchor Trench	**183,114**	
Initial Quantity Previous	155,515	SF
Initial Quantity This Page	32,959	SF
Initial Quantity To Date	188,474	SF

Daily Panel Placement Page 8

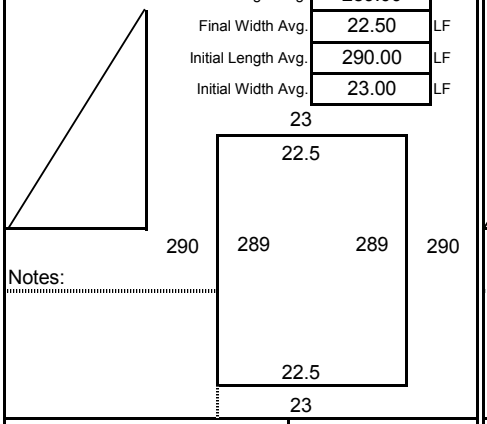
Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

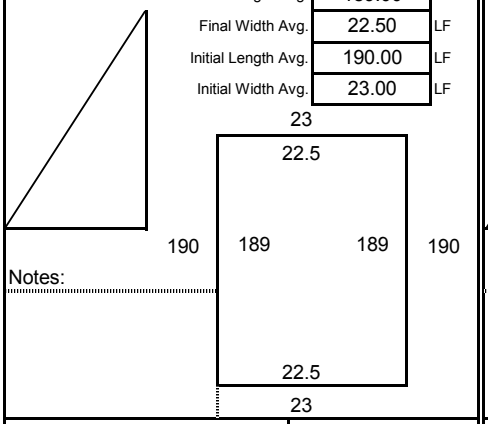
Panel # P-54	Roll # G15F443037		
Final Length Avg.	289.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	290.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	6,670	Lineal Feet Trench	
Final SF	6,503		

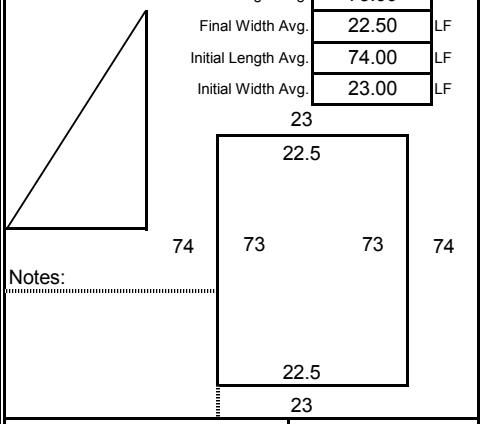
Panel # P-55	Roll # G15F443037		
Final Length Avg.	189.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	190.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	4,370	Lineal Feet Trench	
Final SF	4,253		

Panel # P-56	Roll # G15C282022		
Final Length Avg.	73.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	74.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

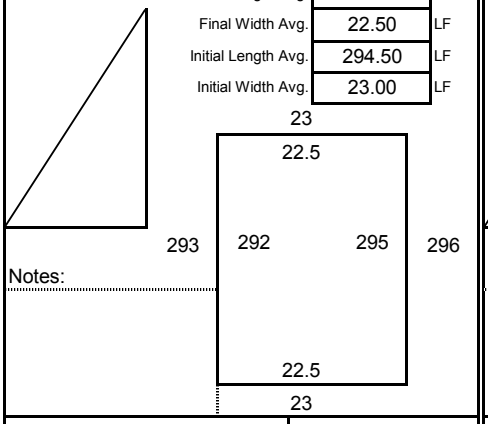
Initial SF	1,702	Lineal Feet Trench	
Final SF	1,643		

Panel # P-57	Roll # G15C282014		
Final Length Avg.	29.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	30.00	LF	
Initial Width Avg.	23.00	LF	

Notes:

Initial SF	690	Lineal Feet Trench	
Final SF	653		

Panel # P-58	Roll # G15F442022		
Final Length Avg.	293.50	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	294.50	LF	
Initial Width Avg.	23.00	LF	



Notes:

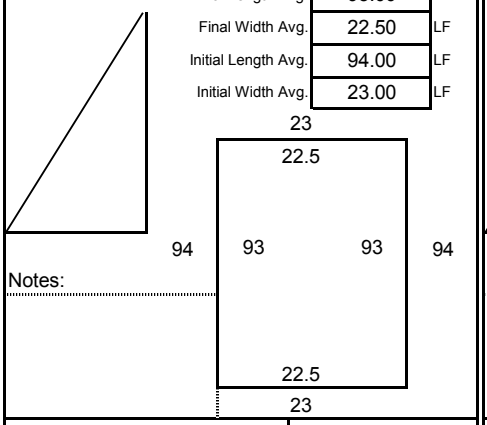
Initial SF	6,774	Lineal Feet Trench	
Final SF	6,604		

Panel # P-59	Roll # G15F442022		
Final Length Avg.	204.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	205.00	LF	
Initial Width Avg.	23.00	LF	

Notes:

Initial SF	4,715	Lineal Feet Trench	
Final SF	4,590		

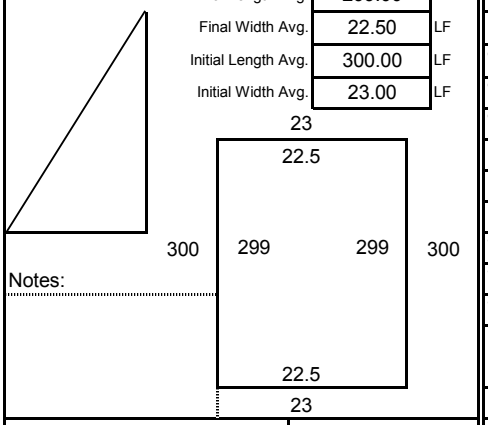
Panel # P-60	Roll # G15F445057		
Final Length Avg.	93.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	94.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	2,162	Lineal Feet Trench	
Final SF	2,093		

Panel # P-61	Roll # G15F445057		
Final Length Avg.	299.00	LF	
Final Width Avg.	22.50	LF	
Initial Length Avg.	300.00	LF	
Initial Width Avg.	23.00	LF	



Notes:

Initial SF	6,900	Lineal Feet Trench	
Final SF	6,728		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**33,064**	**SF**
Total Pay Area This Page	**33,064**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	183,114	SF
Total Panel SF To Date	216,177	SF
Total Pay Area To Date Including Anchor Trench	**216,177**	
Initial Quantity Previous	188,474	SF
Initial Quantity This Page	33,983	SF
Initial Quantity To Date	222,456	SF

Daily Panel Placement **Page** 9

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

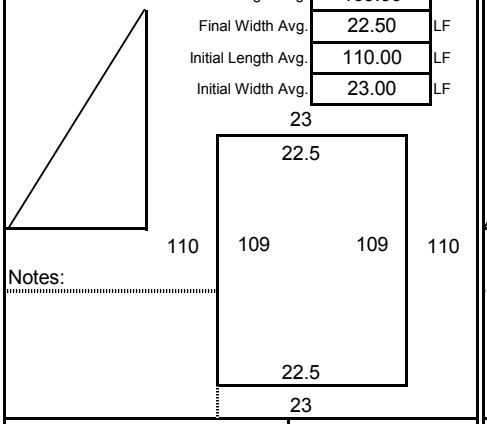
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-62 Roll # G15F445057

Final Length Avg.	109.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	110.00	LF
Initial Width Avg.	23.00	LF

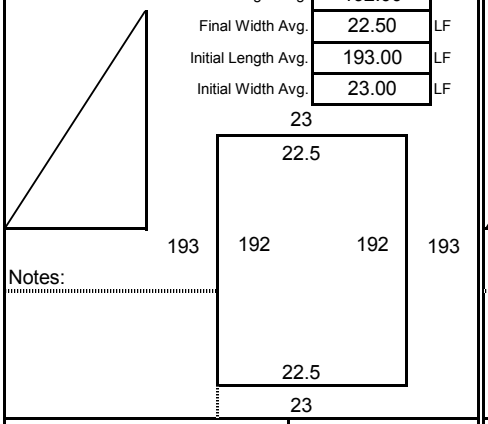


Notes:

Initial SF	2,530	Lineal Feet Trench	
Final SF	2,453		

Panel # P-63 Roll # G15F442017

Final Length Avg.	192.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	193.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	4,439	Lineal Feet Trench	
Final SF	4,320		

Panel # P-64 Roll # G15F442017

Final Length Avg.	299.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	300.00	LF
Initial Width Avg.	23.00	LF

Notes:

Initial SF	6,900	Lineal Feet Trench	
Final SF	6,728		

Panel # P-65 Roll # G15F442020

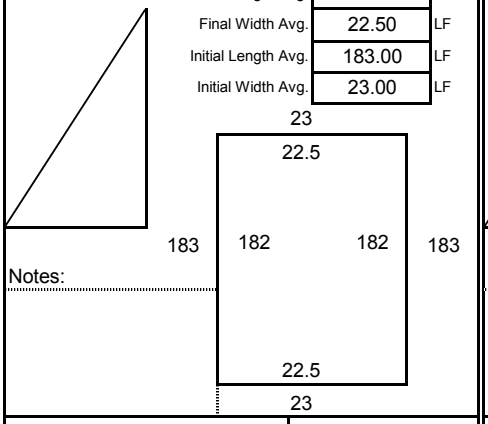
Final Length Avg.	299.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	300.00	LF
Initial Width Avg.	23.00	LF

Notes:

Initial SF	6,900	Lineal Feet Trench	
Final SF	6,728		

Panel # P-66 Roll # G15F442020

Final Length Avg.	182.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	183.00	LF
Initial Width Avg.	23.00	LF

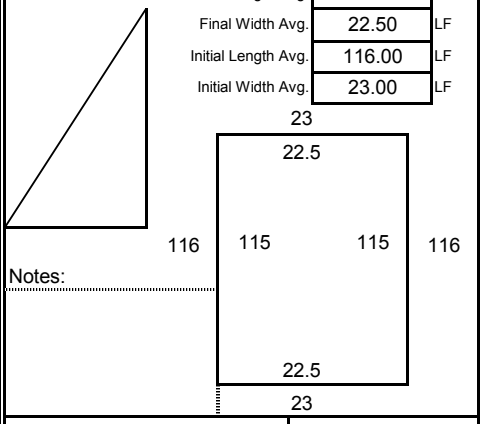


Notes:

Initial SF	4,209	Lineal Feet Trench	
Final SF	4,095		

Panel # P-67 Roll # G15F443027

Final Length Avg.	115.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	116.00	LF
Initial Width Avg.	23.00	LF

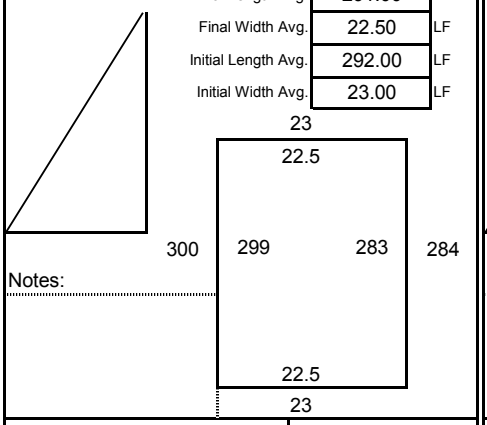


Notes:

Initial SF	2,668	Lineal Feet Trench	
Final SF	2,588		

Panel # P-68 Roll # G15F443027

Final Length Avg.	291.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	292.00	LF
Initial Width Avg.	23.00	LF

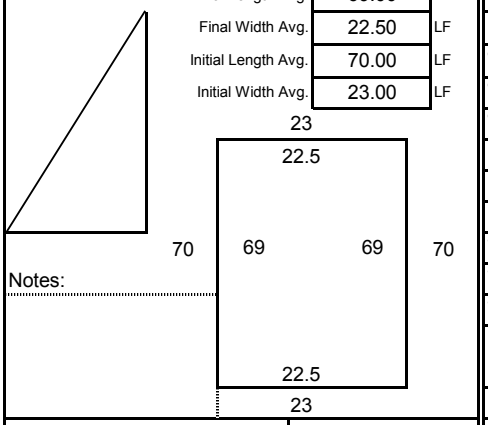


Notes:

Initial SF	6,716	Lineal Feet Trench	
Final SF	6,548		

Panel # P-69 Roll # G15F443027

Final Length Avg.	69.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	70.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	1,610	Lineal Feet Trench	
Final SF	1,553		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**35,010**	**SF**
Total Pay Area This Page	**35,010**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	216,177	SF
Total Panel SF To Date	251,187	SF
Total Pay Area To Date Including Anchor Trench	**251,187**	
Initial Quantity Previous	222,456	SF
Initial Quantity This Page	35,972	SF
Initial Quantity To Date	258,428	SF

Daily Panel Placement **Page** 10

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

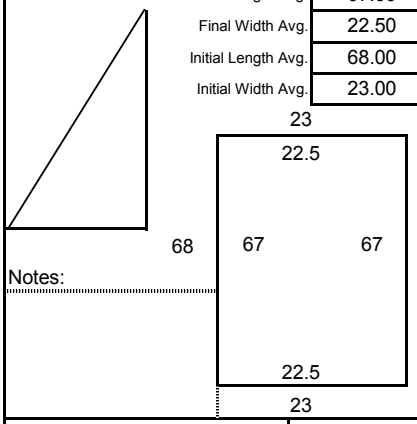
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-70 **Roll #** G15C282014

Final Length Avg.	67.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	68.00	LF
Initial Width Avg.	23.00	LF

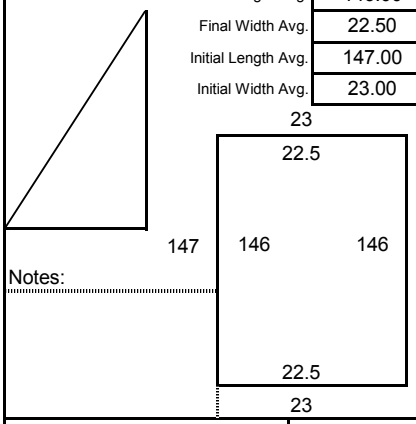


Notes:

Initial SF	1,564	Lineal Feet Trench	
Final SF	1,508		

Panel # P-71 **Roll #** G15F443033

Final Length Avg.	146.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	147.00	LF
Initial Width Avg.	23.00	LF

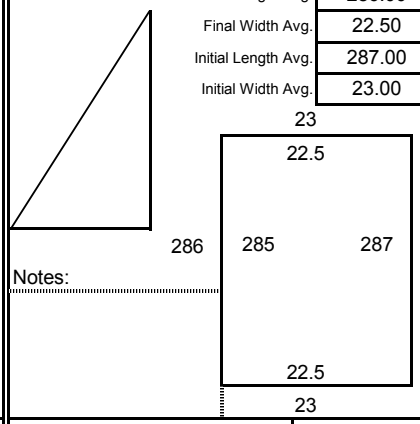


Notes:

Initial SF	3,381	Lineal Feet Trench	
Final SF	3,285		

Panel # P-72 **Roll #** G15F443033

Final Length Avg.	286.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	287.00	LF
Initial Width Avg.	23.00	LF

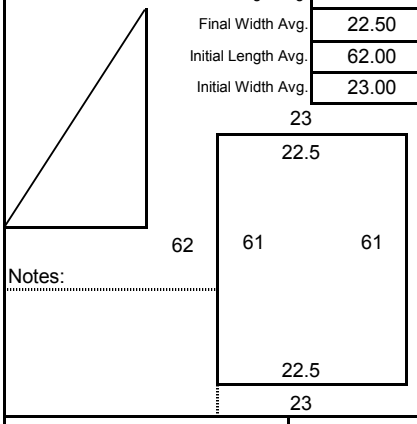


Notes:

Initial SF	6,601	Lineal Feet Trench	
Final SF	6,435		

Panel # P-73 **Roll #** G15F443033

Final Length Avg.	61.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	62.00	LF
Initial Width Avg.	23.00	LF

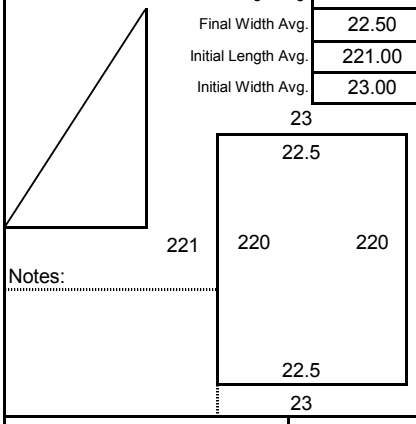


Notes:

Initial SF	1,426	Lineal Feet Trench	
Final SF	1,373		

Panel # P-74 **Roll #** G15F443039

Final Length Avg.	220.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	221.00	LF
Initial Width Avg.	23.00	LF

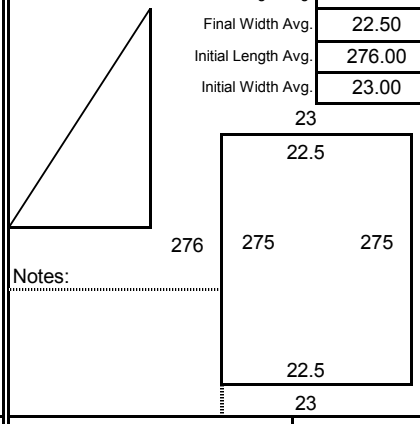


Notes:

Initial SF	5,083	Lineal Feet Trench	
Final SF	4,950		

Panel # P-75 **Roll #** G15F443039

Final Length Avg.	275.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	276.00	LF
Initial Width Avg.	23.00	LF

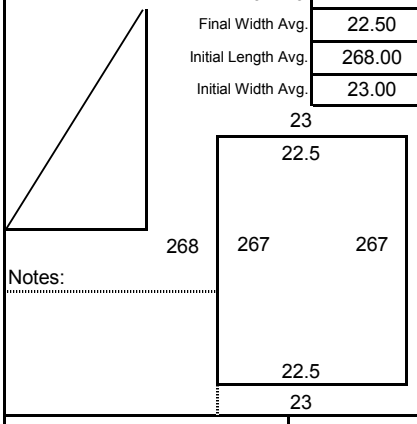


Notes:

Initial SF	6,348	Lineal Feet Trench	
Final SF	6,188		

Panel # P-76 **Roll #** G15F442016

Final Length Avg.	267.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	268.00	LF
Initial Width Avg.	23.00	LF

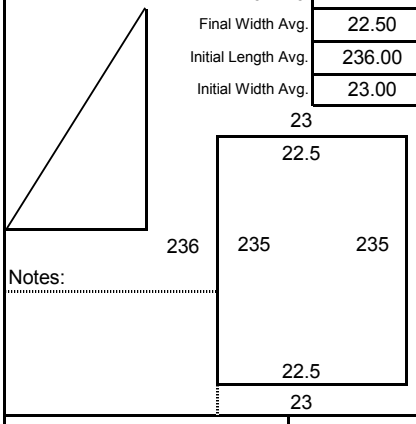


Notes:

Initial SF	6,164	Lineal Feet Trench	
Final SF	6,008		

Panel # P-77 **Roll #** G15F442016

Final Length Avg.	235.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	236.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	5,428	Lineal Feet Trench	
Final SF	5,288		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**35,033**	**SF**
Total Pay Area This Page	**35,033**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	251,187	SF
Total Panel SF To Date	286,220	SF
Total Pay Area To Date Including Anchor Trench	**286,220**	
Initial Quantity Previous	258,428	SF
Initial Quantity This Page	35,995	SF
Initial Quantity To Date	294,423	SF

Daily Panel Placement **Page** 11

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

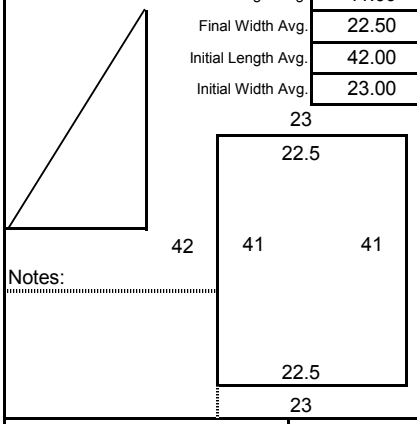
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-78 Roll # G15F443036

Final Length Avg.	41.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	42.00	LF
Initial Width Avg.	23.00	LF

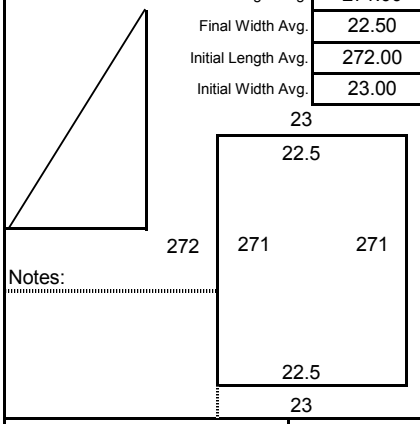


Notes:

Initial SF	966	Lineal Feet Trench
Final SF	923	

Panel # P-79 Roll # G15F443036

Final Length Avg.	271.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	272.00	LF
Initial Width Avg.	23.00	LF

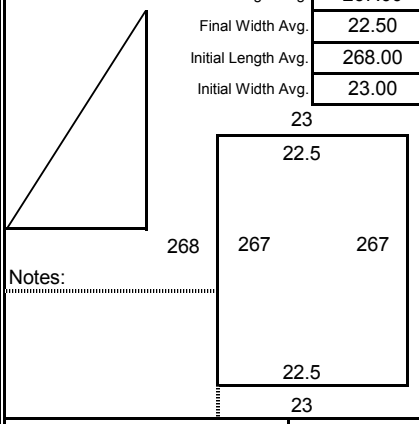


Notes:

Initial SF	6,256	Lineal Feet Trench
Final SF	6,098	

Panel # P-80 Roll # G15F443030

Final Length Avg.	267.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	268.00	LF
Initial Width Avg.	23.00	LF

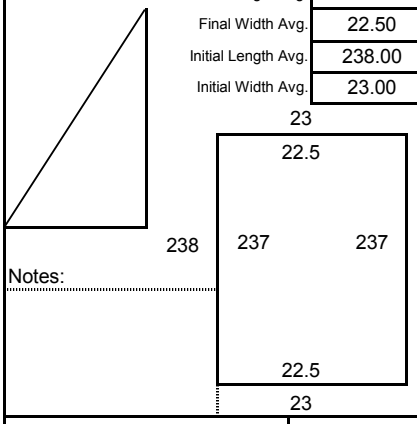


Notes:

Initial SF	6,164	Lineal Feet Trench
Final SF	6,008	

Panel # P-81 Roll # G15F443036

Final Length Avg.	237.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	238.00	LF
Initial Width Avg.	23.00	LF

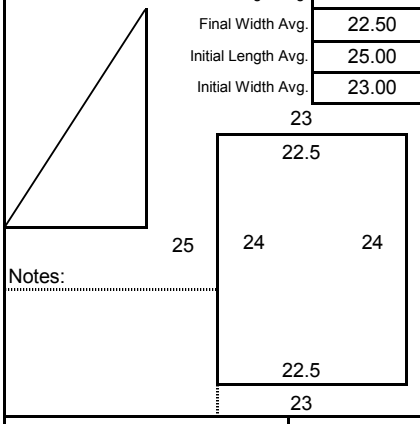


Notes:

Initial SF	5,474	Lineal Feet Trench
Final SF	5,333	

Panel # P-82 Roll # G15F444050

Final Length Avg.	24.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	25.00	LF
Initial Width Avg.	23.00	LF

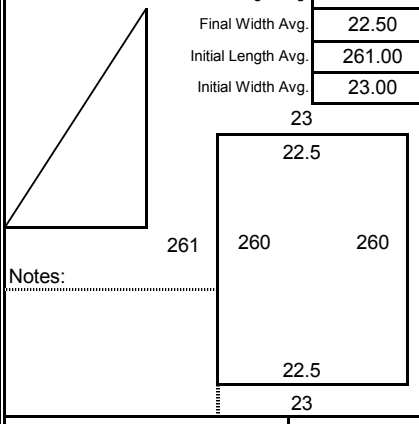


Notes:

Initial SF	575	Lineal Feet Trench
Final SF	540	

Panel # P-83 Roll # G15F444050

Final Length Avg.	260.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	261.00	LF
Initial Width Avg.	23.00	LF

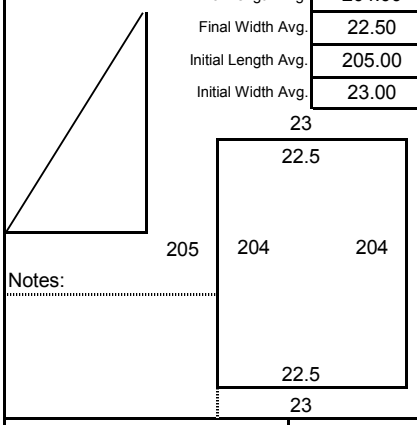


Notes:

Initial SF	6,003	Lineal Feet Trench
Final SF	5,850	

Panel # P-84 Roll # G15F444050

Final Length Avg.	204.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	205.00	LF
Initial Width Avg.	23.00	LF

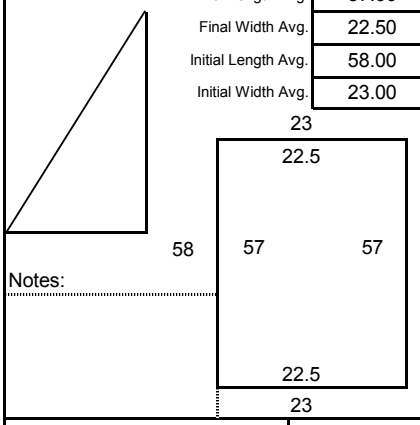


Notes:

Initial SF	4,715	Lineal Feet Trench
Final SF	4,590	

Panel # P-85 Roll # G15F443034

Final Length Avg.	57.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	58.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	1,334	Lineal Feet Trench
Final SF	1,283	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**30,623**	**SF**
Total Pay Area This Page	**30,623**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	286,220	SF
Total Panel SF To Date	316,842	SF
Total Pay Area To Date Including Anchor Trench	**316,842**	
Initial Quantity Previous	294,423	SF
Initial Quantity This Page	31,487	SF
Initial Quantity To Date	325,910	SF

Daily Panel Placement Page 12

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

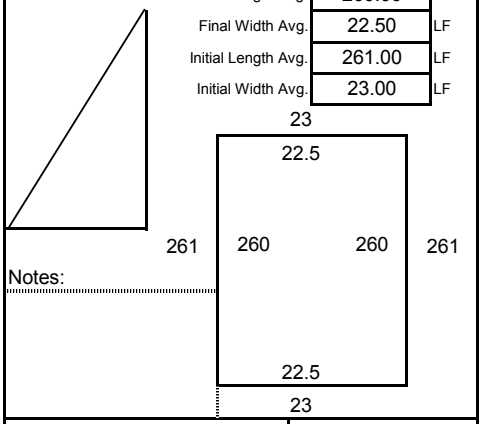
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-86 Roll # G15F443034

Final Length Avg.	260.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	261.00	LF
Initial Width Avg.	23.00	LF

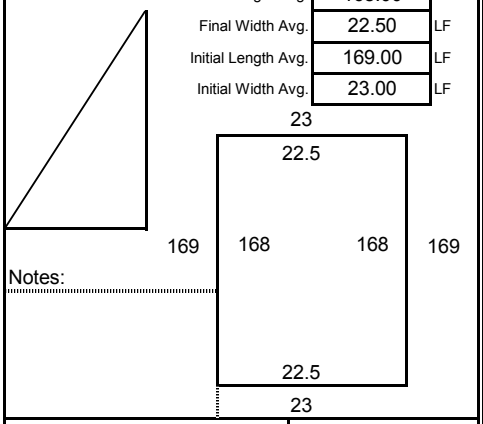


Notes:

Initial SF	6,003	Lineal Feet Trench
Final SF	5,850	

Panel # P-87 Roll # G15F443034

Final Length Avg.	168.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	169.00	LF
Initial Width Avg.	23.00	LF

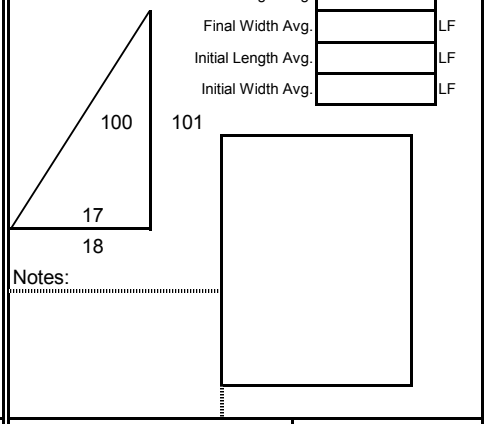


Notes:

Initial SF	3,887	Lineal Feet Trench
Final SF	3,780	

Panel # P-88 Roll # G15F443036

Final Length Avg.		LF
Final Width Avg.		LF
Initial Length Avg.		LF
Initial Width Avg.		LF

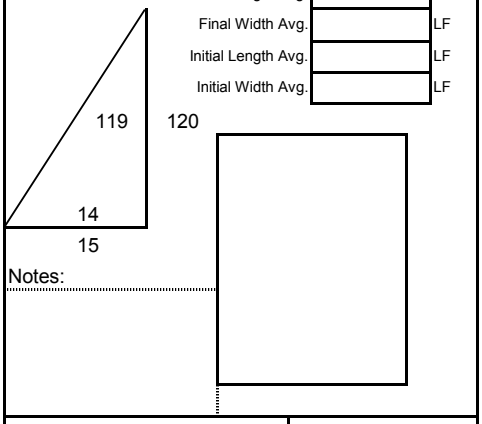


Notes:

Initial SF	909	Lineal Feet Trench
Final SF	850	

Panel # P-89 Roll # G15F443036

Final Length Avg.		LF
Final Width Avg.		LF
Initial Length Avg.		LF
Initial Width Avg.		LF



Notes:

Initial SF	900	Lineal Feet Trench
Final SF	833	

Panel # P-90 Roll # G15F443035

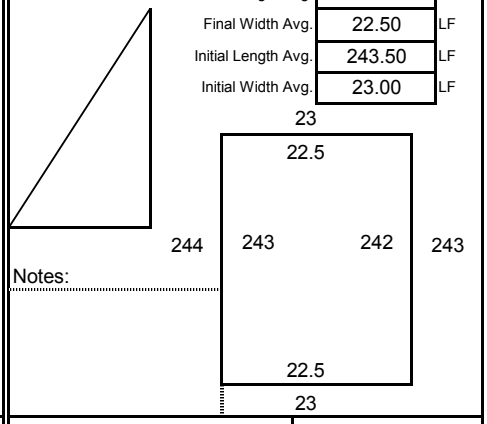
Final Length Avg.	243.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	244.00	LF
Initial Width Avg.	23.00	LF

Notes:

Initial SF	5,612	Lineal Feet Trench
Final SF	5,468	

Panel # P-91 Roll # G15F443035

Final Length Avg.	242.50	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	243.50	LF
Initial Width Avg.	23.00	LF

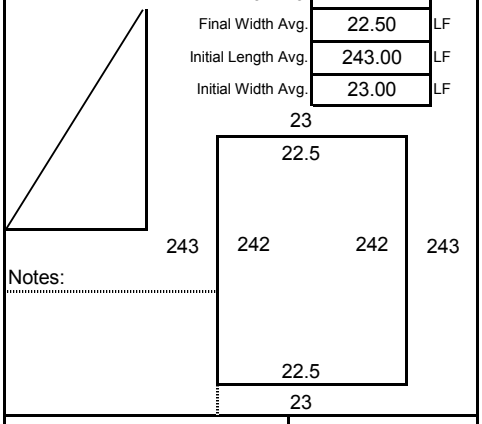


Notes:

Initial SF	5,601	Lineal Feet Trench
Final SF	5,456	

Panel # P-92 Roll # G15F444042

Final Length Avg.	242.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	243.00	LF
Initial Width Avg.	23.00	LF

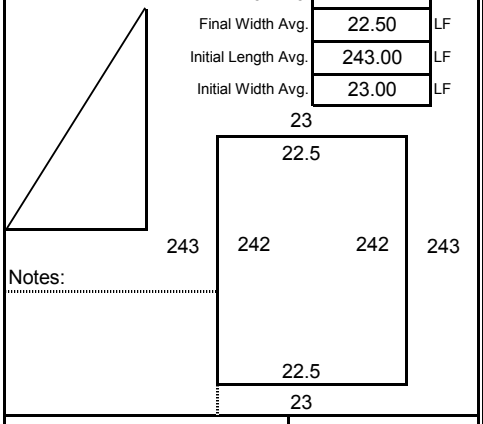


Notes:

Initial SF	5,589	Lineal Feet Trench
Final SF	5,445	

Panel # P-93 Roll # G15F444042

Final Length Avg.	242.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	243.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	5,589	Lineal Feet Trench
Final SF	5,445	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	-	SF
Total Panel SF This Page	33,127	SF
Total Pay Area This Page	33,127	SF
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	316,842	SF
Total Panel SF To Date	349,969	SF
Total Pay Area To Date Including Anchor Trench	**349,969**	
Initial Quantity Previous	325,910	SF
Initial Quantity This Page	34,090	SF
Initial Quantity To Date	360,000	SF

Daily Panel Placement **Page** 13

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

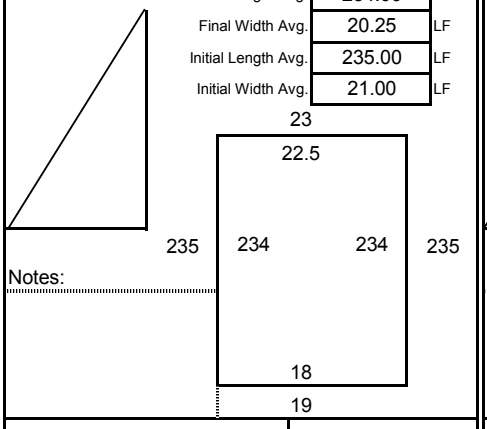
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-94 Roll # G15F443029

Final Length Avg.	234.00	LF
Final Width Avg.	20.25	LF
Initial Length Avg.	235.00	LF
Initial Width Avg.	21.00	LF

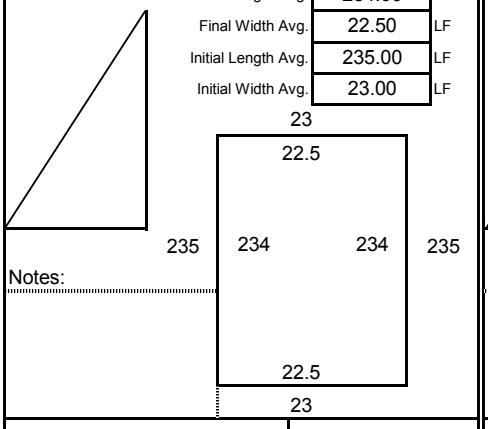


Notes:

Initial SF	4,935	Lineal Feet Trench
Final SF	4,739	

Panel # P-95 Roll # G15F443029

Final Length Avg.	234.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	235.00	LF
Initial Width Avg.	23.00	LF

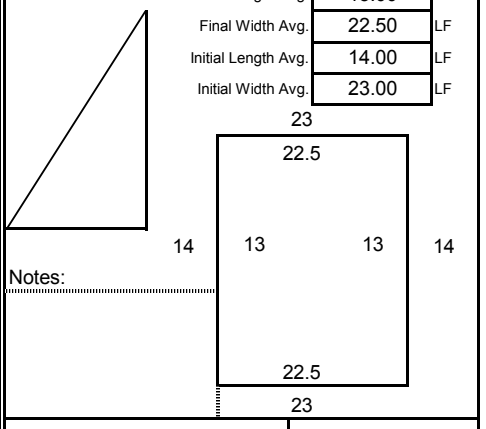


Notes:

Initial SF	5,405	Lineal Feet Trench
Final SF	5,265	

Panel # P-96 Roll # G15F443029

Final Length Avg.	13.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	14.00	LF
Initial Width Avg.	23.00	LF

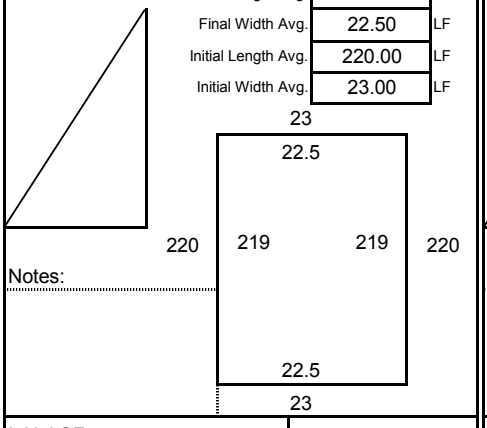


Notes:

Initial SF	322	Lineal Feet Trench
Final SF	293	

Panel # P-97 Roll # G15F443040

Final Length Avg.	219.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	220.00	LF
Initial Width Avg.	23.00	LF

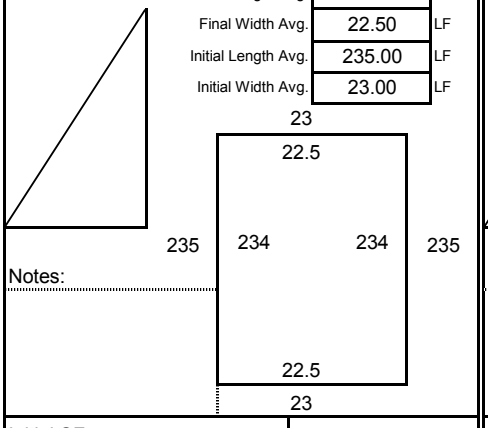


Notes:

Initial SF	5,060	Lineal Feet Trench
Final SF	4,928	

Panel # P-98 Roll # G15F443040

Final Length Avg.	234.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	235.00	LF
Initial Width Avg.	23.00	LF

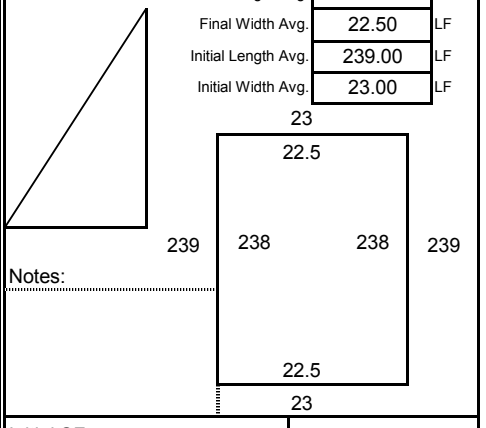


Notes:

Initial SF	5,405	Lineal Feet Trench
Final SF	5,265	

Panel # P-99 Roll # G15F444049

Final Length Avg.	238.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	239.00	LF
Initial Width Avg.	23.00	LF

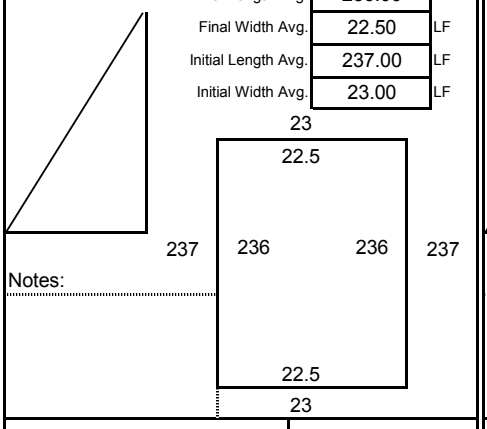


Notes:

Initial SF	5,497	Lineal Feet Trench
Final SF	5,355	

Panel # P-100 Roll # G15F444049

Final Length Avg.	236.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	237.00	LF
Initial Width Avg.	23.00	LF

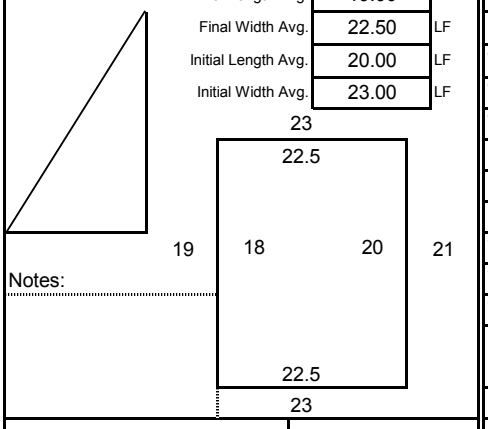


Notes:

Initial SF	5,451	Lineal Feet Trench
Final SF	5,310	

Panel # P-101 Roll # G15F444049

Final Length Avg.	19.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	20.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	460	Lineal Feet Trench
Final SF	428	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**31,581**	**SF**
Total Pay Area This Page	**31,581**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	349,969	SF
Total Panel SF To Date	381,550	SF
Total Pay Area To Date Including Anchor Trench	**381,550**	
Initial Quantity Previous	360,000	SF
Initial Quantity This Page	32,535	SF
Initial Quantity To Date	392,535	SF

Daily Panel Placement Page 14

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

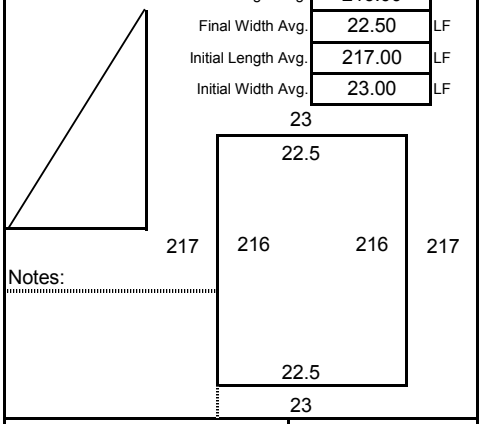
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-102 Roll # G15F443032

Final Length Avg.	216.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	217.00	LF
Initial Width Avg.	23.00	LF

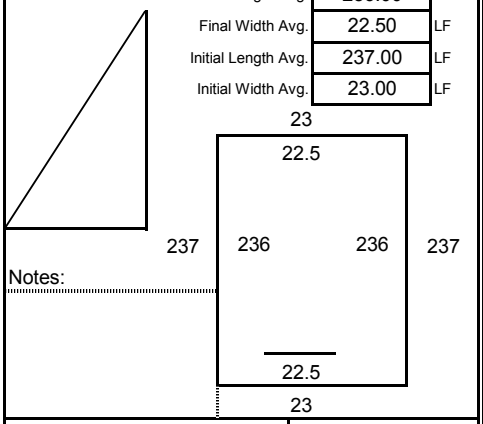


Notes:

Initial SF	4,991	Lineal Feet Trench
Final SF	4,860	

Panel # P-103 Roll # G15F443032

Final Length Avg.	236.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	237.00	LF
Initial Width Avg.	23.00	LF

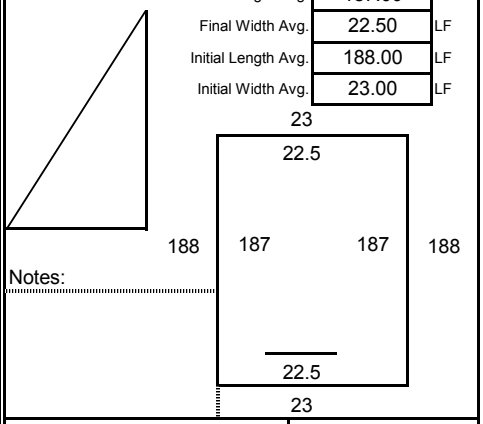


Notes:

Initial SF	5,451	Lineal Feet Trench
Final SF	5,310	

Panel # P-104 Roll # G15F442024

Final Length Avg.	187.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	188.00	LF
Initial Width Avg.	23.00	LF

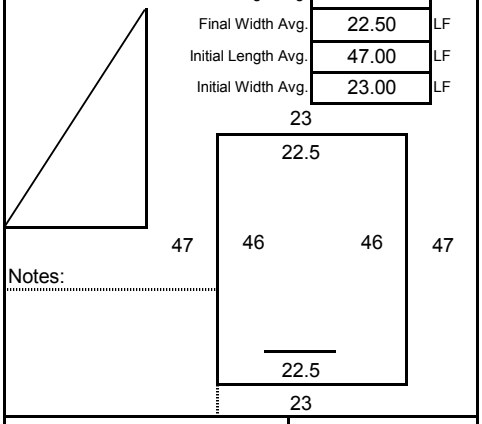


Notes:

Initial SF	4,324	Lineal Feet Trench
Final SF	4,208	

Panel # P-105 Roll # G15F443032

Final Length Avg.	46.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	47.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	1,081	Lineal Feet Trench
Final SF	1,035	

Panel # P-106 Roll # G15F442024

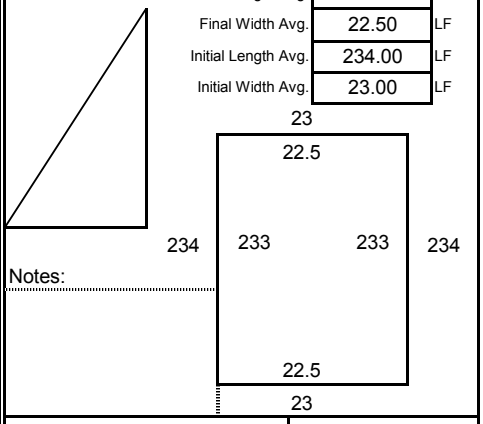
Final Length Avg.	235.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	236.00	LF
Initial Width Avg.	23.00	LF

Notes:

Initial SF	5,428	Lineal Feet Trench
Final SF	5,288	

Panel # P-107 Roll # G16B001092

Final Length Avg.	233.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	234.00	LF
Initial Width Avg.	23.00	LF

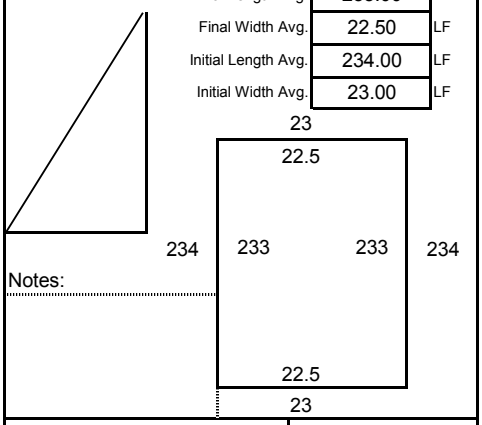


Notes:

Initial SF	5,382	Lineal Feet Trench
Final SF	5,243	

Panel # P-108 Roll # G16B001092

Final Length Avg.	233.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	234.00	LF
Initial Width Avg.	23.00	LF

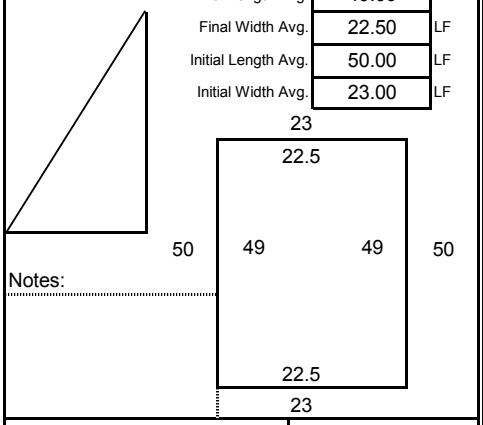


Notes:

Initial SF	5,382	Lineal Feet Trench
Final SF	5,243	

Panel # P-109 Roll # G16B001092

Final Length Avg.	49.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	50.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	1,150	Lineal Feet Trench
Final SF	1,103	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**32,288**	**SF**
Total Pay Area This Page	**32,288**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	381,550	SF
Total Panel SF To Date	413,838	SF
Total Pay Area To Date Including Anchor Trench	**413,838**	
Initial Quantity Previous	392,535	SF
Initial Quantity This Page	33,189	SF
Initial Quantity To Date	425,724	SF

Daily Panel Placement **Page** 15

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

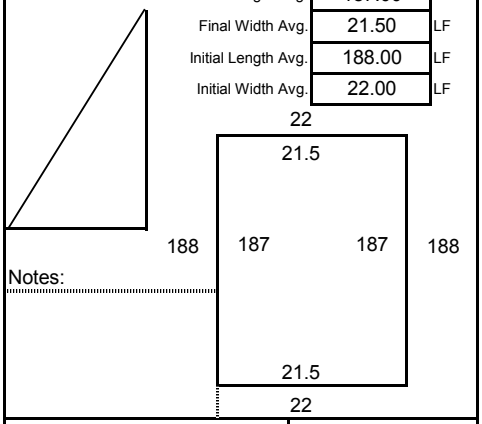
Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel # P-110 Roll # G16B001091

Final Length Avg.	187.00	LF
Final Width Avg.	21.50	LF
Initial Length Avg.	188.00	LF
Initial Width Avg.	22.00	LF

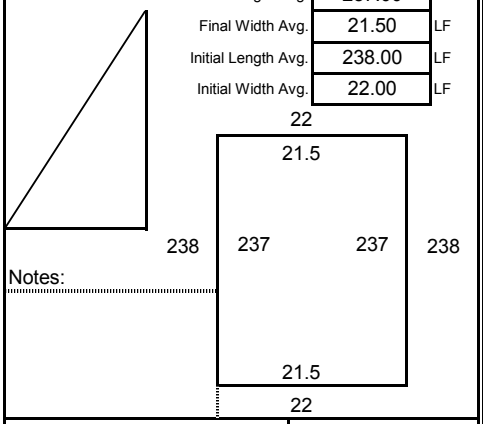


Notes:

Initial SF	4,136	Lineal Feet Trench	
Final SF	4,021		

Panel # P-111 Roll # G15F444041

Final Length Avg.	237.00	LF
Final Width Avg.	21.50	LF
Initial Length Avg.	238.00	LF
Initial Width Avg.	22.00	LF

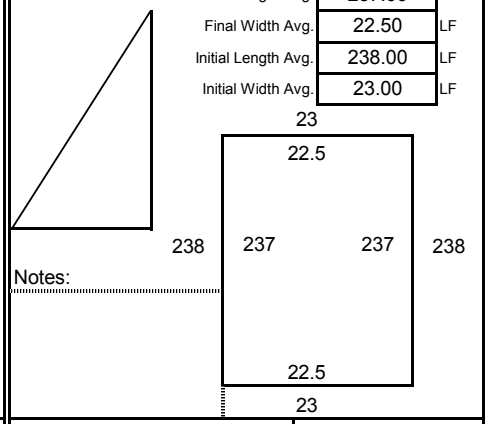


Notes:

Initial SF	5,236	Lineal Feet Trench	
Final SF	5,096		

Panel # P-112 Roll # G15F444041

Final Length Avg.	237.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	238.00	LF
Initial Width Avg.	23.00	LF

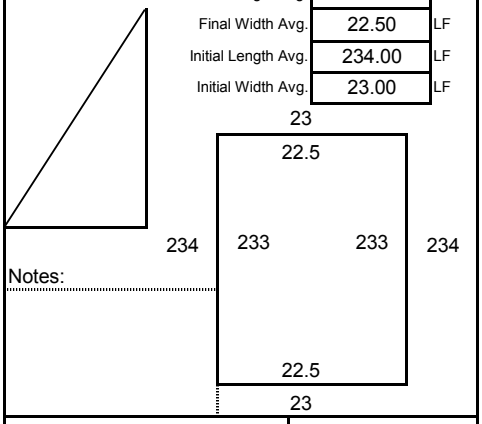


Notes:

Initial SF	5,474	Lineal Feet Trench	
Final SF	5,333		

Panel # P-113 Roll # G15F442025

Final Length Avg.	233.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	234.00	LF
Initial Width Avg.	23.00	LF

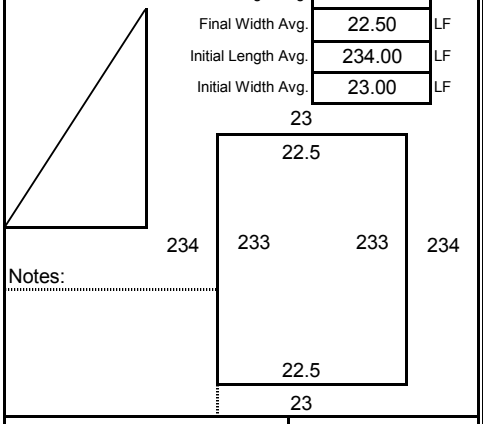


Notes:

Initial SF	5,382	Lineal Feet Trench	
Final SF	5,243		

Panel # P-114 Roll # G15F442025

Final Length Avg.	233.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	234.00	LF
Initial Width Avg.	23.00	LF

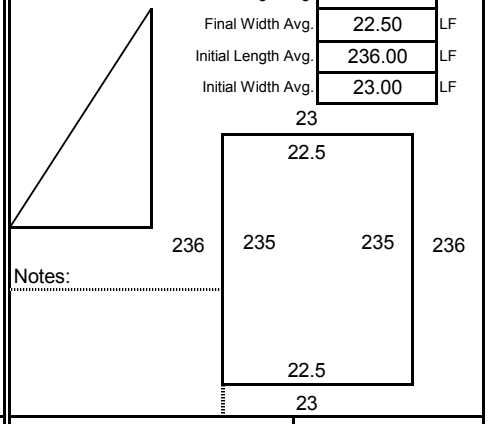


Notes:

Initial SF	5,382	Lineal Feet Trench	
Final SF	5,243		

Panel # P-115 Roll # G15F443038

Final Length Avg.	235.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	236.00	LF
Initial Width Avg.	23.00	LF

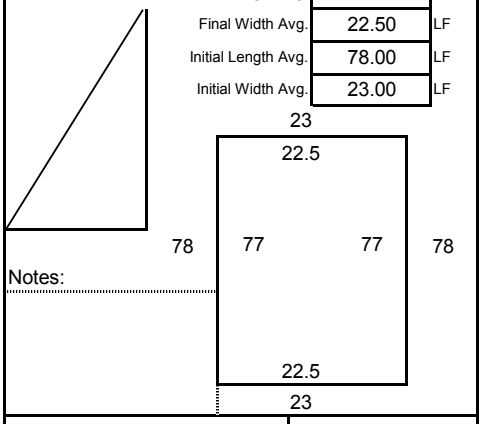


Notes:

Initial SF	5,428	Lineal Feet Trench	
Final SF	5,288		

Panel # P-116 Roll # G15F443038

Final Length Avg.	77.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	78.00	LF
Initial Width Avg.	23.00	LF

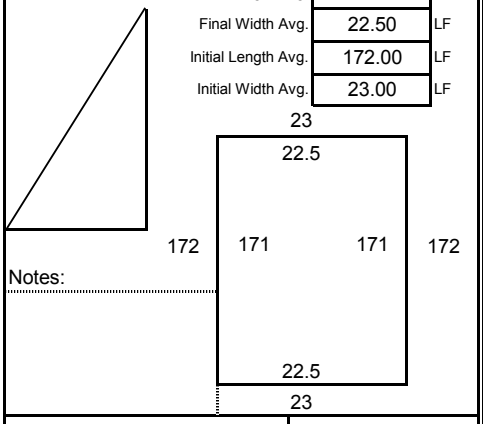


Notes:

Initial SF	1,794	Lineal Feet Trench	
Final SF	1,733		

Panel # P-117 Roll # G15F443038

Final Length Avg.	171.00	LF
Final Width Avg.	22.50	LF
Initial Length Avg.	172.00	LF
Initial Width Avg.	23.00	LF



Notes:

Initial SF	3,956	Lineal Feet Trench	
Final SF	3,848		

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**35,801**	**SF**
Total Pay Area This Page	**35,801**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	413,838	SF
Total Panel SF To Date	449,639	SF
Total Pay Area To Date Including Anchor Trench	**449,639**	
Initial Quantity Previous	425,724	SF
Initial Quantity This Page	36,788	SF
Initial Quantity To Date	462,512	SF

Daily Panel Placement **Page** 16

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12--11--1399 **Deployment Date**

Superintendent: TONY UNG **Material Type:** 60 MIL LLDPE MICROSPIKE LINER

[X] **Primary** **Secondary** [ ] **Cell** [ ] **Pond** [ ] **Cap** [X] **Other:**

Description (i.e. Phase #, Cell #, Pond # etc.) **Roll Stock Width** 23

Panel #	Roll #	Final Length Avg.	Final Width Avg.	Initial Length Avg.	Initial Width Avg.	Notes:	Initial SF	Final SF	Lineal Feet Trench
P-118	G16B001091	LF	LF	LF	LF	229 / 230 / 22.5 / 23	2,645	2,576	
P-119	G16B001091	LF	LF	LF	LF	137 / 136 / 20.5 / 21	1,428	1,404	
		LF	LF	LF	LF		-	-	
		LF	LF	LF	LF		-	-	
		LF	LF	LF	LF		-	-	
		LF	LF	LF	LF		-	-	

Material in Anchor Trench		
Total LF In Trench This Page	-	LF
Depth and Width Allowed in Trench		LF
Total SF Trench This Page	**-**	**SF**
Total Panel SF This Page	**3,981**	**SF**
Total Pay Area This Page	**3,981**	**SF**
LF In Trench Previous	-	LF
LF In Trench To Date	-	LF
SF In Trench Previous	-	SF
Total SF in Trench to Date	-	SF
Total Panel SF Previous	449,639	SF
Total Panel SF To Date	453,619	SF
Total Pay Area To Date Including Anchor Trench	**453,619**	
Initial Quantity Previous	462,512	SF
Initial Quantity This Page	4,073	SF
Initial Quantity To Date	466,585	SF

Appendix H
ESI Trial Weld Logs

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM / PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
6/22/16	13:00	SU	4024	6	860		82	Peel	90	75	82	95	75	85	95	89	91	84	Pass
S TO S	PM							Shear	93		97		98		96		97		
6/22/16	13:43	BS	4000	6	860		82	Peel	81	86	83	84	87	83	86	87	84	86	Pass
S TO S	PM							Shear	95		96		98		97		98		
6/22/16	14:00	SU	4024	6	860		82	Peel	75	96	97	93	77	94	98	85	91	96	Pass
T TO T	PM							Shear	101		98		103		101		99		
6/22/16	15:51	BS	4000	6	860		82	Peel	98	96	86	87	99	87	95	89	84	86	Pass
S TO T	PM							Shear	104		101		102		99		98		
6/23/16	7:45	SU	EXT-74		500	450	69	Peel	84		89		91		96		100		Pass
S TO S	AM							Shear	90		100		100		105		103		
6/23/16	10:30	AP	4000	5	860		72	Peel	96	93	89	81	90	81	91	91	89	91	Pass
S TO S	AM							Shear	97		99		101		103		98		
6/23/16	10:35	AP	4000	5	860		72	Peel	106	107	105	104	90	105	91	105	85	91	Pass
T TO T	AM							Shear	103		97		96		105		100		
6/23/16	10:17	BS	4131	5	860		72	Peel	91	89	76	84	91	99	86	90	91	76	Pass
S TO S	AM							Shear	100		97		99		103		105		
6/23/16	11:34	AP	4000	5	860		72	Peel	88	83	84	89	86	86	87	87	84	83	Pass
S TO T	AM							Shear	90		95		98		92		94		
6/23/16	13:00	SU	EXT-74		500	450	72	Peel	85		78		93		95		96		Pass
S TO S	PM							Shear	99		98		102		103		101		
6/24/16	7:20	SU	EXT-74		500	450	72	Peel	99		89		88		97		100		Pass
T TO T	AM							Shear	101		103		98		100		97		
6/24/16	10:20	AP	4000	5	860		72	Peel	89	91	88	87	86	93	94	98	91	92	Pass
S TO S	AM							Shear	101		103		104		100		102		
6/24/16	10:24	AP	4000	5	860		72	Peel	91	93	89	90	93	96	91	92	93	94	Pass
T TO T	AM							Shear	103		101		100		103		102		
6/24/16	10:18	AP	4000	5	860		72	Peel	86	87	93	94	95	98	86	85	80	79	Pass
S TO T	AM							Shear	103		98		103		102		99		
6/24/16	10:18	BS	4131	6	860		72	Peel	81	94	95	86	87	88	86	89	96	89	Pass
S TO S	AM							Shear	102		99		100		102		103		
6/24/16	13:15	MA	EXT-75		500	450	72	Peel	91		95		90		89		96		Pass
S TO S	PM							Shear	108		109		101		107		101		

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
6/24/16	12:50	SU	EXT -74		500	450	72	Peel	90	96	88	92	97	Pass
S TO S	PM							Shear	101	103	104	107	106	
6/27/16	15:27	BS	4131	5	860		80	Peel	91 | 88	90 | 78	88 | 89	92 | 90	93 | 95	Pass
S to S	PM							Shear	109	98	100	103	102	
6/27/16	15:44	AP	4000	5	860		80	Peel	93 | 89	90 | 90	91 | 96	93 | 91	92 | 90	Pass
S TO S	PM							Shear	103	103	100	102	104	
6/27/16	15:46	AP	4000	5	860		80	Peel	90 | 92	94 | 88	95 | 102	94 | 94	96 | 94	Pass
T TO T	PM							Shear	101	102	100	99	96	
6/27/16	15:48	AP	4000	5	860		80	Peel	95 | 87	97 | 90	101 | 96	95 | 83	95 | 90	Pass
S TO T	PM							Shear	101	103	98	99	100	
6/27/16	15:30	BS	4131	5	860		80	Peel	95 | 96	89 | 91	88 | 76	90 | 87	96 | 87	Pass
S TO T	PM							Shear	101	102	97	96	103	
6/27/16	17:29	BS	4024	5	860		80	Peel	91 | 98	95 | 96	103 | 93	93 | 76	93 | 89	Pass
S TO S	PM							Shear	105	103	107	106	103	
6/27/16	13:05	SU	EXT-74		500	450	70	Peel	98	98	101	103	102	Pass
T TO T	PM							Shear	101	103	102	101	103	
6/29/16	7:25	SU	EXT-74		500	400	80	Peel	90	99	100	102	102	Pass
T TO T	AM							Shear	94	97	98	97	96	
6/29/16	12:59	SU	EXT-74		500	400	80	Peel	101	87	101	101	103	Pass
T TO T	PM							Shear	100	103	107	106	100	
6/30/16	8:10	SU	EXT-74		500	400	75	Peel	107	109	119	99	111	Pass
T TO T	AM							Shear	106	101	100	99	103	
6/30/16	10:43	BS	4131	6	860		75	Peel	103 | 116	96 | 115	110 | 113	111 | 106	98 | 114	Pass
T TO T	AM							Shear	104	106	101	100	102	
6/30/16	10:06	BS	4131	6	860		75	Peel	102 | 100	101 | 88	104 | 100	98 | 102	100 | 95	Pass
S TO S	AM							Shear	103	104	101	102	100	
6/30/16	10:15	AP	4000	6	860		75	Peel	107 | 93	107 | 100	101 | 100	82 | 103	105 | 96	Pass
S TO T	AM							Shear	103	102	101	103	102	
6/30/16	10:20	AP	4000	6	860		75	Peel	101 | 101	101 | 100	91 | 104	101 | 100	101 | 98	Pass
S TO S	AM							Shear	104	103	99	100	104	
6/30/16	10:05	AP	4000	6	860		75	Peel	83 | 91	78 | 106	91 | 104	103 | 99	100 | 102	Pass
T TO T	AM							Shear	98	99	101	100	103	

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
6/30/16	12:40	SU	EXT-74		500	400	85	Peel	108	103	99	98	101	Pass
T TO T	PM							Shear	103	102	100	99	100	
6/30/16	12:55	BS	4131	6	860		85	Peel	100 | 98	89 | 95	96 | 89	107 | 100	99 | 99	Pass
S TO S	PM							Shear	101	100	104	105	103	
7/1/16	7:30	SU	EXT-74		500	400	81	Peel	101	107	108	108	107	Pass
T TO T	AM							Shear	103	102	101	102	103	
7/1/16	7:40	BS	4131	6	860		81	Peel	88 | 94	110 | 98	111 | 99	101 | 99	88 | 93	Pass
S TO S	AM							Shear	100	103	102	99	101	
7/1/16	7:34	AP	4000	6	860		81	Peel	93 | 82	97 | 96	91 | 94	82 | 89	98 | 95	Pass
S TO S	AM							Shear	102	100	103	111	104	
7/1/16	7:32	AP	4000	6	860		81	Peel	104 | 104	105 | 102	98 | 95	104 | 112	102 | 103	Pass
T TO T	AM							Shear	102	103	100	102	101	
7/1/16	7:32	AP	4000	6	860		81	Peel	91 | 86	87 | 94	100 | 95	99 | 97	98 | 89	Pass
S TO T	AM							Shear	111	102	103	102	100	
7/1/16	12:50	SU	EXT-74		500	400	81	Peel	91	95	98	101	96	Pass
T TO T	PM							Shear	101	102	103	104	106	
7/6/16	13:00	SU	EXT-74		500	400	91	Peel	89	99	98	102	101	Pass
T TO T	PM							Shear	103	102	101	103	104	
7/6/16	13:05	AP	4000	6	860		91	Peel	83 | 101	93 | 96	93 | 85	96 | 99	98 | 88	Pass
T TO T	PM							Shear	101	100	103	104	102	
7/6/16	13:10	AP	4000	6	860		91	Peel	78 | 87	86 | 83	83 | 84	86 | 86	90 | 93	Pass
S TO S	PM							Shear	103	104	102	103	104	
7/6/16	13:05	AP	4000	6	860		91	Peel	97 | 93	86 | 90	91 | 95	85 | 89	90 | 89	Pass
T TO S	PM							Shear	101	100	102	101	100	
7/6/16	13:05	BS	4131	6	860		91	Peel	89 | 85	89 | 86	86 | 89	79 | 91	93 | 93	Pass
S TO S	PM							Shear	101	100	103	102	101	
7/7/16	7:10	SU	EXT-74		500	400	90	Peel	90	100	102	101	100	Pass
T TO T	AM							Shear	104	103	104	102	103	
7/7/16	13:45	SU	EXT-74		500	400	90	Peel	98	101	98	96	101	Pass
T TO T	PM							Shear	102	100	103	103	104	
7/7/16	13:10	BS	4131	6	860		91	Peel	98 | 89	83 | 89	93 | 94	95 | 96	100 | 99	Pass
S TO S	PM							Shear	101	103	104	103	101	

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
7/8/16	7:00	SU	EXT-74		500	400	88	Peel	109	101	112	110	111	Pass
T TO T	AM							Shear	101	102	106	101	103	
7/8/16	7:50	DM	EXT-75		500	400	88	Peel	80	80	82	83	86	Pass
T TO T	AM							Shear	100	103	102	100	101	
7/8/16	10:38	AP	4000	6	860		88	Peel	89 | 95	95 | 100	87 | 93	75 | 91	79 | 89	Pass
S TO S	AM							Shear	101	102	101	103	102	
7/8/16	10:40	AP	4000	6	860		88	Peel	88 | 87	89 | 98	96 | 93	93 | 96	88 | 92	Pass
T TO T	AM							Shear	102	103	102	103	102	
7/8/16	8:46	BS	4131	6	860		88	Peel	93 | 90	88 | 87	91 | 93	94 | 95	91 | 92	Pass
S TO S	AM							Shear	102	101	103	104	105	
7/8/16	10:50	BS	4131	6	860		88	Peel	81 | 82	89 | 90	91 | 92	93 | 94	95 | 96	Pass
S TO T	AM							Shear	105	103	104	102	103	
7/8/16	12:30	SU	EXT-74		500	400	86	Peel	96	103	98	97	101	Pass
T TO T	PM							Shear	100	101	102	103	100	
7/11/16	7:10	SU	EXT-74		500	400	85	Peel	103	102	100	101	103	Pass
T TO T	AM							Shear	103	102	100	105	104	
7/12/16	7:50	SU	EXT-74		500	400	69	Peel	102	101	100	100	101	Pass
T TO T	AM							Shear	101	101	103	104	106	
7/12/16	11:15	AP	4000	6	860		80	Peel	80 | 106	101 | 109	89 | 95	101 | 102	101 | 100	Pass
S TO S	AM							Shear	103	104	105	104	103	
7/12/16	11:20	AP	4000	6	860		80	Peel	89 | 100	112 | 111	101 | 102	109 | 99	93 | 95	Pass
T TO T	AM							Shear	103	102	101	104	103	
7/12/16	12:40	SU	EXT-74		500	400	89	Peel	101	102	99	100	101	Pass
T TO T	PM							Shear	104	103	102	103	101	
7/12/16	13:10	BS	4131	6	860		89	Peel	95 | 96	85 | 86	89 | 93	99 | 96	97 | 90	Pass
S TO S	PM							Shear	100	102	103	102	101	
7/12/16	13:15	BS	4131	6	860		89	Peel	98 | 98	87 | 80	96 | 89	93 | 94	96 | 92	Pass
T TO T	PM							Shear	101	102	101	104	105	
7/13/16	7:10	SU	EXT-74		500	400	69	Peel	113	112	114	110	112	Pass
T TO T	AM							Shear	101	103	102	102	103	
7/13/16	14:30	AP	4000	6	860		82	Peel	101 | 99	96 | 98	100 | 98	97 | 96	97 | 88	Pass
S TO S	PM							Shear	103	102	103	102	104	

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
7/13/16	14:35	AP	4000	6	860		82	Peel	86	93	86	95	87	90	96	97	96	95	Pass
T TO T	PM							Shear	101		103		103		105		103		
7/13/16	14:23	BS	4131	6	860		83	Peel	92	86	93	90	94	96	97	95	86	84	Pass
S TO S	PM							Shear	101		103		102		104		104		
7/13/16	14:25	BS	4131	6	860		83	Peel	96	98	91	90	92	93	94	96	98	99	Pass
T TO T	PM							Shear	101		103		104		103		102		
7/13/16	13:30	SU	EXT-74		500	400	83	Peel	102		101		103		102		101		Pass
T TO T	PM							Shear	105		101		105		102		104		
7/14/16	7:20	SU	EXT-74		500	400	83	Peel	92		92		99		96		97		Pass
T TO T	AM							Shear	103		108		106		107		103		
7/14/16	10:00	BS	4131	6	860		75	Peel	91	99	95	93	89	89	86	89	91	93	Pass
S TO S	AM							Shear	101		108		107		105		103		
7/14/16	9:52	AP	4000	6	860		75	Peel	85	86	93	96	98	100	96	98	87	86	Pass
T TO T	AM							Shear	102		108		109		106		107		
7/14/16	9:50	AP	4000	6	860		75	Peel	100	99	96	97	99	100	87	97	93	96	Pass
S TO S	AM							Shear	103		104		102		103		106		
7/25/16	10:15	AP	4000	6	860		76	Peel	101	98	89	96	97	99	101	103	99	100	Pass
S TO S	AM							Shear	115		116		112		116		115		
7/25/16	10:15	BS	4131	6	860		76	Peel	103	102	104	103	102	101	100	96	97	93	Pass
S TO S	AM							Shear	131		126		124		122		124		
7/25/16	10:20	SU	EXT-74		500	400	76	Peel	87		97		98		98		85		Pass
S TO S	AM							Shear	102		105		125		110		113		
7/25/16	10:30	BS	4131	6	860		76	Peel	96	98	86	96	99	100	89	96	95	96	Pass
T TO T	AM							Shear	105		104		105		103		105		
7/25/16	12:18	BS	4131	6	860		95	Peel	99	100	104	89	99	98	88	86	99	95	Pass
S TO T	PM							Shear	102		105		103		105		102		
7/25/16	12:20	BS	4131	6	860		96	Peel	98	96	86	100	86	95	96	86	92	86	Pass
T TO T	PM							Shear	105		108		103		108		109		
7/25/16	2:19	DM	EXT-75		500	400	92	Peel	100		102		103		104		103		Pass
T TO T	PM							Shear	103		102		103		106		103		
7/27/16	7:20	SU	EXT-74		500	400	82	Peel	100		102		99		104		102		Pass
T TO T	AM							Shear	105		102		103		101		103		

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
7/27/16	10:52	AP	4000	6	860		85	Peel	98 | 89	85 | 86	95 | 99	100 | 98	85 | 98	Pass
S TO S	AM							Shear	104	103	105	102	105	
7/27/16	10:51	AP	4000	6	860		85	Peel	98 | 99	85 | 86	94 | 99	79 | 81	85 | 87	Pass
T TO T	AM							Shear	105	104	105	106	104	
7/27/16	10:50	BS	4131	6	860		85	Peel	89 | 87	85 | 89	99 | 98	97 | 96	93 | 89	Pass
T TO T	AM							Shear	104	103	105	103	105	
7/27/16	10:56	BS	4131	6	860		91	Peel	96 | 98	95 | 94	85 | 76	89 | 88	82 | 78	Pass
S TO S	AM							Shear	105	108	103	105	103	
7/27/16	11:10	BS	4131	6	860		91	Peel	98 | 89	85 | 81	83 | 97	98 | 92	95 | 93	Pass
S TO T	AM							Shear	106	106	104	105	102	
7/28/16	7:30	SU	EXT-74		500	400	87	Peel	110 |	112 |	110 |	112 |	114 |	Pass
T TO T	AM							Shear	101	108	104	103	105	
7/28/16	12:48	AP	4000	6	860		93	Peel	110 | 103	98 | 89	85 | 92	99 | 93	100 | 99	Pass
S TO S	PM							Shear	102	103	1014	105	102	
7/28/16	12:49	AP	4000	6	860		93	Peel	102 | 102	106 | 111	102 | 101	111 | 98	99 | 98	Pass
T TO T	PM							Shear	102	103	102	104	105	
7/28/16	12:56	BS	4131	6	860		93	Peel	111 | 105	111 | 103	99 | 98	86 | 89	95 | 86	Pass
S TO S	PM							Shear	105	102	106	105	102	
7/28/16	12:58	BS	4131	6	860		93	Peel	111 | 102	115 | 113	89 | 99	89 | 95	86 | 92	Pass
T TO T	PM							Shear	106	105	105	103	102	
7/28/16	12:59	BS	4131	6	860		93	Peel	113 | 100	98 | 99	96 | 98	98 | 89	86 | 87	Pass
S TO T	PM							Shear	105	108	106	105	103	
7/28/16	15:56	DM	EXT-75		500	400	93	Peel	101 |	102 |	104 |	99 |	100 |	Pass
T TO T	PM							Shear	102	103	102	105	103	
8/2/16	7:20	SU	EXT-74		500	400	78	Peel	100 |	101 |	103 |	102 |	102 |	Pass
T TO T	AM							Shear	103	102	103	102	103	
8/2/16	12:40	SU	EXT-74		500	400	80	Peel	103 |	102 |	101 |	102 |	101 |	Pass
t TO t	PM							Shear	101	103	103	102	103	
8/3/16	13:08	BS	4131	6	860		80	Peel	98 | 96	100 | 98	93 | 86	85 | 86	89 | 99	Pass
T TO T	PM							Shear	105	106	102	106	102	
8/3/16	13:00	BS	4131	6	860		80	Peel	96 | 98	95 | 96	94 | 92	98 | 100	96 | 98	Pass
S TO S	PM							Shear	105	104	108	102	107	

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM / PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
8/3/16	13:03	BS	4131	6	860		80	Peel	98	93	100	99	86	95	93	95	89	87	Pass
S TO T	PM							Shear	109		108		103		106		105		
8/3/16	13:00	AP	4000	6	860		80	Peel	96	99	100	98	89	85	86	89	95	99	Pass
S TO S	PM							Shear	102		103		105		105		106		
8/3/16	13:05	AP	4000	6	860		80	Peel	100	98	87	85	86	99	95	89	86	87	Pass
T TO T	PM							Shear	105		105		104		106		105		
8/3/16	12:50	SU	EXT-74		500	400	80	Peel	98		102		111		103		102		Pass
T TO T	PM							Shear	105		108		109		106		104		
8/5/16	14:51	BS	4131	6	860		87	Peel	100	101	98	89	95	86	98	85	99	95	Pass
S TO S	PM							Shear	102		105		102		106		105		
8/5/16	14:55	BS	4131	6	860		87	Peel	96	89	96	89	86	95	94	86	84	96	Pass
S TO T	PM							Shear	105		105		106		102		105		
8/5/16	14:35	AP	4000	6	860		87	Peel	85	86	95	97	89	86	96	99	98	89	Pass
S TO S	PM							Shear	105		107		104		102		103		
8/5/16	14:30	AP	4000	6	860		87	Peel	93	95	86	82	89	98	87	94	92	97	Pass
T TO T	PM							Shear	105		105		105		102		104		
8/5/16	14:20	SU	EXT-74		500	400	87	Peel	98		98		86		99		97		Pass
T TO T	PM							Shear	103		102		102		104		105		
8/8/16	7:35	SU	EXT-74		500	400	80	Peel	99		96		100		89		93		Pass
T TO T	AM							Shear	106		105		104		103		104		
8/8/16	10:00	AP	4000	6	860		80	Peel	98	97	98	99	100	95	96	97	95	99	Pass
S TO S	AM							Shear	103		105		104		105		106		
8/8/16	10:02	AP	4000	6	860		80	Peel	99	100	96	98	100	99	89	95	93	95	Pass
T TO T	AM							Shear	106		105		103		103		105		
8/8/16	10:19	BS	4131	6	860		80	Peel	96	95	98	93	85	88	89	100	89	88	Pass
S TO S	AM							Shear	105		103		105		102		103		
8/9/16	14:40	SU	EXT-74		500	400	83	Peel	93	94	96	95	98	99	103	110	102	102	Pass
S TO S	PM							Shear	103		104		105		1036		107		
8/9/16	15:02	BS	4131	6	860		83	Peel	99	91	86	95	95	97	88	87	99	90	Pass
S TO S	PM							Shear	100		105		106		105		104		
8/9/16	15:03	BS	4131	6	860		83	Peel	95	96	95	99	86	87	88	85	95	99	Pass
T TO T	PM							Shear	105		104		106		105		104		

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
8/9/16	14:45	SU	4000	6	860		83	Peel	100	99	97	96	95	93	94	96	98	98	Pass
T TO T	PM							Shear	103		106		105		104		103		
8/9/16	17:05	SU	EXT-74		500	400	83	Peel	89		97		92		98		94		Pass
T TO T	PM							Shear	105		106		105		103		105		
8/10/16	7:25	SU	EXT-74		500	400	83	Peel	103		102		102		103		104		Pass
T TO T	AM							Shear	105		102		95		96		99		
8/10/16	8:14	BS	4131	6	860		82	Peel	95	99	85	98	86	87	89	88	85	90	Pass
S TO S	AM							Shear	104		102		1047		105		104		
8/10/16	9:30	BS	4131	6	860		82	Peel	99	97	89	86	84	83	81	86	98	96	Pass
T TO T	AM							Shear	102		105		105		104		105		
8/10/16	9:25	BS	4131	6	860		82	Peel	95	98	89	86	98	88	84	86	89	99	Pass
S TO T	AM							Shear	105		106		104		105		102		
8/11/16	7:20	SU	4131	6	860		85	Peel	89	88	98	96	98	89	95	94	96	98	Pass
T TO T	AM							Shear	104		102		106		104		105		
8/11/16	7:51	DM	EXT-75		500	400	85	Peel	105		104		102		104		103		Pass
T TO T	AM							Shear	104		104		102		105		102		
8/11/16	14:50	BS	4131	6	860		90	Peel	95	98	96	85	86	84	96	98	98	86	Pass
S TO S	PM							Shear	102		105		106		105		104		
8/11/16	14:45	BS	4131	6	860		90	Peel	98	89	86	85	84	99	98	85	86	84	Pass
T TO T	PM							Shear	102		104		102		104		105		
8/11/16	14:40	BS	4131	6	860		90	Peel	98	86	84	98	85	94	97	84	87	85	Pass
S TO T	PM							Shear	104		105		102		104		105		
8/11/16	14:30	SU	4000	6	860		90	Peel	98	96	98	95	86	84	85	96	98	97	Pass
S TO S	PM							Shear	104		102		106		105		104		
8/11/16	14:33	SU	4000	6	860		90	Peel	96	95	98	92	97	98	94	95	96	95	Pass
T TO T	PM							Shear	103		106		104		105		105		
8/11/16	15:10	SU	EXT-74		500	400	90	Peel	98		113		101		105		104		Pass
T TO T	PM							Shear	106		102		104		106		105		
8/12/16	14:05	BS	4131	6	860		90	Peel	98	96	95	97	98	97	89	90	88	85	Pass
S TO S	PM							Shear	102		104		103		105		104		
8/12/16	14:15	BS	4131	6	860		90	Peel	89	95	88	87	86	84	85	98	99	100	Pass
T TO T	PM							Shear	105		103		106		105		104		

Environmental Specialties International Inc.
Preweld Test Report

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By : KHAI S. SOK **Cap** X

Other : CAP CONSTRUCTION

Peel Test Extrusion Minimum 66 **PPI**

Peel Test Fusion Minimum 75 **PPI**

Shear Test Minimum 90 **PPI**

Liner Types **S = Smooth** **T = Textured** **SG = Super Grip**

Weld Date / Liner Type	Time AM | PM	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Ambient Temp		Coupon 1 A | B	Coupon 2 A | B	Coupon 3 A | B	Coupon 4 A | B	Coupon 5 A | B	Test Results
8/12/16	14:20	SU	4000	6	860		90	Peel	98 | 99	96 | 95	93 | 92	93 | 97	98 | 99	Pass
S TO S	PM							Shear	105	103	104	105	104	
8/12/16	14:25	SU	4000	6	860		90	Peel	889 | 86	98 | 96	97 | 94	92 | 93	95 | 96	Pass
T TO T	PM							Shear	105	105	103	104	106	
8/12/16	15:20	SU	EXT-74		500	400	90	Peel	103	102	102	105	102	Pass
T TO T	PM							Shear	102	105	104	104	103	
8/13/16	15:31	BS	4131	6	860		96	Peel	89 | 98	96 | 95	94 | 96	94 | 93	89 | 99	Pass
S TO S	PM							Shear	105	103	104	106	102	
8/13/16	15:20	SU	4000	6	860		96	Peel	99 | 89	96 | 95	86 | 95	86 | 88	96 | 98	Pass
S TO S	PM							Shear	102	105	103	104	101	
8/1315	15:25	SU	4000	6	860		96	Peel	88 | 89	89 | 95	98 | 97	88 | 95	93 | 89	Pass
S TO T	PM							Shear	103	105	102	104	106	
8/13/16	15:30	SU	4000	6	860		96	Peel	96 | 86	88 | 95	94 | 96	89 | 98	97 | 98	Pass
T TO T	PM							Shear	105	104	106	105	102	
8/15/16	7:15	SU	EXT-74		500	400	90	Peel	103	102	103	101	111	Pass
T TO T	AM							Shear	102	105	106	102	103	
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						
	:							Peel						
TO								Shear						

Appendix I
ESI Seam Control (Non-Destructive) Test Logs

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** | **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428	**Total LF of Welding to Date Combined**	**Extrusion LF Weld Total To Date**	126	**Fusion LF Weld Total To Date:**	21,302

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/22/16	1 / 2	54	13:50 PM	SU	4024	6	860		6/22/16	Air Pressure	14:19 / 30	14:24 / 28	2	Pass
Seam Notes	SEOS TO NEOS (DS-1 CUT FROM SEAM)													
6/22/16	2 / 3	162	14:06 PM	BS	4000	6	860		6/22/16	Air Pressure	15:17 / 30	15:22 / 28	2	Pass
Seam Notes	SEOS TO NEOS													
6/22/16	3 / 5	69	14:44 PM	BS	4000	6	860		6/22/16	Air Pressure	15:20 / 30	15:25 / 30		Pass
Seam Notes	SEOS (COVERED BY R-2) TO R-3													
6/22/16	3 / 4	96	14:52 PM	BS	4000	6	860		6/22/16	Air Pressure	15:20 / 30	15:25 / 29	1	Pass
Seam Notes	R-3 TO NEOS													
6/22/16	4 / 5	23	14:37 PM	SU	4024	6	860		6/22/16	Air Pressure	15:32 / 30	15:37 / 30		Pass
Seam Notes	R-3 TO R-5 (BUTT SEAM)													
6/22/16	5 / 6	15	15:15 PM	BS	4000	6	860		6/22/16	Air Pressure	16 03 / 30	16 08 / 30		Pass
Seam Notes	SEOS TO R-7													
6/22/16	5 / 6	53	14:55 PM	SU	4024	6	860		6/22/16	Air Pressure	15 32 / 30	15 37 / 30		Pass
Seam Notes	R-7 TO R-6													
6/22/16	4 / 6	8	15:00 PM	SU	4024	6	860		6/22/16	Air Pressure	15 32 / 30	15 37 / 30		Pass
Seam Notes	R-6 TO R-5													
6/22/16	4 / 6	89	15:02 PM	SU	4024	6	860		6/22/16	Air Pressure	15 50 / 30	15 55 / 29	1	Pass
Seam Notes	R-5 TO R-4 (NEOS)													
6/22/16	6 / 7	66	15:21 PM	BS	4000	6	860		6/22/16	Air Pressure	15 58 / 30	16 03 / 29	1	Pass
Seam Notes	SEOS TO R-9 (DS-2 CUT FROM SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/22/16	6 / 7	104	15:29 PM	BS	4000	6	860		6/22/16	Air Pressure	15 52 / 30	15 57 / 30		Pass
Seam Notes	R-9 TO NEOS													
6/23/16	7 / 9	41	10:41 AM	BS	4131	6	860		6/23/16	Air Pressure	11 31 / 30	11 36 / 30		Pass
Seam Notes	SEOS TO R-12													
6/23/16	7 / 9	29	10:47 AM	BS	4131	6	860		6/23/16	Air Pressure	11 31 / 30	11 36 / 30		Pass
Seam Notes	R-12 TO R-17													
6/23/16	7 / 9	32	10:50 AM	BS	4131	6	860		6/23/16	Air Pressure	11 55 / 30	12 00 / 30		Pass
Seam Notes	R-17 TO R-23													
6/23/16	7 / 8	68	10:54 AM	BS	4131	6	860		6/23/16	Air Pressure	12 02 / 30	12 07 / 30		Pass
Seam Notes	R-23 TO NEOS													
6/23/16	8 / 9	23	10:41 AM	AP	4000	6	860		6/23/16	Air Pressure	12 02 / 30	12 07 / 30		Pass
Seam Notes	R-23 TO R-25 (BUTT SEAM)													
6/23/16	9 / 10	61	11:15 AM	AP	4000	5	860		6/23/16	Air Pressure	12 20 / 30	12 25 / 30		Pass
Seam Notes	SEOS TO R-28													
6/23/16	9 / 10	29	11:35 AM	AP	4000	5	860		6/23/16	Air Pressure	12 24 / 30	12 29 / 30		Pass
Seam Notes	R-28 TO R-29													
6/23/16	9 / 10	8	11:48 AM	AP	4000	5	860		6/23/16	Air Pressure	12 30 / 30	12 35 / 30		Pass
Seam Notes	R-29 TO R-25													
6/23/16	8 / 10	52	11:23 AM	BS	4131	6	860		6/23/16	Air Pressure	12 12 / 30	12 17 / 30		Pass
Seam Notes	R-25 TO R-24													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/23/16	8 / 10	19	:	CAP			500	400	6/23/16	Vacuum				Pass
Seam Notes	R-24 (20' CAP AT NEOS)													
6/23/16	10 / 11	49	11:40 AM	AP	4000	5	860		6/23/16	Air Pressure	12 49 / 30	12 54 / 30		Pass
Seam Notes	SEOS TO R-36													
6/23/16	10 / 11	20	11:44 AM	AP	4000	5	860		6/23/16	Air Pressure	13 07 / 30	13 12 / 30		Pass
Seam Notes	R-36 TO R-35													
6/23/16	10 / 11	96	11:50 AM	AP	4000	5	860		6/23/16	Air Pressure	13 28 / 30	13 33 / 28	2	Pass
Seam Notes	R-35 TO R-40 (12' CAP AT NEOS) (DS-3 CUT FROM SEAM)(R-34 LOCATED BTWN R-35 AND R-40 WAS CUT AFTER THE SEAM WAS TESTED)													
6/23/16	11 / 12	22	12:13 AM	BS	4131	5	860		6/23/16	Air Pressure	13 28 / 30	13 33 / 28	2	Pass
Seam Notes	NEOS TO R-41													
6/23/16	11 / 13	167	11:56 AM	BS	4131	5	860		6/23/16	Air Pressure	13 42 / 30	13 47 / 30		Pass
Seam Notes	R-41 TO SEOS													
6/24/16	13 / 14	65	10:31 AM	AP	4000	6	860		6/24/16	Air Pressure	11 24 / 30	11 29 / 28	2	Pass
Seam Notes	SEOS TO R-44													
6/24/16	13 / 14	14	10:41 AM	AP	4000	6	860		6/24/16	Air Pressure	11 29 / 30	11 34 / 28	2	Pass
Seam Notes	R-44 TO R-45													
6/24/16	13 / 14	84	10:46	AP	4000	6	860		6/24/16	Air Pressure	11 42 / 30	11 47 / 30		Pass
Seam Notes	R-45 TO R-46 (DS-7 CUT FROM SEAM)													
6/24/16	13 / 14	1	:	AP	EXT-74		500		6/24/16	Vacuum				Pass
Seam Notes	EXTRUSION WELD FROM R-46 AND R-42													
6/24/16	12 / 14	20	10:55 AM	AP	4000	6	860		6/24/16	Air Pressure	11 58 / 30	12 03 / 30		Pass
Seam Notes	R-42 TO R-48													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/24/16	12 / 14 A	4	:	EXT	EXT-74		500	400	6/23/16	Vacuum				Pass
Seam Notes	R-48 TO NEOS (3' EXT WELD)													
6/24/16	12 / 13	23	12:06 PM	AP	4000	6	860		6/23/16	Air Pressure	13 45 / 30	13 50 / 29	1	Pass
Seam Notes	R-41 TO R-42 (BUTT SEAM)													
6/24/16	14 A / 14	23	11:00	AP	4000	6	860		6/24/16	Air Pressure	12 55 / 30	13 00 / 30		Pass
Seam Notes	R-48 TO R-49 (BUTT SEAM)													
6/24/16	14 / 16	76	11:07	BS	4131	6	860		6/24/16	Air Pressure	13 10 / 30	13 15 / 30		Pass
Seam Notes	R-51 (3' CAP AT SEOS) TO R-50													
6/24/16	14 / 15	109	11:14	BS	4131	6	860		6/24/16	Air Pressure	12 55 / 30	13 00 / 29	1	Pass
Seam Notes	R-50 TO R-49													
6/24/16	14 A / 15	3	11:16	BS	4131	6	860		6/24/16	Air Pressure	12 55 / 30	13 00 / 28	2	Pass
Seam Notes	R-49 TO NEOS													
6/24/16	15 / 16	23	11:10	BS	4131	6	860		6/24/16	Air Pressure	13 06 / 30	13 11 / 30		Pass
Seam Notes	R-50 TO R-52 (BUTT SEAM)													
6/24/16	16 / 17	78	11:10	AP	4000	6	860		6/24/16	Air Pressure	13 23 / 30	13 28 / 29	1	Pass
Seam Notes	SEOS TO R-52													
6/24/16	15 / 17	118	11:19	AP	4000	6	860		6/24/16	Air Pressure	13 20 / 30	13 25 / 30		Pass
Seam Notes	R-52 TO NEOS (DS-4 CUT FROM SEAM)													
6/24/16	17 / 18	10	11:32	BS	4131	6	860		6/24/16	Air Pressure	14 05 / 30	14 10 / 30		Pass
Seam Notes	SEOS TO R-61													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/24/16	17 / 18	29	11:33 AM	BS	4131	6	860		6/24/16	Air Pressure	14 05 / 30	14 10 / 30		Pass
Seam Notes	R-61 TO R-59													
6/24/16	17 / 18	70	11:37	BS	4131	6	860		6/24/16	Air Pressure	13 36 / 30	13 41 / 30		Pass
Seam Notes	R-59 TO R-57													
6/24/16	17 / 18	11	11:46	BS	4131	6	860		6/24/16	Air Pressure	13 50 / 30	13 55 / 30		Pass
Seam Notes	R-57 TO R-56													
6/24/16	17 / 18	20	11:47	BS	4131	6	860		6/24/16	Air Pressure	13 48 / 30	13 53 / 30		Pass
Seam Notes	R-56 TO R-54													
6/24/16	17 / 18	56	11:50	BS	4131	6	860		6/24/16	Air Pressure	13 34 / 30	13 39 / 30		Pass
Seam Notes	R-54 TO NEOS													
6/24/16	18 / 19	24	14:02	AP	4000	6	860		6/24/16	Air Pressure	14 12 / 30	14 17 / 30		Pass
Seam Notes	SEOS TO R-63/64/65 (IN BOTTOM OF SWALE)													
6/24/16	18 / 19	16	11:55	AP	4000	6	860		6/24/16	Air Pressure	13 51 / 30	13 55 / 30		Pass
Seam Notes	R-65 TO R-68													
6/24/16	18 / 19	70	11:58	AP	4000	6	860		6/24/16	Air Pressure	13 51 / 30	13 56 / 28	2	Pass
Seam Notes	R-68 TO R-71 (DS-9 CUT FROM SEAM)													
6/24/16	18 / 19	23	12:40	AP	4000	6	860		6/24/16	Air Pressure	13 35 / 30	13 40 / 30		Pass
Seam Notes	R-71 TO R-72													
6/24/16	18 / 19	60	13:00	AP	4000	6	860		6/24/16	Air Pressure	13 35 / 30	13 40 / 29	1	Pass
Seam Notes	R-72 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/27/16	19 / 20	164	13:59 PM	BS	4131	6	860		6/27/16	Air Pressure	16 15 / **30**	16 20 / 30		Pass
Seam Notes	SEOS TO R-75 (DS-5 CUT FROM SEAM)													
6/27/16	19 / R-76	22	:	BS	4131	6	860		6/27/16	Air Pressure	16 52 / 30	16 57 / 30		Pass
Seam Notes	20' ADD ON BETWEEN R-75 AND NEOS													
6/27/16	20 / R-76	22	:	BS	4131	6	860		6/27/16	Air Pressure	16 47 / 30	16 52 / 30		Pass
Seam Notes	20' ADD ON BETWEEN R-75 AND NEOS													
6/27/16	20 / 22	100	16:44 PM	AP	4000	6	860		6/27/16	Air Pressure	17 57 / 30	18 02 / 30		Pass
Seam Notes	SEOS TO R-77													
6/27/16	20 / 21	21	16:44 PM	AP	4000	6	860		6/27/16	Air Pressure	17 57 / 30	18 02 / 30		Pass
Seam Notes	R-77 TO R-78													
6/27/16	20 / 21	49	16:20 PM	BS	4131	6	860		6/27/16	Air Pressure	16 35 / 30	16 40 / 30		Pass
Seam Notes	R-78 TO R-81													
6/27/16	20 / 21	28	16:30 PM	BS	4131	6	860		6/27/16	Air Pressure	16 40 / 30	16 45 / 29	1	Pass
Seam Notes	R-81 TO NEOS													
6/27/16	22 / 23	54	16:55 PM	BS	4024	6	860		6/27/16	Air Pressure	17 21 / 30	17 26 / 30		Pass
Seam Notes	SEOS TO R-82													
6/27/16	22 / 23	45	17:05 PM	BS	4024	6	860		6/27/16	Air Pressure	17 20 / 30	17 25 / 29	1	Pass
Seam Notes	R-82 TO R-83													
6/27/16	21 / 23	101	17:39 PM	BS	4131	6	860		6/27/16	Air Pressure	7 00 / 30	7 05 / 30		Pass
Seam Notes	R-83 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/27/16	21 / 22	23	16:32 PM	BS	4131	6	860		6/27/16	Air Pressure	17 35 / 30	17 40 / 30		Pass
Seam Notes	R-77 TO R-83 (BUTT SEAM)													
6/27/16	23 / 25	17	17:27	AP	4000	6	860		6/29/16	Air Pressure	7 16 / 30	7 21 / 30		Pass
Seam Notes	SEOS TO R-84													
6/27/16	23 / 24	24	17:30 PM	AP	4000	6	860		6/29/16	Air Pressure	7 10 / 30	7 15 / 30		Pass
Seam Notes	R-84 TO R-85													
6/27/16	23 / 24	32	17:30 PM	AP	4000	6	860		6/29/16	Air Pressure	7 10 / 30	7 15 / 30		Pass
Seam Notes	R-85 TO R-89/R-90													
6/27/16	23 / 24	122	17:37	AP	4000	6	860		6/29/16	Air Pressure	7 01 / 30	7 06 / 29	1	Pass
Seam Notes	R-89/R-90 TO NEOS (DS-6 CUT FROM SEAM)													
6/27/16	24 / 25	23	17:15	AP	4000	6	860		6/29/16	Air Pressure	7 16 / 30	7 21 / 29	1	Pass
Seam Notes	R-84 TO R-92 (BUTT SEAM)													
6/27/16	25 / 26	17	17:55	BS	4024	6	860		6/29/16	Air Pressure	7 19 / 30	7 24 / 30		Pass
Seam Notes	SEOS TO R-92													
6/27/16	24 / 26	140	17:59	BS	4024	6	860		6/29/16	Air Pressure	7 19 / 30	7 24 / 30		Pass
Seam Notes	R-92 TO R-93													
6/27/16	24 / 26	48	18:19	BS	4024	6	860		6/29/16	Air Pressure	8 00 / 30	8 05 / 29	1	Pass
Seam Notes	R-93 TO NEOS													
6/27/16	26 / 27	26	18:03	AP	4000	6	860		6/29/16	Air Pressure	7 33 / 30	7 38 / 30		Pass
Seam Notes	SEOS TO R-100													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** | **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/27/16	26 / 27	29	18:16	AP	4000	6	860		6/29/16	Air Pressure	7 30 / 30	7 35 / 30		Pass
Seam Notes	R-100 TO R-101													
6/27/16	26 / 27	69	18:25	AP	4000	6	860		6/29/16	Air Pressure	7 47 / 30	7 52 / 30		Pass
Seam Notes	R-101 TO R-102													
6/27/16	26 / 27	56	18:20	AP	4000	6	860		6/29/16	Air Pressure	7 54 / 30	7 59 / 30		Pass
Seam Notes	R-102 TO R-117													
6/27/16	26 / 27	28	18:30	AP	4000	6	860		6/29/16	Air Pressure	8 08 / 30	8 13 / 30		Pass
Seam Notes	R-117 TO R-127													
6/27/16	26 / 27	28	: :	SU	EXT-74				6/29/16	Vacuum				Pass
Seam Notes	R-127 TO NEOS COVERED BY R-128 (EXTR WELD)													
6/30/16	R-104 / 19	17	7:44	BS	4131	6	860		6/30/16	Air Pressure	7 55 / 30	8 00 / 30		Pass
Seam Notes	BETWEEN R-107 & R-108 ON P19 & 5'S OF NEOS													
6/30/16	R-105 / 18	22	7:48	BS	4131	6	860		6/30/16	Air Pressure	7 57 / 30	8 02 / 30		Pass
Seam Notes	BETWEEN R-108 & R-109 ON P18 & 5' S OF NEOS (DS-8 CUT FROM SEAM)													
6/30/16	R-104 / R-105	5	7:48	BS	4131	6	860		6/30/16	Air Pressure	7 55 / 30	8 00 / 29	1	Pass
Seam Notes	5' S OF NEOS													
6/30/16	17 / 18	8	8:43	SU	EXT-74		500	400	6/30/16	Vacuum				Pass
Seam Notes	EXTRUDE 2' BETWEEN R-109 TO NEOS													
6/30/16	27 / 28	102	10:32	BS	4131	6	860		6/30/16	Air Pressure	11 07 / 30	11 12 / 30		Pass
Seam Notes	SEOS TO R-155													
6/30/16	27 / 28	13	10:46	BS	4131	6	860		6/30/16	Air Pressure	11 11 / 30	11 16 / 27	3	Pass
Seam Notes	R-155 TO R-154													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/30/16	27 / 28	6	:	SU	EXT-74		500	400	6/30/16	Vacuum				Pass
Seam Notes	R-154 to R-132 (6' EXT WELD - R-134)													
6/30/16	27 / 28	35	10:50	BS	4131	6	860		6/30/16	Air Pressure	11 16 / 30	11 21 / 28	2	Pass
Seam Notes	R-132 TO R-123 (DS-10 CUT FROM SEAM)													
6/30/16	27 / R-130	20	11:20	AP	4000	6	860		6/30/16	Air Pressure	13 05 / 30	13 10 / 30		Pass
Seam Notes	20' ADD ON (BETWEEN R-123 AND R-125)													
6/30/16	R-130 / 28	20	11:54	AP	4000	6	860		6/30/16	Air Pressure	12 53 / 30	12 58 / 30		Pass
Seam Notes	20' ADD ON (BETWEEN R-123 AND R-126)													
6/30/16	27 / R-131	23	11:39	AP	4000	6	860		6/30/16	Air Pressure	13 07 / 30	13 12 / 30		Pass
Seam Notes	23' ADD ON AT NEOS (BETWEEN R-125 AND NEOS)													
6/30/16	R-131 / 28	23	11:48	AP	4000	6	860		6/30/16	Air Pressure	12 54 / 30	12 59 / 30		Pass
Seam Notes	23' ADD ON AT NEOS (BETWEEN NEOS AND R-126)													
6/30/16	28 / 29	15	10:33	AP	4000	6	860		6/30/16	Air Pressure	11 33 / 30	11 38 / 30		Pass
Seam Notes	SEOS TO R-156													
6/30/16	28 / 29	193	10:36	AP	4000	6	860		6/30/16	Air Pressure	11 32 / 30	11 37 / 29	1	Pass
Seam Notes	R-156 TO NEOS													
6/30/16	29 / 31	11	11:21	BS	4131	6	860		6/30/16	Air Pressure	14 54 / 30	14 59 / 30		Pass
Seam Notes	SEOS TO R-138													
6/30/16	29 / 31	43	11:23	BS	4131	6	860		6/30/16	Air Pressure	14 52 / 30	14 57 / 28	2	Pass
Seam Notes	R-138 TO R-141													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
6/30/16	29 / 31	105	11:29	BS	4131	6	860		6/30/16	Air Pressure	13 27 / 30	13 32 / 30		Pass
Seam Notes	R-141 TO R-142													
6/30/16	29 / 30	7	11:18	AP	4000	6	860		6/30/16	Air Pressure	13 21 / 30	13 26 / 29	1	Pass
Seam Notes	R-142 TO R-143													
6/30/16	29 / 30	49	11:20	AP	4000	6	860		6/30/16	Air Pressure	13 18 / 30	13 23 / 28	2	Pass
Seam Notes	R-143 TO NEOS													
6/30/16	30 / 31	23	11:45	AP	4000	6	860		6/30/16	Air Pressure	13 33 / 30	13 38 / 30		Pass
Seam Notes	R-142 TO R-152 (BUTT SEAM)													
6/30/16	31 / 32	65	13:08	BS	4131	6	860		6/30/16	Air Pressure	14 01 / 30	14 06 / 29	1	Pass
Seam Notes	SEOS TO R-149													
6/30/16	31 / 32	93	13:15	BS	4131	6	860		6/30/16	Air Pressure	13 53 / 30	13 58 / 30		Pass
Seam Notes	R-149 TO R-152 (DS-11 CUT FROM SEAM)													
6/30/16	30 / 32	58	11:50	AP	4000	6	860		6/30/16	Air Pressure	13 41 / 30	13 46 / 30		Pass
Seam Notes	R-152 TO NEOS													
7/1/16	32 / 34	130	9:08	BS	4131	6	860		7/1/16	Air Pressure	9 30 / 30	9 35 / 28	2	Pass
Seam Notes	SEOS TO R-153													
7/1/16	32 / 33	87	9:21	BS	4131	6	860		7/1/16	Air Pressure	9 40 / 30	9 45 / 30		Pass
Seam Notes	R-153 TO NEOS													
7/1/16	33 / 34	23	9:00	AP	4000	6	860		7/1/16	Air Pressure	9 22 / 30	9 27 / 29	1	Pass
Seam Notes	R-153 TO R-157 (BUTT SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/1/16	34 / 35	130	9:45	AP	4000	6	860		7/1/16	Air Pressure	9 47 / 30	9 52 / 29	1	Pass
Seam Notes	SEOS TO R-157 (DS-12 CUT FROM SEAM)													
7/1/16	33 / 35	87	9:19	AP	4000	6	860		7/1/16	Air Pressure	9 52 / 30	9 57 / 29	1	Pass
Seam Notes	R-157 TO NEOS													
7/1/16	35 / 37	82	9:53	BS	4131	6	860		7/1/16	Air Pressure	10 10 / 30	10 15 / 30		Pass
Seam Notes	SEOS TO R-159													
7/1/16	35 / 36	143	10:03	BS	4131	6	860		7/1/16	Air Pressure	10 23 / 30	10 28 / 29	1	Pass
Seam Notes	R-159 TO NEOS													
7/1/16	36 / 37	23	9:45	BS	4131	6	860		7/1/16	Air Pressure	9 58 / 30	10 03 / 29	1	Pass
Seam Notes	R-159 TO R-160 (BUTT SEAM)													
7/1/16	37 / 38	81	11:07	BS	4131	6	860		7/1/16	Air Pressure	11 35 / 30	11 40 / 28	2	Pass
Seam Notes	SEOS (COVERED BY R-166) TO R-160													
7/1/16	36 / 38	144	11:20	BS	4131	6	860		7/1/16	Air Pressure	11 35 / 30	11 40 / 28	2	Pass
Seam Notes	R-160 TO NEOS (DS-13 CUT FROM SEAM)													
7/6/16	38 / 40	35	14:08	AP	4000	6	860		7/6/16	Air Pressure	14 25 / 30	14 30 / 28	2	Pass
Seam Notes	SEOS TO R-167													
7/6/16	38 / 39	74	13:56	BS	4131	6	860		7/6/16	Air Pressure	14 26 / 30	14 31 / 28	2	Pass
Seam Notes	R-167 TO R-168													
7/6/16	38 / 39	108	14:05	BS	4131	6	860		7/6/16	Air Pressure	14 33 / 30	14 38 / 30		Pass
Seam Notes	R-168 TO R-169													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/6/16	38 / 39	11	14:20	BS	4131	6	860		7/6/16	Air Pressure	14 40 / 30	14 45 / 28	2	Pass
Seam Notes	R-169 TO NEOS													
7/6/16	39 / R-171	23	14:48	BS	4131	6	860		7/6/16	Air Pressure	14 54 / 30	14 59 / 30		Pass
Seam Notes	BETWEEN R-167 & R-172 (R-171 WELD TO P39)													
7/6/16	R-171 / 40	23	14:41	BS	4131	6	860		7/6/16	Air Pressure	14 54 / 30	14 59 / 30		Pass
Seam Notes	BETWEEN R-167 & R-172 (R-171 WELD TO P40)													
7/6/16	40 / 41	35	14:48	AP	4000	6	860		7/6/16	Air Pressure	14 54 / 30	14 59 / 29	1	Pass
Seam Notes	SEOS TO R-172													
7/6/16	39 / 41	97	14:53	AP	4000	6	860		7/6/16	Air Pressure	15 13 / 30	15 18 / 30		Pass
Seam Notes	R-172 TO R-173													
7/6/16	39 / 41	11	15:09	AP	4000	6	860		7/6/16	Air Pressure	15 15 / 30	15 20 / 29	1	Pass
Seam Notes	R-173 TO R-174													
7/6/16	39 / 41	18	15:12	AP	4000	6	860		7/6/16	Air Pressure	15 29 / 30	15 34 / 29	1	Pass
Seam Notes	R-174 TO R-175													
7/6/16	39 / 41	12	15:15	AP	4000	6	860		7/6/16	Air Pressure	15 31 / 30	15 36 / 30		Pass
Seam Notes	R-175 TO R-176													
7/6/16	39 / 41	21	15:22	AP	4000	6	860		7/6/16	Air Pressure	15 35 / 30	15 40 / 30		Pass
Seam Notes	R-176 TO NEOS													
7/6/16	41 / 42	65	15:13	BS	4131	6	860		7/6/16	Air Pressure	14 56 / 30	15 01 / 29	1	Pass
Seam Notes	SEOS TO R-177													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/6/16	41 / 42	10	15:51	BS	4131	6	860		7/6/16	Air Pressure	15 56 / 30	16 01 / 29	1	Pass
Seam Notes	R-177 TO R-179													
7/6/16	41 / 42	30	:	SU	EXT-74		500	400	7/6/16	Vacuum				Pass
Seam Notes	R-179 (30' CAP)													
7/6/16	41 / 42	36	15:35	BS	4131	6	860		7/6/16	Air Pressure	16 09 / 30	16 14 / 29	1	Pass
Seam Notes	R-179 TO R-180 (DS-14 CUT FROM SEAM)													
7/6/16	41 / 42	75	15:45	BS	4131	6	860		7/6/16	Air Pressure	16 05 / 30	16 10 / 29	1	Pass
Seam Notes	R-180 TO NEOS													
7/7/16	42 / 43	136	13:27	BS	4131	6	860		7/7/16	Air Pressure	13 57 / 30	14 02 / 30		Pass
Seam Notes	SEOS TO R-189													
7/7/16	42 / 43	68	13:45	BS	4131	6	860		7/7/16	Air Pressure	14 08 / 30	14 13 / 30		Pass
Seam Notes	R-189 TO R-193													
7/7/16	42 / 43	16	13:53	BS	4131	6	860		7/7/16	Air Pressure	14 13 / 30	14 18 / 30		Pass
Seam Notes	R-193 TO NEOS													
7/8/16	43 / 45	36	10:58	BS	4131	6	860		7/8/16	Air Pressure	11 12 / 30	11 17 / 29	1	Pass
Seam Notes	SEOS TO R-213													
7/8/16	43 / 44	47	11:02	BS	4131	6	860		7/8/16	Air Pressure	11 21 / 30	11 26 / 30		Pass
Seam Notes	R-213 TO R-214													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/8/16	43 / 44	26	11:07	BS	4131	6	860		7/8/16	Air Pressure	11 21 / 30	11 26 / 30		Pass
Seam Notes	R-214 TO R-215													
7/8/16	43 / 44	26	11:10	BS	4131	6	860		7/8/16	Air Pressure	11 31 / 30	11 36 / 28	2	Pass
Seam Notes	R-215 TO R-216													
7/8/16	43 / 44	48	11:20	BS	4131	6	860		7/8/16	Air Pressure	11 36 / 30	11 41 / 29	1	Pass
Seam Notes	R-216 TO R-217													
7/8/16	43 / 44	6	13:45	SU	EXT-74		500	400	7/8/16	Vacuum				Pass
Seam Notes	R-219 (6' CAP BETWEEN R-217 & R-218)													
7/8/16	43 / 44	45	11:145	BS	4131	6	860		7/8/16	Air Pressure	11 36 / 30	11 41 / 30		Pass
Seam Notes	R-218 TO NEOS (DS-15 CUT FROM SEAM)													
7/8/16	44 / 44A	26	12:53	BS	4131	6	860		7/8/16	Air Pressure	13 12 / 30	13 17 / 30		Pass
Seam Notes	R-220 TO R-221													
7/8/16	44 / 44B	26	12:53	BS	4131	6	860		7/8/16	Air Pressure	13 12 / 30	13 17 / 30		Pass
Seam Notes	R-221 TO NEOS													
7/8/16	44A / 44B	6	12:52	AP	4000	6	860		7/8/16	Air Pressure	13 12 / 30	13 17 / 30		Pass
Seam Notes	BUTT SEAM													
7/8/16	44 / 45	23	10:59	AP	4000	6	860		7/8/16	Air Pressure	11 11 / 30	11 16 / 30		Pass
Seam Notes	R-213 TO R-223 (BUTT SEAM)													
7/8/16	45 / 46	35	11:11	AP	4000	6	860		7/8/16	Air Pressure	11 52 / 30	11 57 / 30		Pass
Seam Notes	SEOS TO R-223 (DS-17 CUT FROM SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/8/16	44 / 46	180	11:16	AP	4000	6	860		7/8/16	Air Pressure	11 52 / 30	11 57 / 30		Pass
Seam Notes	R-223 TO R-225													
7/8/16	44 / 46	63	11:35	AP	4000	6	860		7/8/16	Air Pressure	12 36 / 30	12 41 / 30		Pass
Seam Notes	R-225 TO NEOS													
7/8/16	46 / 48	115	13:22	BS	4131	6	860		7/8/16	Air Pressure	13 54 / 30	13 59 / 28	2	Pass
Seam Notes	SEOS TO R-232													
7/8/16	46 / 47	138	12:44	AP	4000	6	860		7/8/16	Air Pressure	13 05 / 30	13 10 / 30		Pass
Seam Notes	R-232 TO R-235 (DS-16 CUT FROM SEAM)													
7/8/16	46 / 47	12	13:00	AP	4000	6	860		7/8/16	Air Pressure	13 31 / 30	13 36 / 29	1	Pass
Seam Notes	R-235 TO R-236													
7/8/16	46 / R238	19	13:50	BS	4131	6	860		7/8/16	Air Pressure	13 26 / 30	13 31 / 29	1	Pass
Seam Notes	R-236 TO NEOS (19' CAP)													
7/8/16	47 / 48	23	13:34	BS	4131	6	860		7/8/16	Air Pressure	13 46 / 30	13 51 / 29	1	Pass
Seam Notes	R-232 TO R-233 (BUTT SEAM)													
7/8/16	R238 / 47	19	13:55	BS	4131	6	860		7/8/16	Air Pressure	13 26 / 30	13 31 / 29	1	Pass
Seam Notes	R-236 TO NEOS (19' CAP)													
7/8/16	48 / 49	116	13:45	BS	4131	6	860		7/8/16	Air Pressure	14 03 / 30	14 08 / 30		Pass
Seam Notes	SEOS TO R-233													
7/8/16	47 / 49	47	13:54	BS	4131	6	860		7/8/16	Air Pressure	14 07 / 30	14 12 / 29	1	Pass
Seam Notes	R-233 TO R-234													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/8/16	47 / 49	127	13:49	BS	4131	6	860		7/8/16	Air Pressure	14 17 / 30	14 22 / 30		Pass
Seam Notes	R-234 TO NEOS													
7/12/16	49 / 50	5	13:05	SU	EXT-74		500	400	7/12/16	Vacuum				Pass
Seam Notes	SEOS TO R-243 (R-242 EXT WELD)													
7/12/16	49 / 50	283	12:51	AP	4000	6	860		7/12/16	Air Pressure	14 02 / 30	14 07 / 30		Pass
Seam Notes	R-243 TO R-245 (DS-18 CUT FROM SEAM)													
7/12/16	49 / 50	30	13:24	AP	4000	6	860		7/12/16	Air Pressure	14 02 / 30	14 07 / 28	2	Pass
Seam Notes	R-245 TO NEOS													
7/12/16	50 / 53	20	14:00	BS	4131	6	860		7/12/16	Air Pressure	14 30 / 30	14 35 / 29	1	Pass
Seam Notes	SEOS TO R-246													
7/12/16	50 / 52	54	13:53	BS	4131	6	860		7/12/16	Air Pressure	14 17 / 30	14 22 / 29	1	Pass
Seam Notes	R-246 TO R-250													
7/12/16	50 / 51	39	13:44	BS	4131	6	860		7/12/16	Air Pressure	14 15 / 30	14 20 / 28	2	Pass
Seam Notes	R-250 TO R-251													
7/12/16	50 / 51	99	13:33	BS	4131	6	860		7/12/16	Air Pressure	14 12 / 30	14 17 / 29	1	Pass
Seam Notes	R-251 TO R-254													
7/12/16	50 / 51	60	15:22	BS	4131	6	860		7/12/16	Air Pressure	14 05 / 30	14 10 / 30		Pass
Seam Notes	R-254 TO R-255													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/12/16	50 / 51	15	15:22	BS	4131	6	860		7/12/16	Air Pressure	14 05 / 30	14 10 / 27	3	Pass
Seam Notes	R-255 TO NEOS													
7/12/16	51 / 52	23	13:49	BS	4131	6	860		7/12/16	Air Pressure	14 15 / 30	14 20 / 28	2	Pass
Seam Notes	R-250 TO R-257 (BUTT SEAM)													
7/12/16	52 / 53	23	14:10	BS	4131	6	860		7/12/16	Air Pressure	14 27 / 30	14 32 / 29	1	Pass
Seam Notes	R-246 TO R-256 (BUTT SEAM)													
7/12/16	53 / 54	20	14:30	BS	4131	6	860		7/12/16	Air Pressure	14 40 / 30	14 45 / 28	2	Pass
Seam Notes	SEOS TO R-256 (DS-19 CUT FROM SEAM)													
7/12/16	52 / 54	54	14:22	AP	4000	6	860		7/12/16	Air Pressure	14 35 / 30	14 40 / 29	1	Pass
Seam Notes	R-256 TO R-257													
7/12/16	51 / 54	210	14:04	AP	4000	6	860		7/12/16	Air Pressure	14 35 / 30	14 40 / 29	1	Pass
Seam Notes	R-257 TO NEOS													
7/12/16	54 / 57	30	15:03	BS	4131	6	860		7/12/16	Air Pressure	15 17 / 30	15 22 / 27	3	Pass
Seam Notes	SEOS TO R-258													
7/12/16	54 / 56	74	14:54	BS	4131	6	860		7/12/16	Air Pressure	15 12 / 30	15 17 / 28	2	Pass
Seam Notes	R-258 TO R-259													
7/12/16	54 / 55	190	14:33	BS	4131	6	860		7/12/16	Air Pressure	15 03 / 30	15 08 / 28	2	Pass
Seam Notes	R-259 TO NEOS													
7/12/16	55 / 56	23	14:46	AP	4000	6	860		7/12/16	Air Pressure	15 02 / 30	15 07 / 29	1	Pass
Seam Notes	R-259 TO R-263 (BUTT SEAM)(DS-20 CUT FROM SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/12/16	56 / 57	23	14:53	AP	4000	6	860		7/12/16	Air Pressure	15 20 / 30	15 25 / 30		Pass
Seam Notes	R-258 TO R-262 (BUTT SEAM)													
7/13/16	57 / 58	30	14:59	BS	4131	6	860		7/13/16	Air Pressure	15 10 / 30	15 15 / 27	3	Pass
Seam Notes	SEOS TO R-262													
7/13/16	56 / 58	73	14:51	BS	4131	6	860		7/13/16	Air Pressure	15 10 / 30	15 15 / 28	2	Pass
Seam Notes	R-262 TO R-263													
7/13/16	55 / 58	170	14:32	BS	4131	6	860		7/13/16	Air Pressure	15 10 / 30	15 10 / 28	2	Pass
Seam Notes	R-263 TO R-264													
7/13/16	55 / 58	12	14:35	BS	4131	6	860		7/13/16	Air Pressure	14 56 / 30	15 01 / 28	2	Pass
Seam Notes	R-264 TO R-265													
7/13/16	55 / 58	7	15:25	SU	EXT-74		500	400	7/13/16	Vacuum				Pass
Seam Notes	R-265 TO NEOS (7' EXT WELD)													
7/13/16	58 / 60	94	15:10	AP	4000	6	860		7/13/16	Air Pressure	15 27 / 30	15 32 / 28	2	Pass
Seam Notes	SEOS TO R-267													
7/13/16	58 / 59	196	14:46	AP	4000	6	860		7/13/16	Air Pressure	15 23 / 30	15 28 / 29	1	Pass
Seam Notes	R-267 TO NEOS (DS-21 CUT FROM SEAM)													
7/13/16	60 / 59	23	15:07	BS	4131	6	860		7/13/16	Air Pressure	15 22 / 30	15 27 / 27	3	Pass
Seam Notes	R-267 & R-268 (BUTT SEAM)													
7/13/16	60 / 61	94	15:39	BS	4131	6	860		7/13/16	Air Pressure	15 55 / 30	16 00 / 29	1	Pass
Seam Notes	SEOS TO R-268													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X | **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/13/16	59 / 61	184	15:17	BS	4131	6	860		7/13/16	Air Pressure	15 51 / 30	15 56 / 29	1	Pass
Seam Notes	R-268 TO R-269													
7/13/16	59 / 61	23	15:15	BS	4131	6	860		7/13/16	Air Pressure	15 40 / 30	15 45 / 30		Pass
Seam Notes	R-269 TO NEOS													
7/13/16	61 / 63	194	15:54	BS	4131	6	860		7/13/16	Air Pressure	16 22 / 30	16 27 / 29	1	Pass
Seam Notes	SEOS TO R-270 (DS-22 CUT FROM SEAM)													
7/13/16	61 / 62	94	14:33	BS	4131	6	860		7/13/16	Air Pressure	15 04 / 30	15 09 / 28	2	Pass
Seam Notes	R-270 TO NEOS													
7/14/16	63 / 64	193	10:26	BS	4131	6	860		7/14/16	Air Pressure	11 00 / 30	11 05 / 30		Pass
Seam Notes	SEOS TO R-277													
7/14/16	62 / 64	107	10:15	BS	4131	6	860		7/14/16	Air Pressure	11 00 / 30	11 05 / 30		Pass
Seam Notes	R-277 TO NEOS													
7/15/16	62 / 63	23	10:00	AP	4000	6	860		7/14/16	Air Pressure	10 19 / 30	10 24 / 30		Pass
Seam Notes	R-270 TO R-277 (BUTT SEAM)													
7/14/16	64 / 65	115	11:00	AP	4000	6	860		7/14/16	Air Pressure	11 31 / 30	11 36 / 28	2	Pass
Seam Notes	SEOS TO R-280 (DS-23 CUT FROM SEAM)													
7/14/16	64 / 65	75	10:48	AP	4000	6	860		7/14/16	Air Pressure	11 28 / 30	11 33 / 27	3	Pass
Seam Notes	R-280 TO R-278													
7/14/16	64 / 65	25	10:33	AP	4000	6	860		7/14/16	Air Pressure	11 12 / 30	11 17 / 28	2	Pass
Seam Notes	R-278 TO R-279													
7/14/16	64 / 65	90	10:35	AP	4000	6	860		7/14/16	Air Pressure	10 52 / 30	10 57 / 30		Pass
Seam Notes	R-279 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/14/16	65 / 67	116	11:23	BS	4131	6	860		7/14/16	Air Pressure	12 02 / 30	12 07 / 30		Pass
Seam Notes	SEOS TO R-281													
7/14/16	65 / 66	195	11:00	BS	4131	6	860		7/14/16	Air Pressure	11 56 / 30	12 07 / 29	1	Pass
Seam Notes	R-281 TO NEOS													
7/14/16	67 / 68	115	13:32	BS	4131	6	860		7/14/16	Air Pressure	13 51 / 30	13 56 / 29	1	Pass
Seam Notes	SEOS TO R-289													
7/14/16	66 / 68	60	13:27	BS	4131	6	860		7/14/16	Air Pressure	13 51 / 30	13 56 / 28	2	Pass
Seam Notes	R-289 TO R-290 (DS-24 CUT FROM SEAM)													
7/14/16	66 / 68	145	13:13	BS	4131	6	860		7/14/16	Air Pressure	13 35 / 30	13 40 / 27	3	Pass
Seam Notes	R-290 TO NEOS													
7/14/16	67 / 66	23	11:20	AP	4000	6	860		7/14/16	Air Pressure	11 56 / 30	12 01 / 30		Pass
Seam Notes	R-281 TO R-289 (BUTT SEAM)													
7/25/16	68 / 71	99	10:50	BS	4131	6	860		7/25/16	Air Pressure	11 14 / 30	11 19 / 29	1	Pass
Seam Notes	SEOS TO R-293													
7/25/16	68 / 71	48	10:47	BS	4131	6	860		7/25/16	Air Pressure	11 12 / 30	11 17 / 30		Pass
Seam Notes	R-293 TO R-294													
7/25/16	68 / 70	68	10:36	BS	4131	6	860		7/25/16	Air Pressure	10 54 / 30	10 59 / 30		Pass
Seam Notes	R-294 TO R-295													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/25/16	68 / 69	69	10:31	BS	4131	6	860		7/25/16	Air Pressure	10 46 / 30	10 51 / 29	1	Pass
Seam Notes	R-295 TO NEOS (DS-25 CUT FROM SEAM)													
7/25/16	69 / 70	23	10:28	AP	4000	6	860		7/25/16	Air Pressure	10 30 / 30	10 35 / 29	1	Pass
Seam Notes	R-295 TO R-302 (BUTT SEAM)													
7/25/16	70 / 71	23	10:49	AP	4000	6	860		7/25/16	Air Pressure	10 58 / 30	11 03 / 28	2	Pass
Seam Notes	R-294 TO R-299 (BUTT SEAM)													
7/25/16	71 / 72	155	11:31	BS	4131	6	860		7/25/16	Air Pressure	11 41 / 30	11 46 / 28	2	Pass
Seam Notes	SEOS TO R-299													
7/25/16	70 / 72	53	11:20	AP	4000	6	860		7/25/16	Air Pressure	11 55 / 30	12 00 / 28	2	Pass
Seam Notes	R-299 TO R-301													
7/25/16	70 / 72	16	11:17	AP	4000	6	860		7/25/16	Air Pressure	11 31 / 30	11 36 / 28	2	Pass
Seam Notes	R-301 TO R-302													
7/25/16	69 / 72	69	11:09	AP	4000	6	860		7/25/16	Air Pressure	11 26 / 30	11 31 / 28	2	Pass
Seam Notes	R-302 TO NEOS													
7/25/16	72 / 74	53	12:03	BS	4131	6	860		7/25/16	Air Pressure	13 20 / 30	13 25 / 30		Pass
Seam Notes	SEOS TO R-303													
7/25/16	72 / 74	50	11:56	BS	4131	6	860		7/25/16	Air Pressure	13 14 / 30	13 19 / 30		Pass
Seam Notes	R-303 TO R-306													
7/25/16	72 / 74	10	11:45	BS	4131	6	860		7/25/16	Air Pressure	13 10 / 30	13 15 / 28	2	Pass
Seam Notes	R-306 TO R-307													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/25/16	72 / 74	48	11:43	BS	4131	5	860		7/25/16	Air Pressure	13 08 / 30	13 13 / 28	2	Pass
Seam Notes	R-307 TO R-309 (DS-26 CUT FROM SEAM)													
7/25/16	72 / 74	9	12:01	AP	4000	6	860		7/25/16	Air Pressure	13 02 / 30	13 07 / 29	1	Pass
Seam Notes	R-309 TO R-310													
7/25/16	72 / 74	51	11:51	AP	4000	6	860		7/25/16	Air Pressure	12 59 / 30	13 04 / 29	1	Pass
Seam Notes	R-310 TO R-311													
7/25/16	72 / 73	61	11:25	AP	4000	6	860		7/25/16	Air Pressure	12 01 / 30	12 06 / 29	1	Pass
Seam Notes	R-311 TO NEOS													
7/25/16	73 / 74	23	11:45	AP	4000	6	860		7/25/16	Air Pressure	12 01 / 30	12 06 / 29	1	Pass
Seam Notes	R-311 TO R-316 (BUTT SEAM)													
7/25/16	74 / 75	76	11:50	BS	4131	6	860		7/25/16	Air Pressure	14 38 / 30	14 43 / 30		Pass
Seam Notes	SEOS TO R-314													
7/25/16	74 / 75	134	13:53	BS	4131	6	860		7/25/16	Air Pressure	14 31 / 30	14 36 / 30		Pass
Seam Notes	R-314 TO R-315													
7/25/16	74 / 75	4	13:50	BS	4131	6	860		7/25/16	Air Pressure	14 20 / 30	14 25 / 28	2	Pass
Seam Notes	R-315 TO R-316													
7/25/16	73 / 75	58	13:44	BS	4131	6	860		7/25/16	Air Pressure	14 29 / 30	14 34 / 29	1	Pass
Seam Notes	R-316 TO NEOS													
7/27/16	75 / 76	8	14:35	SU	EXT-74		500	400	7/27/16	Vacuum				Pass
Seam Notes	SEOS TO R-332 (8' CAP)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/27/16	75 / 76	71	11:08	AP	4000	6	860		7/27/16	Air Pressure	11 27 / 30	11 32 / 29	1	Pass
Seam Notes	R-332 TO R-333 (DS-27 COLLECTED FROM SEAM)													
7/27/16	75 / 76	68	11:30	BS	4131	6	860		7/27/16	Air Pressure	11 44 / 30	11 49 / 29	1	Pass
Seam Notes	R-333 TO R-334													
7/27/16	75 / 76	83	11:20	BS	4131	6	860		7/27/16	Air Pressure	11 45 / 30	11 50 / 30		Pass
Seam Notes	R-334 TO 335													
7/27/16	75 / 76	14	11:14	BS	4131	6	860		7/27/16	Air Pressure	11 32 / 30	11 37 / 28	2	Pass
Seam Notes	R-335 TO R-336													
7/27/16	75 / 76	12	11:10	BS	4131	6	860		7/27/16	Air Pressure	11 35 / 30	11 40 / 29	1	Pass
Seam Notes	R-336 TO NEOS													
7/27/16	76 / 78	4	13:47	AP	4000	6	860		7/27/16	Air Pressure	14 03 / 30	14 08 / 29	1	Pass
Seam Notes	SEOS TO R-339													
7/27/16	76 / 78	36	13:41	AP	4000	6	860		7/27/16	Air Pressure	14 30 / 30	14 35 / 29	1	Pass
Seam Notes	R-339 TO R-340 (R-342 AND R-347 LOCATED BTWN R-339 AND R-340 WERE CUT AFTER THE SEAM WAS TESTED)													
7/27/16	76 / 77	240	11:31	AP	4000	6	860		7/27/16	Air Pressure	12 51 / 30	12 56 / 29	1	Pass
Seam Notes	R-340 TO NEOS													
7/27/16	77 / 78	23	13:35	AP	4000	6	860		7/27/16	Air Pressure	14 03 / 30	14 08 / 29	1	Pass
Seam Notes	R-340 TO R-344 (BUTT SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/27/16	78 / 79	15	13:45	BS	4131	6	860		7/27/16	Air Pressure	14 06 / 30	14 11 / 29	1	Pass
Seam Notes	SEOS TO R-341													
7/27/16	78 / 79	25	13:42	BS	4131	6	860		7/27/16	Air Pressure	14 03 / 30	14 08 / 28	2	Pass
Seam Notes	R-341 TO R-344													
7/27/16	77 / 79	98	13:30	BS	4131	6	860		7/27/16	Air Pressure	13 47 / 30	13 52 / 28	2	Pass
Seam Notes	R-344 TO R-345													
7/27/16	77 / 79	4	13:25	BS	4131	6	860		7/27/16	Air Pressure	13 47 / 30	13 52 / 28	2	Pass
Seam Notes	R-345 TO R-346 (PATCHED OVER)													
7/27/16	77 / 79	121	13:17	BS	4131	6	860		7/27/16	Air Pressure	13 40 / 30	13 45 / 28	2	Pass
Seam Notes	R-346 TO NEOS													
7/27/16	79 / 80	131	14:14	AP	4000	6	860		7/27/16	Air Pressure	14 43 / 30	14 48 / 28	2	Pass
Seam Notes	SEOS TO R-348													
7/27/16	79 / 80	33	14:37	BS	4131	6	860		7/27/16	Air Pressure	14 51 / 30	14 56 / 29	1	Pass
Seam Notes	R-348 TO R-355													
7/27/16	79 / 80	40	14:24	BS	4131	6	860		7/27/16	Air Pressure	14 54 / 30	14 59 / 29	1	Pass
Seam Notes	R-355 TO R-358 (DS-31 CUT FROM SEAM)													
7/27/16	79 / 80	60	14:31	BS	4131	6	860		7/27/16	Air Pressure	14 56 / 30	15 01 / 29	1	Pass
Seam Notes	R-358 TO NEOS													
7/28/16	80 / 82	25	13:47	BS	4131	6	860		7/28/16	Air Pressure	14 47 / 30	14 52 / 30		Pass
Seam Notes	R-362 (4' PATCH AT SEOS) TO R-363													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/28/16	80 / 81	110	13:23	BS	4131	6	860		7/27/16	Air Pressure	13 38 / 30	13 43 / 28	2	Pass
Seam Notes	R-363 TO R-364													
7/28/16	80 / 81	3	14:05	SU	EXT-74		500	400	7/28/16	Vacuum				Pass
Seam Notes	R-364 TO R-365/R-368 (3' EXT WELD)													
7/28/16	80 / 81	111	13:05	BS	4131	6	860		7/28/16	Air Pressure	13 24 / 30	13 29 / 30		Pass
Seam Notes	R-365/R-368 TO R-369 (2' CAP AT NEOS)													
7/28/16	81 / 82	23	13:43	BS	4131	6	860		7/28/16	Air Pressure	14 36 / 30	14 41 / 29	1	Pass
Seam Notes	R-363 TO R-370 (BUTT SEAM)													
7/28/16	82 / 83	25	13:56	BS	4131	6	860		7/28/16	Air Pressure	14 36 / 30	14 41 / 28	2	Pass
Seam Notes	SEOS TO R-370													
7/28/16	81 / 83	6	14:10	AP	4000	6	860		7/28/16	Air Pressure	14 42 / 30	14 47 / 28	2	Pass
Seam Notes	R-370 TO R-371													
7/28/16	81 / 83	113	14:55	AP	4000	6	860		7/28/16	Air Pressure	14 35 / 30	14 40 / 28	2	Pass
Seam Notes	R-371 TO R-372													
7/28/16	81 / 83	71	14:45	AP	4000	6	860		7/28/16	Air Pressure	14 24 / 30	14 29 / 28	2	Pass
Seam Notes	R-372 TO R-373 (DS-28 CUT FROM SEAM)													
7/28/16	81 / 83	47	13:38	AP	4000	6	860		7/28/16	Air Pressure	14 24 / 30	14 29 / 28	2	Pass
Seam Notes	R-373 TO NEOS													
7/28/16	83 / 85	52	14:40	BS	4131	6	860		7/28/16	Air Pressure	14 52 / 30	14 57 / 30		Pass
Seam Notes	SEOS TO R-374													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/28/16	83 / 84	147	14:24	BS	4131	6	860		7/28/16	Air Pressure	14 57 / 30	15 02 / 28	2	Pass
Seam Notes	R-374 TO R-375													
7/28/16	83 / 84	55	14:16	BS	4131	6	860		7/28/16	Air Pressure	15 18 / 30	15 23 / 29	1	Pass
Seam Notes	R-375 TO NEOS													
7/28/16	84 / 85	23	14:08	BS	4131	6	860		7/28/16	Air Pressure	14 52 / 30	14 57 / 29	1	Pass
Seam Notes	R-374 TO R-376 (BUTT SEAM)													
7/28/16	85 / 86	52	14:54	AP	4000	6	860		7/28/16	Air Pressure	15 09 / 30	15 14 / 30		Pass
Seam Notes	SEOS TO R-376													
7/28/16	84 / 86	145	14:39	AP	4000	6	860		7/28/16	Air Pressure	15 09 / 30	15 14 / 30		Pass
Seam Notes	R-376 TO R-377													
7/28/16	84 / 86	65	14:29	AP	4000	6	860		7/28/16	Air Pressure	15 20 / 30	15 25 / 30		Pass
Seam Notes	R-377 TO NEOS													
7/28/16	86 / 88	39	16:04	BS	4131	6	860		7/28/16	Air Pressure	16 14 / 30	16 19 / 30		Pass
Seam Notes	SEOS TO R-381													
7/28/16	86 / 88	57	15:57	BS	4131	6	860		7/28/16	Air Pressure	16 14 / 30	16 19 / 30		Pass
Seam Notes	R-381 TO R-378													
7/28/16	86 / 87	108	15:32	BS	4131	6	860		7/28/16	Air Pressure	16 04 / 30	16 09 / 30		Pass
Seam Notes	R-378 TO R-379 (DS-32 CUT FROM SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
7/28/16	86 / 87	63	15:41	BS	4131	6	860		7/28/16	Air Pressure	15 27 / 30	15 32 / 30		Pass
Seam Notes	R-379 TO NEOS													
7/28/16	88 / 87	23	15:52	BS	4131	6	860		7/28/16	Air Pressure	16 04 / 30	14 09 / 30		Pass
Seam Notes	R-378 TO R-405 (BUTT SEAM)													
8/3/16	88 / 90	97	13:56	BS	4131	6	860		8/3/16	Air Pressure	14 13 / 30	14 18 / 30		Pass
Seam Notes	SEOS TO R-405													
8/3/16	87 / 90	18	13:45	BS	4131	6	860		8/3/16	Air Pressure	14 00 / 30	14 05 / 30		Pass
Seam Notes	R-405 TO R-400													
8/3/16	87 / 90	15	13:40	BS	4131	6	860		8/3/16	Air Pressure	14 00 / 30	14 05 / 30		Pass
Seam Notes	R-400 TO R-403													
8/3/16	87 / 89	18	13:35	BS	4131	6	860		8/3/16	Air Pressure	13 53 / 30	13 58 / 29	1	Pass
Seam Notes	R-403 TO R-404													
8/3/16	87 / 89	96	13:16	BS	4131	6	860		8/3/16	Air Pressure	13 50 / 30	13 55 / 30		Pass
Seam Notes	R-404 TO NEOS													
8/3/16	89 / 90	18	13:49	BS	4131	6	860		8/3/16	Air Pressure	13:53 / 30	13:58 / 29	1	Pass
Seam Notes	R-403 TO R-404													
8/3/16	89 / 90	96	13:38	BS	4131	6	860		8/3/16	Air Pressure	13 50 / 30	13 55 / 28	2	Pass
Seam Notes	R-404 TO NEOS													
8/3/16	90 / 91	50	14:10	AP	4000	6	860		8/3/16	Air Pressure	14:23 / 30	14:28 / 30		Pass
Seam Notes	SEOS TO R-406 (DS-29 CUT FROM SEAM)													
8/3/16	90 / 91	188	13:48	AP	4000	6	860		8/3/16	Air Pressure	14:23 / 30	14:28 / 28	2	Pass
Seam Notes	R-406 TO R-408													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/3/16	90 / 91	5	14:35	SU	EXT-74		500	400	8/3/16	Vacuum	:	:		Pass
Seam Notes	R-408 TO NEOS (EXT WELD)													
8/3/16	91 / 92	160	14:38	BS	4131	6	860		8/3/16	Air Pressure	15:05 30	15:10 30		Pass
Seam Notes	SEOS TO R-410													
8/3/16	91 / 92	13	14:30	BS	4131	6	860		8/3/16	Air Pressure	14 15 30	14 30 29	1	Pass
Seam Notes	R-410 TO R-411													
8/3/16	91 / 92	57	14:22	BS	4131	6	860		8/3/16	Air Pressure	14 35 30	14 40 29	1	Pass
Seam Notes	R-411 TO NEOS													
8/3/16	92 / 93	110	14:50	AP	4000	6	860		8/3/16	Air Pressure	15 08 30	15 13 29	1	Pass
Seam Notes	SEOS TO R-412													
8/3/16	92 / 93	128	14:26	AP	4000	6	860		8/3/16	Air Pressure	14 55 30	15 00 29	1	Pass
Seam Notes	R-412 TO NEOS													
8/5/16	94 / 95	45	15:41	BS	4000	6	860		8/5/16	Air Pressure	15 52 30	15 57 29	1	Pass
Seam Notes	SEOS TO R-419													
8/5/16	94 / 95	109	15:80	BS	4131	6	860		8/5/16	Air Pressure	15 52 30	15 57 30		Pass
Seam Notes	R-419 TO R-422													
8/5/16	94 / 95	89	15:18	BS	4131	6	860		8/5/16	Air Pressure	16 00 30	16 05 29	1	Pass
Seam Notes	R-422 TO NEOS													
8/5/16	95 / 96	14	16:18	AP	4000	6	860		8/5/16	Air Pressure	16 34 30	16 39 29	1	Pass
Seam Notes	SEOS TO R-428													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/5/16	95 / 97	220	15:50	AP	4000	6	860		8/5/16	Air Pressure	16 45 / 30	16 50 / 30	1	Pass
Seam Notes	R-428 TO NEOS													
8/5/16	96 / 97	23	16:13	AP	4000	6	860		8/5/16	Air Pressure	16 34 / 30	16 39 / 29	1	Pass
Seam Notes	R-428 TO R-429 (BUTT SEAM)													
8/5/16	96 / 98	14	16:20	BS	4131	6	860		8/5/16	Air Pressure	16 36 / 30	16 41 / 29	1	Pass
Seam Notes	SEOS TO R-429													
8/5/16	97 / 98	94	16:10	BS	4131	6	860		8/5/16	Air Pressure	16 39 / 30	16 44 / 30		Pass
Seam Notes	R-429 TO R-430													
8/5/16	97 / 98	126	15:56	BS	4131	6	860		8/5/16	Air Pressure	16 15 / 30	16 20 / 29	1	Pass
Seam Notes	R-430 TO NEOS (DS-30 CUT FROM SEAM)													
8/8/16	98 / 99	238	10:30	BS	4131	6	860		8/8/16	Air Pressure	11 09 / 30	11 14 / 29	1	Pass
Seam Notes	SEOS TO NEOS													
8/8/16	99 / 100	92	10:38	AP	4000	6	860		8/8/16	Air Pressure	10 55 / 30	11 00 / 30		Pass
Seam Notes	SEOS TO R-433/R-434													
8/8/16	99 / 100	28	10:50	AP	4000	6	860		8/8/16	Air Pressure	11 00 / 30	11 05 / 29	1	Pass
Seam Notes	R-433/R-434 TO R-435													
8/8/16	99 / 100	106	10:54	AP	4000	6	860		8/8/16	Air Pressure	11 15 / 30	11 20 / 29	1	Pass
Seam Notes	R-435 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/9/16	100 / 101	20	15:05	SU	4000	6	860		8/9/16	Air Pressure	15 33 / 30	15 38 / 30		Pass
Seam Notes	SEOS TO R-440													
8/9/16	100 / 102	217	15:26	BS	4131	6	860		8/9/16	Air Pressure	16 15 / 30	16 20 / 30		Pass
Seam Notes	R-440 TO NEOS													
8/9/16	101 / 102	23	15:30	SU	4000	6	860		8/9/16	Air Pressure	15 34 / 30	15 39 / 29	1	Pass
Seam Notes	R-440 TO R-441 (BUTT SEAM)													
8/9/16	101 / 103	20	15:45	SU	4000	6	860		8/9/16	Air Pressure	16 11 / 30	16 16 / 30		Pass
Seam Notes	SEOS TO R-441													
8/9/16	102 / 103	217	15:41	SU	4000	6	860		8/9/16	Air Pressure	16 17 / 30	16 22 / 30		Pass
Seam Notes	R-441 TO NEOS													
8/9/16	103 / 104	40	16:33	BS	4131	6	860		8/9/16	Air Pressure	17 25 / 30	17 30 / 30		Pass
Seam Notes	SEOS TO R-442													
8/9/16	103 / 104	148	16:40	BS	4131	6	860		8/9/16	Air Pressure	17 02 / 30	17 07 / 30		Pass
Seam Notes	R-442 TO R-443													
8/9/16	103 / 105	31	16:10	SU	4000	6	860		8/9/16	Air Pressure	16 25 / 30	16 30 / 30		Pass
Seam Notes	R-443 TO R-444													
8/9/16	103 / 105	16	16:15	SU	4000	6	860		8/9/16	Air Pressure	16 26 / 30	16 31 / 30		Pass
Seam Notes	R-444 TO NEOS													
8/9/16	104 / 105	23	16:40	SU	4000	6	860		8/9/16	Air Pressure	16 43 / 30	16 48 / 30		Pass
Seam Notes	R-443 TO R-446 (BUTT SEAM)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/9/16	104 / 106	62	16:55	SU	4000	6	860		8/9/16	Air Pressure	17 26 / 30	17 31 / 30		Pass
Seam Notes	SEOS TO R-445 (DS-33 CUT FROM SEAM)													
8/9/16	104 / 106	131	17:05	SU	4000	6	860		8/9/16	Air Pressure	17 13 / 30	17 18 / 30		Pass
Seam Notes	R-445 TO R-446													
8/9/16	105 / 106	47	17:12	SU	4000	6	860		8/9/16	Air Pressure	17 19 / 30	17 24 / 29	1	Pass
Seam Notes	R-446 TO NEOS													
8/10/16	93 / 107	45	8:23	BS	4131	6	860		8/10/16	Air Pressure	8 46 / 30	8 51 / 29	1	Pass
Seam Notes	SEOS (COVERED BY R-453) TO R-454													
8/10/16	93 / 107	175	8:26	BS	4131	6	860		8/10/16	Air Pressure	8 55 / 30	9 00 / 30		Pass
Seam Notes	R-454 TO NEOS													
8/10/16	107 / 108	235	8:30	BS	4131	6	860		8/10/16	Air Pressure	9 24 / 30	9 29 / 30		Pass
Seam Notes	SEOS (COVERED BY R-457) TO NEOS													
8/10/16	108 / 110	110	10:06	BS	4131	6	860		8/10/16	Air Pressure	10 24 / 30	10 29 / 30		Pass
Seam Notes	SEOS TO R-455													
8/10/16	108 / 110	88	9:50	BS	4131	6	860		8/10/16	Air Pressure	10 15 / 30	10 20 / 30		Pass
Seam Notes	R-455 TO R-456													
8/10/16	108 / 109	45	9:45	BS	4131	6	860		8/10/16	Air Pressure	10 04 / 30	10 09 / 30		Pass
Seam Notes	R-456 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond** | **Air Pressure Test** 30 **PSI**

Job Description: SINGLE LAYER CAP **Secondary** **Cell** | **Air Pressure Hold Time** 5 **Minutes**

Reported By KHAI S. SOK **Cap** X **Allowable Air Pressure Loss** 4 **PSI**

Other CAP CONSTRUCTION

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/10/16	109 / 110	23	9:37	BS	4131	6	860		8/10/16	Air Pressure	9 46 / 30	9 51 / 29	1	Pass
Seam Notes	R-456 TO R-465 (BUTT SEAM)													
8/10/16	110 / 94	110	10:23	BS	4131	6	860		8/10/16	Air Pressure	10 41 / 30	10 46 / 30		Pass
Seam Notes	SEOS TO R-460 (DS-34 CUT FROM SEAM)													
8/10/16	110 / 94	18	10:45	BS	4131	6	860		8/10/16	Air Pressure	10 55 / 30	11 00 / 30		Pass
Seam Notes	R-460 TO R-463													
8/10/16	110 / 94	58	10:48	BS	4131	6	860		8/10/16	Air Pressure	11 05 / 30	11 10 / 29	1	Pass
Seam Notes	R-463 TO R-465													
8/10/16	109 / 94	49	10:55	BS	4131	6	860		8/10/16	Air Pressure	11 05 / 30	11 10 / 29	1	Pass
Seam Notes	R-465 TO NEOS													
8/10/16	110 / R-461	12	10:02	BS	4131	6	860		8/10/16	Air Pressure	10 17 / 30	10 22 / 30		Pass
Seam Notes	R-455 TO R-462													
8/10/16	110 / R-461	9	10:38	BS	4131	6	860		8/10/16	Air Pressure	10 48 / 30	10 53 / 30		Pass
Seam Notes	R-462 TO R-460													
8/10/16	110 / R-461	22	10:40	BS	4131	6	860		8/10/16	Air Pressure	10 48 / 30	10 53 / 30		Pass
Seam Notes	R-455 TO R-460													
8/11/16	94 / R-469	23	8:00	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 28	2	Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	95 / R-469	23	8:03	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 28	2	Pass
Seam Notes	ADD ON AT SEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/11/16	96 / R-469	13	8:06	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 28	2	Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	96 / R-471	12	8:08	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 28	2	Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	97 / R-471	23	8:11	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 28	2	Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	98 / R-471	23	8:14	BS	4131	6	860		8/11/16	Air Pressure	8 40 / 30	8 45 / 30		Pass
Seam Notes	R-468 TO R-494													
8/11/16	100 / R-472	23	17:B	BS	4131	6	860		8/11/16	Air Pressure	9 00 / 30	9 05 / 30		Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	101 / R-472	23	8:20	BS	4131	6	860		8/11/16	Air Pressure	9 00 / 30	9 05 / 30		Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	103 / R-472	16	8:23	BS	4131	6	860		8/11/16	Air Pressure	9 00 / 30	9 05 / 30		Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	103 / R-473	7	8:25	BS	4131	6	860		8/11/16	Air Pressure	9 00 / 30	9 05 / 30		Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	140 / R-473	23	8:29	BS	4131	6	860		8/11/16	Air Pressure	9 00 / 30	9 05 / 30		Pass
Seam Notes	ADD ON AT SEOS													
8/11/16	R-470 / R-469	25	8:30	DM	EXT-75		500	400	8/11/16	Vacuum				Pass
Seam Notes	ADD ON AT SEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/11/16	106 / 111	161	15:15	SU	4000	6	860		8/11/16	Air Pressure	15 43 / 30	15 48 / 30		Pass
Seam Notes	SEOS TO R-477													
8/11/16	106 / 111	79	15:05	SU	4000	6	860		8/11/16	Air Pressure	15 26 / 30	15 31 / 29	1	Pass
Seam Notes	R-477 TO NEOS													
8/11/16	111 / 112	46	16:21	BS	4131	6	860		8/11/16	Air Pressure	16 32 / 30	16 37 / 30		Pass
Seam Notes	SEOS TO R-478													
8/11/16	111 / 112	28	16:14	BS	4131	6	860		8/11/16	Air Pressure	16 24 / 30	16 29 / 30		Pass
Seam Notes	R-478 TO R-479													
8/11/16	111 / 112	66	16:05	BS	4131	6	860		8/11/16	Air Pressure	16 18 / 30	16 23 / 29	1	Pass
Seam Notes	R-479 TO R-481													
8/11/16	111 / 112	100	15:49	BS	4131	6	860		8/11/16	Air Pressure	16 05 / 30	16 10 / 29	1	Pass
Seam Notes	R-481 TO NEOS													
8/12/16	112 / 113	46	15:50	SU	4000	6	860		8/12/16	Air Pressure	16 03 / 30	16 08 / 30		Pass
Seam Notes	SEOS TO R-487													
8/12/16	112 / 113	111	15:46	SU	4000	6	860		8/12/16	Air Pressure	15 52 / 30	15 57 / 29	1	Pass
Seam Notes	R-487 TO R-488 (DS-35 CUT FROM SEAM)													
8/12/16	112 / 113	75	15:20	SU	4000	6	860		8/12/16	Air Pressure	15 48 / 30	15 53 / 27	3	Pass
Seam Notes	R-488 TO NEOS													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/12/16	113 / 114	66	16:04	BS	4131	6	860		8/12/16	Air Pressure	16 18 / 30	16 23 / 30		Pass
Seam Notes	SEOS TO R-489													
8/12/16	113 / 114	175	15:43	BS	4131	6	860		8/12/16	Air Pressure	16 19 / 30	16 24 / 30		Pass
Seam Notes	R-489 TO NEOS													
8/13/16	114 / 115	39	15:05	SU	4000	6	860		8/13/16	Air Pressure	16 02 / 30	16 07 / 30		Pass
Seam Notes	SEOS TO R-503													
8/13/16	114 / 115	166	15:35	SU	4000	6	860		8/13/16	Air Pressure	15 55 / 30	16 00 / 30		Pass
Seam Notes	R-503 TO R-504													
8/13/16	144 / 115	31	15:30	SU	4000	6	860		8/13/16	Air Pressure	15 49 / 30	15 54 / 30		Pass
Seam Notes	R-504 TO NEOS													
8/13/16	115 / 119	106	17:34	BS	4131	6	860		8/13/16	Air Pressure	17 53 / 30	17 58 / 30		Pass
Seam Notes	SEOS TO R-505													
8/13/16	115 / 118	118	17:17	BS	4131	6	860		8/13/16	Air Pressure	17 36 / 30	17 41 / 30		Pass
Seam Notes	R-505 TO R-512													
8/13/16	115 / 116	10	17:15	BS	4131	6	860		8/13/16	Air Pressure	17 50 / 30	17 55 / 30		Pass
Seam Notes	R-512 TO R-506													
8/13/16	119 / 118	105	17:03	SU	4000	6	860		8/13/16	Air Pressure	17 26 / 30	17 31 / 30		Pass
Seam Notes	SEOS TO R-505													
8/13/16	119 / 115	5	17:00	SU	4000	6	860		8/13/16	Air Pressure	17 18 / 30	17 23 / 29	1	Pass
Seam Notes	COVERED WITH PATCH AFTER TESTING (R-505)													

Environmental Specialties International Inc.

Seam Control Form

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: SINGLE LAYER CAP **Secondary** **Cell**

Reported By KHAI S. SOK **Cap** X

Other CAP CONSTRUCTION

Air Pressure Test 30 **PSI**

Air Pressure Hold Time 5 **Minutes**

Allowable Air Pressure Loss 4 **PSI**

21,428 **Total LF of Welding to Date Combined** **Extrusion LF Weld Total To Date** **126** **Fusion LF Weld Total To Date:** **21,302**

Weld Date	Seam No.	Seam Length	Time Welded	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp	Test Date	Test Type	AT Time In / PSI IN	AT Time Out / PSI OUT	PSI Loss	Test Results
8/13/16	118 / 117	171	16:45	BS	4131	6	860		8/13/16	Air Pressure	17 09 / 30	17 14 / 30		Pass
Seam Notes	SEOS TO R-507 (DS-36 CUT FROM SEAM)													
8/13/16	118 / 116	61	16:39	BS	4131	6	860		8/13/16	Air Pressure	17 03 / 30	17 08 / 30		Pass
Seam Notes	R-507 TO R-512													
8/13/16	116 / 117	17	16:20	BS	4131	6	860		8/13/16	Air Pressure	16 32 / 30	16 37 / 29	1	Pass
Seam Notes	R-507 TO R-511 (BUTT SEAM)													
8/13/16	116 / 117	5	16:25	BS	4131	6	860		8/13/16	Air Pressure	16 35 / 30	16 40 / 30		Pass
Seam Notes	R-511 TO EEOS (BUTT SEAM)													
8/13/16	115 / 116	3	17:10	BS	4131	6	860		8/13/16	Air Pressure	17 50 / 30	17 55 / 28	2	Pass
Seam Notes	R-506 TO NEOS													

Appendix J
ESI Repair Report

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
1	PB	1/2	P-1	35' N OF SEOS & 8'W PB 6")	P	3	x	11	24	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
2	BO	3/5		2' N OF S EOS	P	2	x	2		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
3	SJ	3/4/5		69' N OF SEOS	P	2	x	2		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
4	CF	4/6		5' S OF NEOS	P	2	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
5	CF	4/6	P-6	77' N OF SEOS & 2'E	P	5	x	12		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
6	SJ	4/5/6		69' N OF SEOS	P	2	x	2		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
7	PB	5/6		15' N OF SEOS (PB 6")	P	3	x	6	24	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
8	WR	6/7	P-6	63' N OF S EOS & 5'W	P	2	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
9	BO	6/7		66' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
10	SI	6/7	P-6	80' N OF SEOS & 5'W	P	3	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
11	DS-2	6/7		16' N OF SEOS	P	2	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
12	WR	7/9		41' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
13	CF	7/9	P-9	45' N OF SEOS & 10'E	P	6	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
14	DS-1	1/2		15' N OF SEOS	P	2	x	7		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
15	DSX-1	R-15	P-1	34'N OF SEOS & 10'W	P	2	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
16	CF		P-9	BETWEEN R-12 & R-13	B		x		60	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
17	WR	7/9		71' N OF SEOS	P	3	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
18	CF		P-9	BETWEEN R17 & R19	B		x		168	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
19	CF	7/9	P-9	59' N OF SEOS & 12'E	P	4	x	4		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
20	CF		P-6	BETWEEN R-22 & R-9	B		x		36	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
21	CF		P-6	BETWEEN R-22 & R-8	B		x		48	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
22	CF	6/7	P-6	68' N OF SEOS & 6'W	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
23	SJ	7/8/9		103' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
24	CF	8/10		11' S OF NEOS	P	2	x	20		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
25	SJ	8/9/10		103' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
26	DO	10/11	P-10	27' N OF SEOS & 4'W	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
27	CF	10/11	P-10	BETWEEN R-35 & R-28	B		x		156	6/26/16	SU	EXT-74	Vacuum	Pass	6/23/16
28	CF	10/11	P-10	64'N OF SEOS & 15' W	P	4	x	4		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
29	PB	10/11	P-10	93' S OF NEOS 4' E (48" MH)	P	6	x	10	48	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
30	CF		P-10	BETWEEN R-29 & R-31	B		x		240	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
31	CF	10/11	P-10	68' S OF NEOS & 2'W	P	2	x	2		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
32	CF	10/11	P-10	78' N OF SEOS & 7'W	P	2	x	4		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
33	CF		P-10	BETWEEN R-32 & R-34	B		x		60	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
34	CF	10/11		80' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
35	CF	10/11		69' N OF SEOS	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
36	CF	10/11	P-11	49' N OF SEOS & 5'E	P	5	x	15		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
37	CF		P-11	50' N OF SEOS & 3'E	B		x		48	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
38	PB	10/11	P-11	105' N OF SEOS & 3' E (8" PIPE)	P	4	x	5	24	6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
39	DS-3	10/11		25' S OF NEOS	P	2	x	6		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
40	AO	10/11		3' S OF NEOS	P	12	x	12		6/24/16	SU	EXT-74	Vacuum	Pass	6/23/16
41	SJ	11/12/13		22' S OF NEOS	P	2	x	2		6/24/16	SU	EXT-74	Vacuum	Pass	6/23/16
42	SJ	12/13/14		24' S OF NEOS	P	2	x	6		6/24/16	SU	EXT-74	Vacuum	Pass	6/23/16
43	DO	4/6	P-4	6' S OF NEOS & 4'W	P	2	x	3		6/23/16	SU	EXT-74	Vacuum	Pass	6/23/16
44	BO	13/14		65' N OF SEOS	P	2	x	5		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
45	BO	13/14		79' N OF SEOS	P	2	x	5		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
46	BO	13/14		163' N OF SEOS	P	2	x	2		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
47	CF	13/14		BETWEEN R-46 & R-42	B		x		12	6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
48	SJ	12/14/14A		4' S OF NEOS	P	2	x	2		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
49	SJ	14A/14/15		4' S OF NEOS	P	2	x	2		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
50	SJ	14/15/16		78' N OF SEOS	P	2	x	2		6/24/16	SU	EXT-74	Vacuum	Pass	6/24/16
51	BO	14/16		2'N OF SEOS	P	2	x	3		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
52	SJ	15/16/17		78' N OF SEOS	P	2	x	3		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
53	DS-4	15/17		87' N OF SEOS	P	2	x	6		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
54	CF	17/18		53' S OF NEOS	P	3	x	5		6/24/16	MA	EXT-75	Vacuum	Pass	6/24/16
55	CF	17/18	P-17	56' S OF NEOS & 3'W	B		x		24	6/24/16	MA	EXT-75	Vacuum	Pass	6/24/16
56	CF	17/18	P-18	74' S OF NEOS &3'E	P	3	x	9		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
57	CF	17/18		83' S OF NEOS	P	2	x	4		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
58	CF	17/18	P-18	84' S OF NEOS & 4' E OF R-57	B		x		120	6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
59	BO	17/18		153' S OF NEOS	P	2	x	5		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
60	CF		P-18	BETWEEN R-59 & R-62	B		x		140	6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
61	BO	17/18		182' S OF NEOS	P	2	x	6		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
62	CF	18/19	P-18	29' N OF SEOS & 7'W	P	2	x	13		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
63	BO	18/19		24' N OF SEOS	P	2	x	6		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
64	CF	18/19		BETWEEN R-63 & R-65	B		x		12	6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
65	CF	18/19	P-19	30' N OF SEOS & 3'E	P	2	x	9		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
66	CF		P-19	BETWEEN R-65 & R-67	B		x		108	6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
67	CF	19/20	P-19	42' N OF SEOS & 5'W	P	3	x	7		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
68	CF	18/19		46' N OF SEOS	P	2	x	3		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
69	CF		P-19	BETWEEN R-68 & R-70	B		x		72	6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
70	CF	18/19	P-19	49' N OF SEOS & 7'E	P	3	x	3		6/24/16	MA	EXT-75	Vacuum	Pass	6/29/16
71	BO	18/19		113' N OF SEOS	P	3	x	4		6/24/16	MA	EXT-75	Vacuum	Pass	6/24/16
72	BO	18/19		130' N OF SEOS	P	2	x	2		6/24/16	MA	EXT-75	Vacuum	Pass	6/24/16
73	DSX-2	R-30	P-10	106' N OF SEOS & 6'W	P	2	x	5		6/24/16	MA	EXT-75	Vacuum	Pass	6/24/16
74	DS-5	19/20		16' N OF SEOS	P	2	x	5		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
75	CF	19/20		164' N OF SEOS	P	2	x	20		6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
76	AO	19/R76/20		180' N OF SEOS	P	1	x	21		6/27/16	SU	EXT-74	Air Pressure	Pass	6/27/16
77	SJ	20/21/22		99' N OF SEOS	P	2	x	2		6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
78	CF	20/21		122' N OF SEOS	P	4	x	4		6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
79	CF		P-21	BETWEEN R-78 & R-80	B		x		156	6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
80	CF	21/23	P-21	128' N OF SEOS & 11' W	P	1	x	1		6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
81	PB	20/21	P-21	171' N OF SEOS & 3' E (PB 4")	P	3	x	5		6/27/16	SU	EXT-74	Vacuum	Pass	6/29/16
82	BO	22/23		54' N OF SEOS	P	2	x	4		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
83	SJ	21/22/23		99' N OF SEOS	P	6	x	14		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
84	SJ	23/24/25		17' N OF SEOS	P	2	x	2		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
85	BO	23/24		40' N OF SEOS	P	2	x	3		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
86	CF	23/24	P-23	BETWEEN R-85 & R-87	B		x		72	6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
87	CF	23/24	P-23	48' N OF SEOS & 11' W	P	2	x	9		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
88	CF	22/23	P-23	51' N OF SEOS & 8' E	P	3	x	5		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
89	CF	23/24		74' N OF SEOS	P	2	x	6		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
90	CF	23/24		79' N OF SEOS	P	2	x	3		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
91	DS-6	23/24		105' N OF SEOS	P	2	x	6		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
92	SJ	24/25/26		17' N OF SEOS	P	2	x	3		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16

Environmental Specialties International Inc.
Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
93	CF	24/26		157' N OF SEOS	P	2	x	3		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
94	CF	24/26	P-26	BETWEEN R-93 & R-95	B		x		72	6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
95	CF	24/26	P-26	156' N OF SEOS & 8' E	P	2	x	4		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
96	CF	24/26	P-26	137' N OF SEOS & 2' E	P	2	x	2		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
97	CF	24/26	P-26	143' N OF SEOS & 6'E FROM R-96	B		x		132	6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
98	SI	24/26	P-26	167' N OF SEOS & 8' E	P	2	x	2		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
99	DO	26/27	P-26	166' N OF SEOS & 10' W	P	2	x	3		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
100	BO	26/27		26' N OF SEOS	P	2	x	2		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
101	CF	26/27		55' N OF SEOS	P	3	x	8		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
102	PB	26/27	P-27	124' N OF SEOS & 3' E (PB 8")	P	4	x	5	24	6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
103	CF	26/27	P-26	185' N OF SEOS & 12' W	P	2	x	2		6/29/16	SU	EXT-74	Vacuum	Pass	6/29/16
104	AO	19/20		196' N OF SEOS	P	5	x	23		6/30/16	BS	W-4131	Air Pressure	Pass	6/30/16
105	AO	18/19		196' N OF SEOS	P	5	x	23		6/30/16	BS	W-4131	Air Pressure	Pass	6/30/16
106	AO	17/18		196' N OF SEOS	P	5	x	8		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
107	CF	19/20/R-26		194' N OF SEOS	P	3	x	5		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
108	CF	18/19		194' N OF SEOS	P	3	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
109	CF	17/18	P-18	194' N OF SEOS & 4' E	P	2	x	2		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
110	CF	19/20	P-19	126' N OF SEOS & 8' W	P	2	x	4		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
111	CF	19/20	P-19	BETWEEN R-110 & R-112	B		x		120	6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
112	CF	19/20	P-19	136' N OF SEOS & 2' W	P	2	x	2		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
113	DS-7	13/14		91' N OF SEOS	P	3	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
114	DS-8	R-105/18	P-18	195' N OF SEOS & 9' W	P	3	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
115	DSX-3	R-79	P-21	125'N OF SEOS	P	3	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
116	DS-9	18/19		101' N OF SEOS	P	3	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
117	CF	26/27		180' N OF SEOS	P	6	x	11		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
118	CF	26/27	P-27	179' N OF SEOS 2'E	P	4	x	3		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
119	CF	26/27	P-27	179' N OF SEOS 4'E	P	5	x	6		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
120	CF	26/27	P-27	179' N OF SEOS 6'E	P	3	x	7		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
121	CF	27/28	P-27	179' N OF SEOS & 14'W	P	3	x	3		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
122	CF	27/28	P-27	BETWEEN R-121 & R-123	B		x		108	6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
123	CF	27/28		173'N OF SEOS	P	3	x	3		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
124	BO	27/28		177' N OF SEOS	P	2	x	5		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
125	SJ	27/28/R-30		129' N OF SEOS	P	2	x	3		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
126	SJ	27/28/R-30	P-28	129'N OF SEOS & 3' E	P	2	x	2		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
127	CF	26/27	P-27	208'N OF SEOS & 2'E	P	5	x	8		6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
128	CF	26/27	P-26	216'N OF SEOS (FROM R-127)	B		x		108	6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
129	CF	27/R-127	P-26	205'N OF SEOS(FROM R-127)	B		x		108	6/30/16	SU	EXT-74	Vacuum	Pass	6/30/16
130	AO	27/28		175'N OF SEOS	P	6	x	18		6/30/16	SU	EXT-74	Vacuum	Pass	7/1/16
131	AO	27/28		200'N OF SEOS	P	5	x	20		6/30/16	SU	EXT-74	Vacuum	Pass	7/1/16
132	CF	27/28		133'N OF SEOS	P	5	x	8		6/30/16	SU	EXT-74	Vacuum	Pass	7/1/16
133	DS-10	27/28		155'N OF SEOS	P	2	x	5		6/30/16	SU	EXT-74	Vacuum	Pass	7/1/16
134	CF	27/28		BETWEEN R-132 & R-154	B		x		72	6/30/16	SU	EXT-74	Vacuum	Pass	7/1/16
135	CF	19/20	P-20	115' N OF SEOS & 6'E	P	2	x	3		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
136	CF	19/20	P-20	BETWEEN R-135 & R-137	B		x		60	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
137	CF	19/20	P-20	115'N OF SEOS & 3'E	P	2	x	3		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
138	BO	29/31		11'N OF SEOS	P	2	x	4		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
139	CF	29/31	P-29	BETWEEN R-140 & R-141	B		x		108	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
140	CF	29/31	P-29	54'N OFSEOS 10'W	P	1	x	1		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
141	CF	29/31		54' N OF SEOS	P	2	x	3		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
142	SJ	29/30/31		159' N OF SEOS	P	3	x	3		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
143	BO	29/30		169' N OF SEOS	P	2	x	4		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
144	CF	29/30	P-29	BETWEEN R-145 & R-146	B		x		96	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
145	CF	29/30	P-29	175' N OF SEOS & 10'W	P	3	x	7		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
146	CF	29/30	P-29	180' N OF SEOS & 2'W	P	2	x	2		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
147	DSX-4	R-148	P-32	96'N OF SEOS	P	2	x	5		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
148	DS-11	31/32		96' N OF SEOS	P	4	x	7		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
149	CF	31/32	P-32	65' N OF SEOS & 4'E	P	3	x	12		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
150	CF	32/34	P-32	BETWEEN R-149 & R-150	B		x		108	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
151	CF	32/34	P-32	73' N OF SEOS 13' W	P	1	x	1		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
152	SJ	30/31/32		158' N OF SEOS	P	2	x	13		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
153	SJ	32/33/34		130'N OF SEOS	P	2	x	4		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
154	CF	27/28		115' N OF SEOS	P	8	x	10		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
155	BO	27/28		102' N OF SEOS	P	3	x	4		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
156	PB	28/29		15' N OF SEOS (8"PB)	P	4	x	5	24	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
157	SJ	33/34/35		130' N OF SEOS	P	2	x	2		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
158	DS-12	34/35		21' N OF SEOS	P	2	x	5		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
159	SJ	35/36/37		82' N OF SEOS	P	2	x	3		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
160	SJ	36/37/38		82' N OF SEOS	P	2	x	5		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
161	DS-13	36/38		215' N OF SEOS	P	2	x	5		7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
162	CF	36/38	P-38	BETWEEN R-161 & R-163	B		x		96	7/1/16	SU	EXT-74	Vacuum	Pass	7/1/16
163	CF	36/38	P-38	205' N OF SEOS & 10'E	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
164	CF	37/38	P-37	3'N OF SEOS & 9' W	B		x		72	7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
165	CF	37/38	P-37	6'N OF SEOS & 10' W	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
166	CF	37/38		3'N OF SEOS	P	3	x	4		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
167	SJ	38/39/40		35' N OF SEOS	P	3	x	3		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
168	CF	38/39		109' N OF SEOS	P	3	x	5		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
169	BO	38/39		213' N OF SEOS	P	3	x	5		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
170	SI	38/39	P-38	162' N OF SEOS 7' W	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
171	AO	40/39		BETWEEN R-167 & R-172	C	2	x	23		7/7/16	BS	W-4131	Air Pressure	Pass	7/7/16
172	SJ	39/40/41		35'N OF SEOS	P	3	x	4		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
173	CF	39/41	P-41	167' N OFSEOS 5'E	P	4	x	13		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
174	CF	39/41	P-39	177' N OF SEOS 4' W	P	3	x	10		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
175	CF	39/41		197' N OF SEOS	P	2	x	3		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
176	BO	39/41		208' N OF SEOS	P	2	x	4		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
177	CF	41/42		70' N OF SEOS	P	5	x	20		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
178	CF	41/42	P-41	92' N OF SEOS & 5'W	P	3	x	6		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
179	CF	41/42		105' N OF SEOS	P	3	x	30		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
180	CF	41/42	P-42	156' N OF SEOS & 5'E	P	6	x	17		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
181	CF	41/42	P-42	BETWEEN R-180 & R-187	B		x		120	7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
182	CF	39/41	P-41	193' N OF SEOS & 4' E	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
183	CF	39/41	P-41	BETWEEN R-182 & R-175	B		x		48	7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
184	DS-14	41/42		139' N OF SEOS	P	2	x	6		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
185	DSX-5	R-179	P-42	100' N OF SEOS & 3' E	P	2	x	6		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
186	CF	41/42	P-42	157' N OF SEOS & 10' E	P	4	x	8		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
187	CF	41/42	P-42	162' N OF SEOS & 8'E	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
188	CF	41/42	P-42	138' N OF SEOS & 10'E	P	4	x	10		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
189	PB	42/43		136' N OF SEOS (48" MH)	P	7	x	9	48	7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
190	CF	42/43	P-43	127' N OF SEOS & 5' E	P	5	x	13		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
191	CF	42/43	P-43	202' N OF SEOS & 10' E	P	2	x	3		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
192	CF	42/43	P-43	BETWEEN R-191 & R-193	B		x		120	7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
193	CF	42/43		210' N 0F SEOS	P	6	x	4		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
194	CF	43/44	P-43	175' N OF SEOS & 5'W	P	2	x	2		7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
195	CF	43/44	P-43	BETWEEN R-194 & R-219	B		x		24	7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
196	CF	42/43	P-42	BETWEEN R-199 & R-193	B		x		48	7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
197	CF	42/43	P-42	BETWEEN R-198 & R-193	B		x		60	7/7/16	SU	EXT-74	Vacuum	Pass	7/8/16
198	CF	42/43	P-42	210' N 0F SEOS & 7'W	P	3	x	4		7/7/16	SU	EXT-74	Vacuum	Pass	7/7/16
199	CF	42/43	P-42	215' N OF SEOS & 7'W	P	3	x	3		7/7/16	SU	EXT-74	Vacuum	Pass	7/9/16
200	CF	42/43	P-42	114'N OF SEOS & 11'W	P	3	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
201	CF	42/43	P-42	BETWEEN R-200 & R-202	B		x		168	7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
202	CF	42/43	P-42	128'N OF SEOS & 10'W	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
203	CF	42/43	P-43	91' N OF SEOS & 10'E	P	4	x	10		7/8/16	PHOU	EXT-75	Vacuum	Pass	7/9/16
204	CF	42/43	P-43	BETWEEN R-203 & R-214	B		x		120	7/8/16	PHOU	EXT-75	Vacuum	Pass	7/9/16
205	CF	42/43	P-43	BETWEEN R-206 & R-215	B		x		108	7/8/16	PHOU	EXT-75	Vacuum	Pass	7/9/16
206	CF	42/43	P-43	103' N OF SEOS & 20'E	P	2	x	5		7/8/16	PHOU	EXT-75	Vacuum	Pass	7/9/16
207	CF	42/43	P-43	103' N OF SEOS & 9'E	P	3	x	13		7/8/16	PHOU	EXT-75	Vacuum	Pass	7/9/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
208	CF	43/44	P-43	160' N OF SEOS & 13'W	P	5	x	17		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
209	CF	43/44	P-43	180' N OF SEOS & 10'W	P	6	x	22		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
210	CF	42/43	P-43	BETWEEN R-211 & R-209	B		x		72	7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
211	CF	42/43	P-43	190'N OF SEOS & 8' E	P	8	x	12		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
212	DSX-6	R-180	P-42	153'N SEOS & 5'E	P	3	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
213	SJ	43/44/45		36'N OF SEOS	P	2	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
214	CF	43/44		81'N OF SEOS	P	2	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
215	CF	43/44		107'N OF SEOS	P	2	x	4		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
216	BO	43/44		133'N OF SEOS	P	2	x	4		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
217	CF	43/44		178'N OF SEOS	P	2	x	4		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
218	CF	43/44		185'N OF SEOS	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
219	CF	43/44		BETWEEN R-218 & R-217	B		x		60	7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
220	SJ	43/44/44A		231'N OF SEOS	P	2	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
221	SJ	44/44A/43		250' N OF SEOS	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
222	SI	45/46	P-45	11'N OF 4'W	P	2	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
223	SJ	44/45/46		35'N OF SEOS	P	2	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
224	DSX-7	R-204	P-43	80'N OF SEOS 4'W	P	4	x	2		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
225	CF	44/46	P-44	215'N SEOS & 12'E	P	10	x	16		7/8/16	SU	EXT-74	Vacuum	Pass	7/9/16
226	DS-15	43/44		222'N OF SEOS	P	2	x	4		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
227	CF	43./44	P-44	216'N OF SEOS 5'E	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
228	CF	43/44	P-44	BETWEEN R-227 & R-229	B		x		24	7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
229	CF	43/44	P-44	216'N OF SEOS 7'E	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
230	DS-17	45/46		24'N OF SEOS	P	2	x	4		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
231	DS-16	46/47		146'N OF SEOS	P	2	x	4		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
232	SJ	46/47/48		115'N OF SEOS	P	2	x	7		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
233	SJ	47/48/49		116'N OF SEOS	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
234	CF	47/49	P-47	164' N OF SEOS & 2'W	P	3	x	8		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
235	BO	46/47		258'N OF SEOS	P	2	x	2		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
236	CF	46/47		266'N OF SEOS	P	5	x	3		7/8/16	SU	EXT-74	Vacuum	Pass	7/11/16
237	PB	44/46	P-46	147'N OF SEOS 8'E(8"PB)	P	4	x	5		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
238	AO	46/47		19'S OF NEOS (CAP 19')	P	2	x	19		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
239	CF	44/46	P-44	230'N OF SEOS 7'W	P	2	x	2		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
240	CF	44/46	P-44	BETWEEN R-239 & R-241	B		x		108	7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
241	CF	44/46	P-44	241'N SEOS 7'W	P	2	x	2		7/11/16	SU	EXT-74	Vacuum	Pass	7/11/16
242	SI	49/50		3'N OF SEOS	B		x		60	7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
243	BO	49/50		6'N OF SEOS	P	2	x	2		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
244	DS-18	49/50		251' N OF SEOS	P	2	x	5		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
245	BO	49/50		271'N OF SEOS	P	2	x	4		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
246	SJ	50/52/53		20'N OF SEOS	P	2	x	3		7/12/16	SU	EXT-74	Vacuum	Pass	7/1/16
247	CF	50/52	P-50	53'N OF SEOS 2'W	P	2	x	2		7/12/16	SU	EXT-74	Vacuum	Pass	7/11/16
248	CF	50/52	P-50	65'N OF SEOS 10'W	P	3	x	5		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
249	CF	50/52	P-50	BETWEEN R-247 & R-248	B		x		108	7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
250	SJ	50/51/52		74'N OF SEOS	P	3	x	4		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
251	CF	50/51	P-50	111'N OF SEOS & 2'W	P	3	x	5		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
252	CF	50/51	P-50	102N OF SEOS 8'W	P	2	x	8		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
253	CF	50/51	P-50	BETWEEN R-251 & R-252	B		x		72	7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
254	CF	50/51		214N OF SEOS	P	3	x	10		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
255	CF	50/51		274'N OF SEOS	P	3	x	3		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
256	DS-19	53/54		20' N OF SEOS (AT SJ FOR 52/53/54)	P	3	x	8		7/12/16	SU	EXT-249	Vacuum	Pass	7/13/16
257	SJ	51/54/52		74'N OF SEOS	P	2	x	2		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
258	SJ	54/56/57		30'N OF SEOS	P	2	x	2		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
259	SJ	54/55/56		103'N OF SEOS	P	2	x	2		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
260	DS-20	55/56		103'N OF SEOS ON P55/P56	P	2	x	6		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
261	PB	54/55	P-55	285'N OF SEOS 20'E (4" PB)	P	4	x	4		7/12/16	SU	EXT-74	Vacuum	Pass	7/13/16
262	SJ	56/57/58		30'N OF SEOS	P	2	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
263	SJ	55/56/58		103'N OF SEOS	P	2	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
264	BO	55/58		273' N OF SEOS	P	2	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
265	BO	55/58		285'N OF SEOS	P	2	x	4		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
266	CF	55/58		289'N OF SEOS	B		x		72	7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
267	SJ	58/59/60		94'N OF SEOS	P	3	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
268	SJ	59/60/61		94'N OF SEOS	P	3	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
269	BO	59/61		278'N OF SEOS	P	2	x	3		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
270	SJ	61/62/63		194'N OF SEOS	P	2	x	6		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
271	DS-21	58/59		266'N OF SEOS	P	2	x	4		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
272	DS-22	61/63		137' N OF SEOS	P	2	x	5		7/13/16	SU	EXT-74	Vacuum	Pass	7/14/16
273	WR	50/51		165'N OF SEOS	P	3	x	10		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
274	WR	50/51	P-51	170'N OF SEOS 5'E	P	3	x	10		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
275	CF	50/51	P-51	BETWEEN R-273 & R-276	B		x		60	7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
276	BO	50/51		158'N OF SEOS	P	3	x	4		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
277	SJ	62/63/64		193'N OF SEOS	P	2	x	3		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
278	CF	64/65		187'N OF SEOS	P	2	x	3		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
279	CF	64/65		216'N OF SEOS	P	2	x	3		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
280	CF	64/65		115'N OF SEOS	P	5	x	10		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
281	SJ	65/66/67		116'N OF SEOS	P	2	x	2		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
282	CF	64/65	P-65	BETWEEN R-278 & R-283	B		x		120	7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
283	CF	64/65	P-65	193'N OF SEOS & 12'E	P	2	x	4		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
284	CF	64/65	P-65	215'N OF SEOS & 11'E	P	2	x	9		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
285	CF	64/65	P-65	BETWEEN R-279 & R-284	B		x		60	7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
286	DSX-8	R-270	P-61	193'N OF SEOS	P	2	x	6		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
287	DS-23	64/65		17'N OF SEOS	P	2	x	6		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
288	PB	65/67	P-65	90'N OF SEOS & 7'W (8")	P	2	x	5		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
289	SJ	66/67/68		115' OF SEOS	P	2	x	2		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
290	CF	66/68	P-66	167'N OF SEOS & 4'W	P	6	x	10		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
291	DS-24	66/68		148'N OF SEOS	P	2	x	4		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
292	PB	66/68	P-66	148'N OF SEOS & 3'W (8")	P	6	x	8		7/14/16	SU	EXT-74	Vacuum	Pass	7/14/16
293	BO	68/71		99' N OF SEOS	P	3	x	5		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
294	SJ	68/70/71		147' N OF SEOS	P	5	x	3		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
295	SJ	68/69/70		216' N OF SEOS	P	2	x	2		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
296	DS-25	68/69		250' N OF SEOS	P	3	x	6		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
297	CF	68/70	P-70	155'N OF SEOS & 12' E	P	4	x	4		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
298	CF	70/72	P-70	BETWEEN R-297 & R-299	B		x		109	7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
299	SJ	71/70/72		155'N OF SEOS	P	2	x	16		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
300	DSX-9	R-299	P-72	153'N OF SEOS	P	2	x	6		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
301	CF	70/72		200'N OF SEOS	P	5	x	8		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
302	SJ	69/70/72		217'N OF SEOS	P	2	x	2		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
303	CF	72/74	P-72	54'N OF SEOS & 4'W	P	3	x	9		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
304	CF	72/74	P-72	BETWEEN R-303 & R-322	B		x		109	7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
305	CF	72/74	P-72	BETWEEN R-306 & R-317	B		x		109	7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
306	CF	72/74		104'N OF SEOS	P	2	x	3		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
307	CF	72/74		114'N OF SEOS	P	2	x	3		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
308	CF	72/74	P-74	BETWEEN R-307 & R-318	B		x		84	7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
309	CF	74/74		164'N OF SEOS	P	4	x	9		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
310	CF	72/74		172'N OF SEOS	P	4	x	6		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
311	SJ	72/73/74		220'N OF SEOS	P	3	x	4		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
312	DS-26	72/74		145'N OF SEOS	P	2	x	6		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
313	PB	72/74	P-72	158'N OFSEOS & 6'W (8" PB)	P	2	x	2	24	7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
314	CF	74/75		76'N OF SEOS	P	3	x	7		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
315	CF	74/75		209'N OF SEOS	P	5	x	7		7/25/16	SU	EXT-74	Vacuum	Pass	7/25/16
316	SJ	74/73/75		218'N OF SEOS	P	2	x	3		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
317	CF	72/74	P-72	109'N OF SEOS & 7' W	P	1	x	1		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
318	CF	72/74	P-74	114'N OF SEOS & 9'E	P	2	x	2		7/25/16	DM	EXT-75	Vacuum	Pass	7/25/16
319	CF	74/75	P-75	95'N OF SEOS & 10'E	P	3	x	5		7/27/16	SU	EXT-75	Vacuum	Pass	7/27/16
320	CF	74/75	P-75	BETWEEN R-319 & R-333	B		x		108	7/27/16	SU	EXT-75	Vacuum	Pass	7/27/16
321	CF	72/74	P-74	48'N OF SEOS & 2' E	P	2	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
322	CF	72/74	P-72	62'N OF SEOS & 8' W	P	1	x	2		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
323	CF	74/75	P-75	35'N OF SEOS &10' E	P	2	x	2		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
324	CF	74/75	P-75	BETWEEN R-323 AND R-325	B		x		144	7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
325	CF	74/75	P-75	50'N OF SEOS & 10' E	P	1	x	1		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
326	CF	74/75	P-75	157'N OF SEOS & 12' E	P	2	x	2		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
327	CF	74/75	P-75	BETWEEN R-326 AND R-334	B		x		144	7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
328	SI	71/72	P-72	77'N OF SEOS & 7' E	P	2	x	2		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
329	CF	74/75	P-75	164'N OF SEOS & 7'E	P	2	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
330	CF	74/75	P-75	BETWEEN R-329 AND R-331	B		x		84	7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
331	CF	74/75	P-75	173'N OF SEOS & 7'E	P	3	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	7/27/16
332	CF	75/76		8'N OF SEOS	P	2	x	7		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
333	CF	75/76		81'N OF SEOS	P	3	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
334	CF	75/76		151'N OF SEOS	P	2	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
335	BO	75/76		234'N OF SEOS	P	2	x	4		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
336	CF	75/76		254'N OF SEOS	P	4	x	14		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
337	DS-27	75/76		24'N OF SEOS	P	2	x	5		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
338	DSX-10	R-320	P-75	82'N OF SEOS & 5'W	P	2	x	5		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
339	CF	76/78		4'N OF SEOS	P	3	x	7		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
340	SJ	76/77/78		40'N OF SEOS	P	3	x	6		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
341	CF	78/79	P-78	15'N OF SEOS & 4'W	P	2	x	9		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
342	CF	76/78		15'N OF SEOS	P	2	x	5		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
343	PB	78/79	P-78	15'N OF SEOS & 9'W (6"PB)	P	2	x	4		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
344	SJ	77/78/79		40'N OF SEOS	P	3	x	3		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16
345	CF	77/79	P-79	138'N OF SEOS & 7'E	P	2	x	15		7/27/16	SU	EXT-74	Vacuum	Pass	8/2/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
346	CF	77/79	P-77	144'N OF SEOS 3'W	P	6	x	10		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
347	CF	76/78		25'N OF SEOS	P	2	x	3		7/27/16	SU	EXT-75	Vacuum	Pass	8/2/16
348	CF	79/80	P-79	133'N OF SEOS & 4'W	P	5	x	10		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
349	CF	79/80	P-79	129'N OF SEOS & 9' W	P	2	x	3		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
350	CF	79/80	P-79	131'N OFSEOS & 10' W	P	2	x	2		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
351	CF	79/80	P-79	BETWEEN R-348 AND R-349	B		x		36	7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
352	CF	79/80	P-79	BETWEEN R-348 & R-353	B		x		36	7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
353	CF	79/80	P-79	138'N OF SEOS & 2'W	P	2	x	3		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
354	CF	79/80	P-79	134'N OF SEOS & 3'W (ON R-348)	P	3	x	3		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
355	CF	79/80		167'N OF SEOS	P	5	x	10		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
356	CF	79/80	P-79	106'N OF SEOS & 4'W	P	3	x	6		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
357	PB	80/81	P-80	140' N OF SEOS & 1'W (48" MH)	P	6	x	6	60	7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
358	CF	79/80	P-79	207'N OF SEOS & 6'W	P	4	x	10		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
359	CF	79/80	P-79	208'N OF SEOS & 10'W	P	3	x	7		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
360	CF	77/79	P-79	148'N OF SEOS (ON R-346)	P	2	x	2		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
361	CF	77/79	P-77	137'N OF SEOS & 6'W	P	1	x	2		7/27/16	DM	EXT-75	Vacuum	Pass	8/2/16
362	CF	80/82		6'N OF SEOS	P	2	x	4		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
363	SJ	80/81/82		25'N OF SEOS	P	2	x	4		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
364	CF	80/81		130'N OF SEOS	P	3	x	4		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
365	CF	80/81		140'N OF SEOS	P	3	x	15		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
366	CF	80/81	P-80	BETWEEN R-364 & R-365	B		x		36	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
367	CF	80/81	P-80	140'NOF SEOS & 4'W	P	3	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
368	CF	80/81		150'N OF SEOS	P	4	x	6		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
369	CF	80/81		264'N OF SEOS	P	2	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
370	SJ	81/82/83		25'N OF SEOS	P	2	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
371	CF	81/83	P-81	31'N OF SEOS & 3'W	P	2	x	6		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
372	BO	81/83		145'N OF SEOS	P	2	x	5		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
373	CF	81/83		216'N OF SEOS	P	2	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
374	SJ	83/84/85		52'N OF SEOS	P	3	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
375	CF	83/84		202'N OF SEOS	P	3	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
376	SJ	84/85/86		52'N OF SEOS	P	2	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
377	CF	84/86		198'N OF SEOS	P	2	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
378	SJ	86/87/88		96'N OF SEOS	P	2	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
379	CF	86/87	P-86	205' N OF SEOS	P	4	x	11		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
380	PB	76/78	P-76	6'N OF SEOS & 4'W (8" PB)	P	5	x	6	24	7/28/16	DM	EXT-75	Vacuum	Pass	8/2/16
381	CF	86/88		40'N OF SEOS	P	2	x	2		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
382	CF	83/84	P-83	197'N OF SEOS & 10'W	P	3	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
383	CF	83/84	P-83	BETWEEN R-382 & R-375	B		x		120	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
384	PB	81/83	P-81	32'N OF SEOS & 7'W (8" PB)	P	2	x	4	24	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
385	CF	80/82	P-80	BETWEEN R-362 & R-386	B		x		120	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
386	CF	80/82	P-80	10'N OF SEOS & 10W	P	2	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
387	CF	84/86	P-86	BETWEEN R-377 & R-379	B		x		86	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
388	CF	86/87	P-87	250'N OF SEOS & 19'E	P	3	x	12		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
389	CF	86/88	P-86	BETWEEN R-381 & R-390	B		x		120	7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
390	CF	86/88	P-86	42'N OF SEOS & 9'W	P	2	x	3		7/28/16	SU	EXT-74	Vacuum	Pass	8/2/16
391	DS-26 B	72/74		154'N OF SEOS	P	2	x	11		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
392	DS-26 A	72/74		135'N OFSEOS	P	2	x	11		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
393	DS-28	81/83		177'N OF SEOS	P	2	x	5		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
394	DSX-11	R-365	P-81	144'N OF SEOS &12'W	P	2	x	5		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
395	DSX-12	R-387	P-86	199'N OF SEOS & 4'E	P	2	x	5		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
396	CF	86/87		210'N OF SEOS	P	4	x	14		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
397	CF	86/87	P-86	210'N OF SEOS 7'W	P	3	x	4		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
398	CF	86/87	P-86	208'N OF SEOS 10'W	P	3	x	15		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
399	CF	86/87	P-87	200'N OF SEOS 9'E	P	4	x	20		8/2/16	SU	EXT-74	Vacuum	Pass	8/2/16
400	CF	87/90		115'N OF SEOS	P	2	x	5		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
401	CF	87/90	P-90	BETWEEN R-400 & R-402	B		x		120	8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
402	CF	87/90	P-90	115'N OF SEOS 13'E	P	2	x	3		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
403	BO	87/90		130'N OF SEOS	P	2	x	5		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
404	BO	87/89/90		150'N OF SEOS	P	2	x	3		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
405	SJ	88/87/90		97'N OF SEOS	P	2	x	3		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
406	CF	90/91	P-90	50'N OF SEOS 3'W	P	3	x	6		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
407	CF	90/91	P-90	49'N OF SEOS 7'W	P	3	x	9		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
408	PB	90/91	P-90	238'N OF SEOS 7'W (4" PB)	P	4	x	10	24	8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
409	PB	90/91	P-91	107'N OF SEOS 5'E (8" PB)	P	4	x	4	24	8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
410	CF	91/92		160' N OF SEOS	P	6	x	17		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
411	CF	91/92		180'N SEOS	P	4	x	6		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
412	CF	92/93		110'N OF SEOS	P	3	x	5		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
413	CF	92/93	P-92	BETWEEN R-412 & R-414	B		x		84	8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
414	CF	92/93	P-92	115'N OF SEOS & 11'W	P	4	x	6		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes					SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit	8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot		Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out	**LF Welded**	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test	8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
415	CF	87/89	P-87	246' N OF SEOS & 4'W	P	3	x	8		8/3/16	SU	EXT-74	Vacuum	Pass	8/4/16
416	DS-29	90/91		26'N OF SEOS	P	2	x	5		8/4/16	SU	EXT-74	Vacuum	Pass	8/4/16
417	DSX-13	R-401	P-90	116'N OF SEOS &7'E	P	2	x	7		8/4/16	SU	EXT-74	Vacuum	Pass	8/4/16
418	DO	36/38	P-36	212' N OF SEOS & 6'W	P	2	x	2		8/5/16	SU	EXT-74	Vacuum	Pass	8/5/16
419	CF	94/95		45'N OF SEOS	P	2	x	3		8/5/16	SU	EXT-74	Vacuum	Pass	8/5/16
420	CF	94/95	P-94	BETWEEN R-419 & R-420	B		x		86	8/5/16	SU	EXT-74	Vacuum	Pass	8/5/16
421	CF	94/95	P-94	45'N OF SEOS & 12'W	P	4	x	6		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
422	CF	94/95	P-94	149'N OF SEOS	P	2	x	3		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
423	CF	94/95	P-94	BETWEEN R-422 & R-424	B		x		84	8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
424	CF	94/95	P-94	149'N OF SEOS & 11'W	P	4	x	6		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
425	CF	94/95	P-94	186'N OF SEOS & 2'W	P	2	x	2		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
426	CF	94/95	P-94	BETWEEN R-425 & R-427	B		x		132	8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
427	CF	94/95	P-94	176'N OF SEOS & 12'W	P	3	x	4		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
428	SJ	95/96/97		14'N OF SEOS	P	2	x	3		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
429	SJ	96/97/98		14'N OF SEOS	P	2	x	2		8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
430	PB	97/98	P-97	109'N OF SEOS 2'W (8"PB)	P	2	x	4	24	8/5/16	SU	EXT-74	Vacuum	Pass	8/8/16
431	DS-30	97/98		120'N OF SEOS	P	2	x	5		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
432	DSX-14	R-430	P-98	110'N OF SEOS	P	2	x	5		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
433	CF	99/100	P-100	92'N OF SEOS & 6'E	P	3	x	7		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
434	CF	99/100		97'N OF SEOS	P	3	x	11		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
435	CF	99/100		132'N OF SEOS	P	2	x	3		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
436	CF	99/100	P-100	BETWEEN R-435 & R-437	B		x		108	8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16
437	CF	99/100	P-100	128'N OFSEOS & 8'E	P	2	x	2		8/8/16	SU	EXT-74	Vacuum	Pass	8/10/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
438	DS-31	79/80		200'N OF SEOS	P	2	x	5		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
439	DS-32	86/87		178'N OF SEOS	P	2	x	5		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
440	SJ	100/101/102		20'N OF SEOS	P	3	x	5		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
441	SJ	101/102/103		22'N OF SEOS	P	2	x	4		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
442	CF	103/104		40'N OF SEOS	P	4	x	8		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
443	SJ	103/104/105		188'N OF SEOS	P	2	x	3		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
444	BO	103/105		218'N OF SEOS	P	2	x	4		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
445	BO	104/106		62'N OF SEOS	P	3	x	8		8/9/16	SU	EXT-74	Vacuum	Pass	8/10/16
446	SJ	104/105/106		190'N OF SEOS	P	2	x	3		8/10/16	SU	EXT-74	Vacuum	Pass	8/11/16
447	CF	104/106	P-106	150'N OF SEOS 13'E	P	2	x	7		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
448	CF	104/106	P-106	BETWEEN R-447 & R-477	B		x		108	8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
449	PB	102/103	P-103	113'N OF SEOS 13'E (8" PB)	P	2	x	4	24	8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
450	PB	103/104	P-104	6'N OF SEOS 5'E (6" PB)	P	3	x	4	24	8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
451	DS-33	104/106		23'N OF SEOS	P	2	x	6		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
452	DSX-15	R-445	P-106	62'N OF SEOS	P	2	x	6		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
453	BO	93/107		3'N OF SEOS	P	2	x	5		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
454	BO	93/107		45'N OF SEOS	P	3	x	6		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
455	CF	108/110	P-108	115'N OF SEOS & 2'W	P	5	x	15		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
456	SJ	108/109/110		188'N OF SEOS	P	2	x	3		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
457	SI	107/108		2'N OF SEOS	P	2	x	3		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
458	CF	94/110	P-110	103'N OF SEOS & 9'W	P	2	x	4		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
459	CF	94/110		BETWEEN R-458 & R-460	B		x		120	8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
460	SJ	R-461/94		110'N OF SEOS	P	2	x	4		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
461	AO		P-110	110'N OF SEOS (BTWN R-460/R-455)	C	2	x	22		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
462	CF	110/94		115'N OF SEOS & 13'W	P	3	x	8		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
463	CF	110/94	P-110	132'N OF SEOS & 2'W	P	4	x	5		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
464	CF	110/94	P-110	136'N OF SEOS & 10'W	P	4	x	12		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
465	SJ	94/110/109		188'N OF SEOS	P	2	x	3		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
466	CF	108/110	P-108	110'N OF SEOS & 5'W	P	3	x	11		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
467	DS-34	94/110		62'N OF SEOS	P	2	x	5		8/10/16	SU	EXT-74	Vacuum	Pass	8/10/16
468	AO	94/110		4' N OF SEOS (ON R-469)	P	2	x	2		8/11/16	SU	EXT-74	Vacuum	Pass	8/11/16
469	AO	R-470	P-94/P-95	4'N OF SEOS	P	2	x	45		8/11/16	SU	EXT-74	Vacuum	Pass	8/11/16
470	AO	R-469	P-94/P-95/P-96	2'N OF SEOS	P	2	x	55		8/11/16	SU	EXT-74	Vacuum	Pass	8/11/16
471	AO	R-470/R-472	P-96/P-98/P-99	2'N OF SEOS	P	2	x	45		8/11/16	SU	EXT-74	Vacuum	Pass	8/11/16
472	AO	R-473/R-474	P-100/P-101	2'N OF SEOS	P	2	x	56		8/11/16	SU	EXT-74	Vacuum	Pass	8/11/16
473	AO	R-472/R-475	103/P-104/P-1	2'N OF SEOS	P	3	x	25		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
474	AO	R-472	P-99/P-100	4'N OF SEOS	P	3	x	3		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
475	AO	R-473	P-104/P-106	3'N OF SEOS	P	2	x	3		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
476	AO	R-469/R-470	P-94/P-95	2'N OF SEOS	B		x		276	8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
477	CF	106/111		161'N OF SEOS	P	2	x	3		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
478	CF	111/112	P-112	46'N OF SEOS & 4'E	P	4	x	10		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
479	CF	111/112	P-111	74'N OF SEOS & 2'W	P	3	x	7		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
480	DO	111/112	P-111	236'N OF SEOS & 11'W	P	2	x	3		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
481	CF	111/112	P-111	140'N OF SEOS & 4'W	P	3	x	9		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
482	CF	111/112	P-111	142'N OF SEOS &14'W	P	4	x	12		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
483	CF	111/112	P-112	46' N OF SEOS &15'E	P	2	x	7		8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes						SF Patch Material	Test Type	Abbrv.	Repair Types
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit		8356	Vacuum	*S=South	C--Cap Strip
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot			Air Pressure	*N=North	P--Patch
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out		LF Welded	Spark	*W=West	B--Extrusion Bead
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test		8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
484	CF	111/112	P-112	BETWEEN R-483 & R-487	B		x		96	8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
485	CF	111/112	P-112	46'N OF SEOS & 11' E	B		x		36	8/11/16	SU	EXT-74	Vacuum	Pass	8/12/16
486	DO	103/105	P-103	236'N OF SEOS & 12'W	P	2	x	3		8/12/16	SU	EXT-74	Vacuum	Pass	8/12/16
487	CF	112/113		46'N OF SEOS	P	2	x	10		8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
488	BO	112/113		163'N OFSEOS	P	3	x	3		8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
489	BO	113/114		66'N OF SEOS	P	2	x	3		8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
490	DSX-16	R-478	P-112	47'N OF SEOS	P	2	x	6		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
491	DS-35	112/113		114'N OF SEOS	P	2	x	6		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
492	PB	112/113	P-113	110'N OF SEOS & 10'E (48" MH)	P	7	x	6	60	8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
493	PB	113/114	P-114	206'N SEOS & 13'E (6" PB)	P	2	x	7	24	8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
494	CF	113/114	P-114	206'N OF SEOS &16'E	P	2	x	10		8/12/16	SU	EXT-74	Vacuum	Pass	8/13/16
495	CF	111/106	P-106	161'N OF SEOS & 9'W	P	1	x	1		8/11/16	SU	EXT-74	Vacuum	Pass	8/13/16
496	CF	111/106	P-106	BETWEEN R-495 & R-497	B		x		120	8/11/16	SU	EXT-74	Vacuum	Pass	8/13/16
497	CF	111/106	P-106	172'N OF SEOS & 3'W	P	2	x	2		8/11/16	SU	EXT-74	Vacuum	Pass	8/13/16
498	CF	112/113	P-113	38'N OF SEOS & 7'E	P	3	x	7		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
499	CF	113/114	P-114	46'N OF SEOS & 7'E	P	3	x	10		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
500	CF	113/114	P-114	BETWEEN R-499 & R-503	B		x		120	8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
501	CF	111/112	P-111	115'N OF SEOS & 6' W	P	2	x	14		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
502	CF	112/113	P-113	152'N OF SEOS & 11' E	P	2	x	15		8/13/16	SU	EXT-74	Vacuum	Pass	8/13/16
503	CF	114/115		39'N OF SEOS	P	2	x	3		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
504	CF	114/115		205'N OF SEOS	P	2	x	5		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
505	SJ	115/119/118		106'N OF SEOS	P	4	x	12		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
506	BO	116/115		244'N OF SEOS	P	3	x	3		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16

Environmental Specialties International Inc.

Repair Report

Project Name HONEYWELL SA6 NORTH CAP **Job # :** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported by : KHAI S. SOK **Cap** X

Other:

Damage Codes					
CR --Crease	FS --Failed Seam	MatD --Material Defect	LL --Lost Lap	CF --Custom Fit
DS --Destruct Sample	WR --Wrinkle	WS --Welder Restart	MD --Mechanical Damage	PB --Pipe Boot
SI --Subgrade Irregularity	AV --Airvent	RW --Roller Wrinkle	DO --Damage By Others	BO --Burn Out
SJ --Seam Joint	AO --Add On	CS --Concrete Structure		AT -Air Test

SF Patch Material	Test Type	Abbrv.	Repair Types
8356	Vacuum	*S=South	C--Cap Strip
	Air Pressure	*N=North	P--Patch
LF Welded	Spark	*W=West	B--Extrusion Bead
8434.25	Air Lance	*E=East	

Repair Number	Damage Code	Seam Number	Panel Number	Location	Repair Type	Patch (Feet)			Bead (Inches)	Date Welded	Operator Name	Machine Number	Test Type	Test Results	Date Complete
507	SJ	118/116/117		171'N OF SEOS	P	2	x	3		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
508	BO	117/118		171'N OF SEOS & 10'E	P	4	x	5		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
509	PB	116/118	P-116	176'N OF SEOS & 13'E (4" PB)	P	4	x	4	24	8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
510	CF	118/116	P-116	BETWEEN R-509 & R-511	B		x		60	8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
511	CF	117/116	P-116	171'N OF SEOS & 16'E	P	2	x	5		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
512	SJ	115/116/118		225'N OF SEOS	P	3	x	6		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
513	DS-36	118/117		40'N OF SEOS	P	2	x	6		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16
514	DSX-17	R-505	P-118	106' N OF SEOS	P	3	x	6		8/15/16	SU	EXT-74	Vacuum	Pass	8/15/16

Appendix K
ESI Destruct Sample Information Logs

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported By: KHAI S. SOK **Cap** X

Other:

Peel Test Extrusion Minimum 66 PPI

Peel Test Fusion Minimum 75 PPI

Shear Test Minimum 90 PPI

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
DSX-1	P-1 / R-1	6/23/16	SU	EXT -74		500	450	Peel	100		104		107		97		101		Pass
								Shear	99		98		103		105		101		
	DS Location and Notes	34' N OF SEOS & 10'W																	
DS -1	P-1 / P-2	6/22/16	SU	4024	5	860		Peel	92	88	89	86	77	93	98	87	76	92	Pass
								Shear	101		99		97		100		98		
	DS Location and Notes	15'N OF SEOS																	
DS-2	P-6 / P-7	6/22/16	BS	4131	5	860		Peel	90	84	84	79	88	96	76	81	95	86	Pass
								Shear	101		98		103		95		101		
	DS Location and Notes	16'N OF SEOS																	
DS-3	P-10 / P-11	6/23/16	AP	4000	5	860		Peel	81	81	81	75	82	86	84	93	95	97	Pass
								Shear	100		99		101		97		95		
	DS Location and Notes	25' S OF NEOS																	
DS-4	P-15 / P-17	6/24/16	AP	4000	5	860		Peel	95	98	100	99	99	98	96	98	93	96	Pass
								Shear	101		102		99		102		101		
	DS Location and Notes	87'N OF SEOS																	
DSX-2	P-10 / R-30	6/23/16	SU	EXT -74		500	450	Peel	94		95		99		92		97		Pass
								Shear	103		103		102		104		102		
	DS Location and Notes	106' N OF SEOS &6'W																	
DS-5	P-19 / P-20	6/27/16	BS	4131	5	860		Peel	91	93	94	95	98	99	100	99	96	99	Pass
								Shear	105		104		103		102		100		
	DS Location and Notes	16'N OF SEOS																	
DS-6	P-23 / P-24	6/27/16	AP	4000	6	860		Peel	100	99	89	87	91	93	98	88	91	93	Pass
								Shear	103		104		102		102		100		
	DS Location and Notes	105'N OF SEOS																	
DS-7	P-13 / P-14	6/24/16	AP	4000	6	860		Peel	98	99	97	100	91	96	100	98	89	93	Pass
								Shear	101		102		103		104		103		
	DS Location and Notes	91'N OF SEOS																	
DS-8	P-18 / R-105	6/30/16	BS	4131	6	860		Peel	102	100	88	85	91	99	101	98	98	95	Pass
								Shear	108		105		103		106		102		
	DS Location and Notes	195' N OF SEOS & 9'W OF P-18/P-19																	
DS-9	P-18 / P-19	6/24/16	AP	4000	6	860		Peel	94	76	98	91	100	99	97	100	89	87	Pass
								Shear	103		105		100		101		103		
	DS Location and Notes	101'N OF SEOS																	
DS-10	P-27 / P-28	6/30/16	AP	4000	6	860		Peel	87	89	88	87	86	90	93	94	100	96	Pass
								Shear	103		102		103		104		105		
	DS Location and Notes	155'N OF SEOS																	
DS-11	P-31 / P-32	6/30/16	BS	4131	6	860		Peel	90	83	87	89	101	100	102	100	99	95	Pass
								Shear	100		100		103		102		101		
	DS Location and Notes	96'N OF SEOS																	
DSX-4	R-148 / P-32	7/1/16	SU	74		500	400	Peel	94		102		107		103		102		Pass
								Shear	101		100		103		102		101		
	DS Location and Notes	96'N OF SEOS																	
DS-12	P-34 / P-35	7/1/16	AP	4000	6	860		Peel	89	99	97	84	79	86	100	98	99	98	Pass
								Shear	102		103		102		100		101		
	DS Location and Notes	21'N OF SEOS																	

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported By: KHAI S. SOK **Cap** X

Other:

Peel Test Extrusion Minimum 66 PPI

Peel Test Fusion Minimum 75 PPI

Shear Test Minimum 90 PPI

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
DS-13	P-36 / P-38	7/1/16	BS	4131	6	860		Peel	99	95	84	75	85	89	91	94	97	96	Pass
								Shear	102		105		104		103		101		
	DS Location and Notes	**215'N OF SEOS**																	
DS-14	P-41 / P-42	7/7/16	BS	4131	6	860		Peel	88	84	84	81	90	96	94	85	89	81	Pass
								Shear	101		104		105		103		104		
	DS Location and Notes	**139'N OF SEOS**																	
DSX-5	P-42 / R-179	7/7/16	SU	EXT -74		500	400	Peel	94		91		96		89		84		Pass
								Shear	101		103		102		101		102		
	DS Location and Notes	**100'N OF SEOS & 3'E**																	
DSX-3	P-21 / R-79	6/27/16	SU	EXT -74		500	400	Peel	105		99		103		101		100		Pass
								Shear	103		101		104		103		105		
	DS Location and Notes	**125'N OF SEOS**																	
DSX-6	P-42 / R-180	7/7/16	SU	EXT -74		500	400	Peel	94		101		99		87		84		Pass
								Shear	101		103		102		101		102		
	DS Location and Notes	**153'N OF SEOS &5'E OF P-41/P-42**																	
DS-15	P-43 / P-44	7/8/16	BS	4131	6	860		Peel	85	93	106	101	89	96	99	103	101	104	Pass
								Shear	105		106		101		103		103		
	DS Location and Notes	**222'N OF SEOS**																	
DS-16	P-46 / P-47	7/8/16	BS	4131	6	860		Peel	98	104	98	100	99	100	96	95	100	91	Pass
								Shear	102		101		103		104		102		
	DS Location and Notes	**146'N OF SEOS**																	
DS-17	P-45 / P-46	7/8/16	AP	4000	6	860		Peel	99	85	90	89	96	91	101	100	99	96	Pass
								Shear	101		103		105		106		103		
	DS Location and Notes	**24'N OF SEOS**																	
DSX-7	P-43 / R-204	7/8/16	PHOU	EXT-75		500	400	Peel	108		103		104		105		104		Pass
								Shear	103		106		103		106		105		
	DS Location and Notes	**80'N OF SEOS & 4'W OF P-43/P-44**																	
DS-18	P-49 / P-50	7/12/16	AP	4000	6	860		Peel	99	101	109	94	98	100	86	99	88	79	Pass
								Shear	108		106		108		109		107		
	DS Location and Notes	**251'N OF SEOS**																	
DS-19	P-53 / P-54	7/12/16	BS	4131	6	860		Peel	100	109	106	100	81	95	86	78	99	95	Pass
								Shear	102		101		103		103		105		
	DS Location and Notes	**20'N OF SEOS**																	
DS-20	P-55 / P-56	7/12/16	AP	4000	6	860		Peel	118	112	120	126	97	83	84	86	98	93	Pass
								Shear	106		106		107		106		103		
	DS Location and Notes	**103'N OF SEOS**																	
DS-21	P-58 / P-59	7/13/16	AP	4000	6	860		Peel	100	98	96	97	101	99	89	89	96	94	Pass
								Shear	102		105		106		104		107		
	DS Location and Notes	**266'N OF SEOS**																	
DS-22	P-61 / P-63	7/13/16	BS	4131	6	860		Peel	88	87	96	86	94	86	96	92	97	95	Pass
								Shear	105		106		102		105		108		
	DS Location and Notes	**137'N OF SEOS**																	

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported By: KHAI S. SOK **Cap** X

Other:

Peel Test Extrusion Minimum 66 PPI

Peel Test Fusion Minimum 75 PPI

Shear Test Minimum 90 PPI

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
DS-23	P-64 / P-63	7/14/16	BS	4131	6	860		Peel	87	85	86	95	94	98	86	94	95	85	Pass
								Shear	102		105		104		105		104		
	DS Location and Notes	17'N OF SEOS																	
DS-24	P-66 / P-68	7/14/16	BS	4131	6	860		Peel	96	98	86	98	95	98	86	84	98	86	Pass
								Shear	105		103		104		108		107		
	DS Location and Notes	148'N OF SEOS																	
DSX-8	R-270 / P-61	7/14/16	SU	EXT-74		500	400	Peel	99		92		100		102		103		Pass
								Shear	101		102		105		102		101		
	DS Location and Notes	193'N OF SEOS																	
DS-25	P-68 / P-69	7/25/16	BS	4131	6	860		Peel	93	95	88	96	93	86	83	85	87	94	Pass
								Shear	103		104		105		106		107		
	DS Location and Notes	250'N OF SEOS																	
DS-26	P-72 / P-74	7/25/16	BS	4131	6	860		Peel	98	99	100	98	86	87	79	81	83	91	Pass
								Shear	103		104		104		105		120		
	DS Location and Notes	145'N OF SEOS. FIELD TEST RESULTS MET PEEL/SHEAR REQUIREMENTS. LAB RESULTS FOR PEEL ADHESION REPORTED BREAK CODE OF AD-BRK ON INSIDE TRACK AS THIS SAMLPE FAILED. SAMPLES DS-26A AND DS-26B WERE SUBSEQUENTLY COLLECTED 10 FT ON EACH SIDE OF DS-26																	
DSX-9	P-72 / R-299	7/25/16	SU	EXT-74		500	400	Peel	101		99		108		101		103		Pass
								Shear	106		104		104		105		101		
	DS Location and Notes	153'N OF SEOS																	
DSX-10	P-75 / R-320	7/27/16	SU	EXT-74		500	400	Peel	101		103		94		96		100		Pass
								Shear	103		102		103		102		101		
	DS Location and Notes	82'N OF SEOS & 5'W OF P-75/P-76																	
DS-26A	P-72 / P-74	7/25/16	BS	4131	6	860		Peel	106	107	100	102	106	110	107	110	100	99	Pass
								Shear	101		103		102		103		107		
	DS Location and Notes	135'N OF SEOS																	
DS-26B	P-72 / P-74	7/25/16	BS	4131	6	860		Peel	99	100	106	104	99	102	111	101	99	100	Pass
								Shear	106		107		102		103		104		
	DS Location and Notes	154'N OF SEOS																	
DS-27	P-75 / P-76	7/27/16	AP	4000	6	860		Peel	97	97	86	89	100	89	101	98	96	81	Pass
								Shear	102		103		104		103		106		
	DS Location and Notes	24'N OF SEOS																	
DS-28	P-81 / P-83	7/28/16	AP	4000	6	860		Peel	99	98	86	95	100	113	100	102	103	100	Pass
								Shear	103		105		102		103		106		
	DS Location and Notes	177'N OF SEOS																	
DSX-11	R-365 / P-81	7/28/16	SU	EXT-74		500	400	Peel	103		104		103		102		103		Pass
								Shear	101		111		106		105		106		
	DS Location and Notes	144'N OF SEOS & 12'W OF P-81/P-83																	
DSX-12	R-387 / P-86	7/28/16	DM	EXT-75		500	400	Peel	100		102		103		102		102		Pass
								Shear	103		111		105		106		105		
	DS Location and Notes	199'OF SEOS & 4'E OF P-84/P-86																	
DSX-13	P-90 / R-401	8/3/16	SU	EXT-74		500	400	Peel	103		102		101		100		105		Pass
								Shear	103		105		104		105		105		
	DS Location and Notes	116'N OF SEOS & 7'E OF P-87/P-90																	
DS-29	P-90 / P-91	8/3/16	AP	4000	6	860		Peel	89	100	95	99	101	98	99	86	87	89	Pass
								Shear	105		102		104		103		105		
	DS Location and Notes	26' N OF SEOS																	

Environmental Specialties International Inc.

Destructive Sample Information

Project Name: HONEYWELL SA6 NORTH CAP **Job #** 12-11-1399 **Superintendent:** TONY UNG

Material Type: 60 MIL LLDP MICROSPIKE LINER **Primary** X **Pond**

Job Description: **Secondary** **Cell**

Reported By: KHAI S. SOK **Cap** X

Other:

Peel Test Extrusion Minimum 66 PPI

Peel Test Fusion Minimum 75 PPI

Shear Test Minimum 90 PPI

D.S. No.	Seam No.	Weld Date	Operator Name/ ID	Mach No.	Mach Speed	Mach Temp	Preheat Temp		Coupon 1 A	Coupon 1 B	Coupon 2 A	Coupon 2 B	Coupon 3 A	Coupon 3 B	Coupon 4 A	Coupon 4 B	Coupon 5 A	Coupon 5 B	Test Results
DS-30	P-97 / P-98	8/5/16	BS	4131	6	860		Peel	98	96	95	96	100	98	91	93	96	97	Pass
								Shear	105		102		104		105		103		
	DS Location and Notes	**120'N OF SEOS**																	
DSX-14	R-430 / P-98	8/516	SU	EXT-74		500	400	Peel	99		100		98		112		116		Pass
								Shear	105		106		102		105		100		
	DS Location and Notes	**110'N OF SEOS**																	
DS-31	P-79 / P-80	7/27/16	BS	4131	6	860		Peel	98	95	94	101	85	99	103	97	98	95	Pass
								Shear	111		102		105		106		102		
	DS Location and Notes	**200'N OF SEOS**																	
DS-32	P-86 / P-87	7/28/16	BS	4131	6	860		Peel	85	86	89	84	89	86	96	89	99	104	Pass
								Shear	105		103		104		102		103		
	DS Location and Notes	**178'N OF SEOS**																	
DS-33	P-104 / P-106	8/9/16	SU	4000	6	860		Peel	98	89	96	95	89	87	83	84	96	86	Pass
								Shear	102		105		103		105		104		
	DS Location and Notes	**23'N OF SEOS**																	
DSX-15	R-445 / P-106	8/10/16	SU	EXT-74		500	400	Peel	112		113		114		113		114		Pass
								Shear	105		106		104		102		105		
	DS Location and Notes	**62'N OF SEOS**																	
DSX-16	R-478 / P-112	8/12/16	SU	EXT-74		500	400	Peel	101		96		86		89		100		Pass
								Shear	105		103		104		105		102		
	DS Location and Notes	**47'N OF SEOS**																	
DS-34	P-94 / P-110	8/10/16	BS	4131	6	860		Peel	98	96	98	86	89	84	94	86	96	98	Pass
								Shear	102		103		105		104		104		
	DS Location and Notes	**62'N OF SEOS**																	
DS-35	P-112 / P-113	8/12/16	SU	4000	6	860		Peel	96	89	86	95	84	98	94	96	95	94	Pass
								Shear	103		105		104		104		105		
	DS Location and Notes	**114'N OF SEOS**																	
DS-36	P-118 / P-117	8/13/16	BS	4131	6	860		Peel	98	96	94	86	86	96	97	94	93	92	Pass
								Shear	102		103		105		106		105		
	DS Location and Notes	**40'N OF SEOS**																	
DSX-17	R-505 / P-118	8/15/16	SU	EXT-74	6	860		Peel	113		112		114		111		101		Pass
								Shear	105		104		106		104		105		
	DS Location and Notes	**106'N OF SEOS**																	

Appendix L
Laboratory Destruct Test Results

Honeywell SA-6 Capping (SA-6 North)

Comparison of ESI / Langan (QA) Destruct Samples - Fusion Weld

Sample ID	***Weld Type***	***Submitted By:***	***Test***	***Peel Strength (ppi)***					**Avg. Strength (ppi)**	***Meets Spec Requirement***
DS-1	Fusion	Langan	Side A Peel	104	103	114	107	105	**107**	**Yes**
		Entact	Side A Peel	105.2	103.2	104	105.9	108.3	**105.3**	**Yes**
		Langan	Side B Peel	118	115	125	111	107	**115**	**Yes**
		Entact	Side B Peel	118.8	109.4	116.5	118.8	94.4	**111.6**	**Yes**
		Langan	Shear	125	123	122	122	125	**123**	**Yes**
		Entact	Shear	129.9	131	131	129.7	134.3	**131.2**	**Yes**
DS-2	Fusion	Entact	Side A Peel	103.4	102.1	102.7	99.7	106.3	**102.8**	**Yes**
			Side B Peel	112.3	111.6	113.6	114	116.5	**113.6**	**Yes**
			Shear	116.1	118.2	117.5	114.9	115.8	**116.5**	**Yes**
DS-3	Fusion	Entact	Side A Peel	115.4	105.5	102.3	101.2	103.2	**105.5**	**Yes**
			Side B Peel	113.5	89.6	112	112.3	109.3	**107.3**	**Yes**
			Shear	121.6	122.5	126.5	122.7	120.3	**122.7**	**Yes**
DS-4	Fusion	Entact	Side A Peel	120.2	121.3	111.2	109.2	120.3	**116.4**	**Yes**
			Side B Peel	110.6	106.3	109.5	102.6	110.1	**107.8**	**Yes**
			Shear	128.7	132.4	129.5	128	127.6	**129.2**	**Yes**
DS-5	Fusion	Entact	Side A Peel	124.6	111.9	118.7	112.8	112.7	**116.1**	**Yes**
			Side B Peel	116.4	103	111.9	107.7	111.5	**110.1**	**Yes**
			Shear	116.2	120.3	116.3	117	115.6	**117.1**	**Yes**
DS-6	Fusion	Entact	Side A Peel	102.4	102.2	103.2	102.1	100	**102.0**	**Yes**
			Side B Peel	105.4	106.9	108	103.7	107.5	**106.3**	**Yes**
			Shear	126.6	125.5	130.1	125	129.7	**127.4**	**Yes**
DS-7	Fusion	Entact	Side A Peel	102.3	114.2	108.4	117.2	116.1	**111.6**	**Yes**
			Side B Peel	103.2	103	109.6	111	105	**106.4**	**Yes**
			Shear	127.5	132.2	130.7	128.1	130.4	**129.8**	**Yes**
DS-8	Fusion	Entact	Side A Peel	126	119	123.4	120.1	126	**122.9**	**Yes**
			Side B Peel	135.6	128	132.3	127	135	**131.6**	**Yes**
			Shear	128.9	132	135	136.3	139	**134.2**	**Yes**
DS-9	Fusion	Entact	Side A Peel	118.5	121.4	122.4	117.8	118.9	**119.8**	**Yes**
			Side B Peel	111.8	117.7	120.5	116.8	116.1	**116.6**	**Yes**
			Shear	133	136.3	131.8	132.1	132.3	**133.1**	**Yes**
DS-10	Fusion	Entact	Side A Peel	113.2	109	108.3	108	117	**111.1**	**Yes**
			Side B Peel	119	119	117.7	117	117.2	**118.0**	**Yes**
			Shear	130.5	124.9	126.9	129	128.4	**127.9**	**Yes**
DS-11	Fusion	Entact	Side A Peel	113.3	113	117.5	111.1	104	**111.8**	**Yes**
			Side B Peel	117.4	119	128.4	121.1	115.6	**120.3**	**Yes**
			Shear	125.1	124.2	129.1	126	126.6	**126.2**	**Yes**
DS-12	Fusion	Entact	Side A Peel	114.2	110.2	111.6	110.2	111	**111.4**	**Yes**
			Side B Peel	122.7	110.3	116.4	109.5	107	**113.2**	**Yes**
			Shear	119	118.8	118	114	117.6	**117.5**	**Yes**
DS-13	Fusion	Entact	Side A Peel	114.3	109.2	110.5	109.1	110.2	**110.7**	**Yes**
			Side B Peel	128	121.1	123.3	122.7	121.3	**123.3**	**Yes**
			Shear	125.1	123.7	124.3	125	130.9	**125.8**	**Yes**

DS-14	Fusion	Langan	Side A Peel	124	136	120	119	132	**126.2**	**Yes**
		Entact	Side A Peel	125.8	121.7	118.4	115.7	116.2	**119.6**	**Yes**
		Langan	Side B Peel	113	113	114	113	117	**114.0**	**Yes**
		Entact	Side B Peel	112.3	111.2	112.8	112.8	110.6	**111.9**	**Yes**
		Langan	Shear	117	118	117	115	114	**116.2**	**Yes**
		Entact	Shear	114.3	114	115.3	114.7	118.4	**115.3**	**Yes**
DS-15	Fusion	Entact	Side A Peel	122	116.1	117.1	116.9	118.2	**118.1**	**Yes**
			Side B Peel	124.1	106.3	119	119.5	119.4	**117.7**	**Yes**
			Shear	120.3	121	125.9	126.5	122.4	**123.2**	**Yes**
DS-16	Fusion	Entact	Side A Peel	117.5	112.3	111.7	113.3	116	**114.2**	**Yes**
			Side B Peel	109.6	104.4	104.2	107.1	105.5	**106.2**	**Yes**
			Shear	128.9	121.1	123.2	122.2	121.1	**123.3**	**Yes**
DS-17	Fusion	Entact	Side A Peel	116.5	120.5	118.7	119.5	114	**117.8**	**Yes**
			Side B Peel	106.1	118.1	108.4	123.3	99	**111.0**	**Yes**
			Shear	136	127	130	134	130.8	**131.6**	**Yes**
DS-18	Fusion	Entact	Side A Peel	112.7	118	116.4	118.4	110.1	**115.1**	**Yes**
			Side B Peel	117.6	118.6	114.6	118.8	116.8	**117.3**	**Yes**
			Shear	128.1	129.8	129	121.3	128	**127.2**	**Yes**
DS-19	Fusion	Entact	Side A Peel	106.1	111.2	105.3	107.2	108.4	**107.6**	**Yes**
			Side B Peel	111	115	117.1	115	120.2	**115.7**	**Yes**
			Shear	128.2	123	125.2	126.3	123.4	**125.2**	**Yes**
DS-20	Fusion	Entact	Side A Peel	126.2	129.8	137	129	127	**129.8**	**Yes**
			Side B Peel	131.2	135.5	132.2	129	128.1	**131.2**	**Yes**
			Shear	140.1	132	134.2	135.2	131.6	**134.6**	**Yes**
DS-21	Fusion	Entact	Side A Peel	110.7	113.5	110.7	106.6	116.6	**111.6**	**Yes**
			Side B Peel	108.4	109.3	116.5	109.9	109.6	**110.7**	**Yes**
			Shear	129.5	127.4	127.3	129.4	133.1	**129.3**	**Yes**
DS-22	Fusion	Entact	Side A Peel	126.9	119	126.2	124.3	124.6	**124.2**	**Yes**
			Side B Peel	118.9	114	119.3	115.3	117	**116.9**	**Yes**
			Shear	127.7	126.2	132	126.2	127.5	**127.9**	**Yes**
DS-23	Fusion	Entact	Side A Peel	116.5	108.7	111.4	118.7	110.9	**113.2**	**Yes**
			Side B Peel	105.6	101.9	103.9	110.3	102.8	**104.9**	**Yes**
			Shear	128.5	127.1	129.1	129.2	128.2	**128.4**	**Yes**
DS-24	Fusion	Entact	Side A Peel	126	128.9	120.8	130.1	127.8	**126.7**	**Yes**
			Side B Peel	112.2	108.8	109.6	111.8	112.4	**111.0**	**Yes**
			Shear	135.8	132.6	134.1	134.7	133.1	**134.1**	**Yes**
DS-25	Fusion	Langan	Side A Peel	121	119	123	120	119	**120.4**	**Yes**
		Entact	Side A Peel	118.6	124.4	118.7	121.9	119.7	**120.7**	**Yes**
		Langan	Side B Peel	111	109	105	113	111	**109.8**	**Yes**
		Entact	Side B Peel	107.3	108.7	107	107.3	108.5	**107.8**	**Yes**
		Langan	Shear	131	131	133	131	131	**131.4**	**Yes**
		Entact	Shear	128.1	126.7	129.1	126.4	131.1	**128.3**	**Yes**
DS-26	Fusion	Entact	Side A Peel	126.4	122.7	125.9	125.6	122.5	**124.6**	**Yes**
			Side B Peel	110.8	114.2	90.3	102.9	89.7	**101.6**	**No**
			Shear	129.1	128.7	129.8	127.2	126	**128.2**	**Yes**
DS-26B	Fusion	Entact	Side A Peel	108.6	105.4	105.9	107.2	113.6	**108.1**	**Yes**
			Side B Peel	118.3	114	116.1	119.9	117.4	**117.1**	**Yes**
			Shear	123.7	125.4	123.5	126.3	125.3	**124.8**	**Yes**

DS-27	Fusion	Entact	Side A Peel	109.9	113.2	111.3	111.3	113.1	**111.8**	**Yes**
			Side B Peel	107.2	107	105.3	104.1	100.3	**104.8**	**Yes**
			Shear	128.7	128	129.5	127.4	133	**129.3**	**Yes**
DS-28	Fusion	Entact	Side A Peel	107.3	105	100.3	102.8	103.7	**103.8**	**Yes**
			Side B Peel	101.6	98.9	100.7	94.2	96.8	**98.4**	**Yes**
			Shear	116.5	116.5	117.4	117	118.5	**117.2**	**Yes**
DS-29	Fusion	Entact	Side A Peel	115.1	108.1	111.6	110	112.4	**111.4**	**Yes**
			Side B Peel	114.6	102.1	107.6	106.9	106.1	**107.5**	**Yes**
			Shear	126.9	127.4	128.8	127.8	133.2	**128.8**	**Yes**
DS-30	Fusion	Entact	Side A Peel	105.5	103.1	101.8	107.7	106.3	**104.9**	**Yes**
			Side B Peel	101.4	103.5	102.1	104.8	100.7	**102.5**	**Yes**
			Shear	112.5	108	107.7	107	107.2	**108.5**	**Yes**
DS-31	Fusion	Entact	Side A Peel	129.2	120.7	114	110.4	112.3	**117.3**	**Yes**
			Side B Peel	117.1	110.4	124.2	124.1	123.6	**119.9**	**Yes**
			Shear	130.1	133.8	129.7	128	130.1	**130.3**	**Yes**
DS-32	Fusion	Entact	Side A Peel	126	122.1	119	118.3	121.7	**121.4**	**Yes**
			Side B Peel	118.2	114.4	113.3	111.4	115.3	**114.5**	**Yes**
			Shear	129.5	133	138.6	134	128.7	**132.8**	**Yes**
DS-33	Fusion	Entact	Side A Peel	115.1	110.4	113	113.3	113.1	**113.0**	**Yes**
			Side B Peel	112.1	114.3	110.1	112.1	111.3	**112.0**	**Yes**
			Shear	132.4	131	131.5	132.2	134	**132.2**	**Yes**
DS-34	Fusion	Entact	Side A Peel	126.4	123.2	127.6	123	129	**125.8**	**Yes**
			Side B Peel	114.2	117.4	117.5	117.1	116.5	**116.5**	**Yes**
			Shear	133	130.7	131.4	131.8	136	**132.6**	**Yes**
DS-35	Fusion	Entact	Side A Peel	116.7	114	127.4	116	114.5	**117.7**	**Yes**
			Side B Peel	119	111.1	120.5	118.7	115	**116.9**	**Yes**
			Shear	133.3	131	124	130.4	134.9	**130.7**	**Yes**
DS-36	Fusion	Langan	Side A Peel	115	111	108	114	117	**113.0**	**Yes**
		Entact	Side A Peel	117	119.6	116	111.4	114	**115.6**	**Yes**
		Langan	Side B Peel	115	116	110	109	106	**111.2**	**Yes**
		Entact	Side B Peel	111.7	114.1	100	115.1	111.6	**110.5**	**Yes**
		Langan	Shear	129	132	128	127	128	**128.8**	**Yes**
		Entact	Shear	126	125.1	121.8	124.4	128.1	**125.1**	**Yes**

Sample reported as "AD-BRK" under EPA Break Classification Code. Although specimen met the minimum peel requirements, since the sample broke at the weld, the sample is reported as a failed sample.

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

Geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-03
LAB ID NO.: L16040-03-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-1

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	105.2	SE1	<10
2	103.2	SE1	<10
3	104.0	SE1	<10
4	105.9	SE1	<10
5	108.3	SE1	<10
AVERAGE	**105.3**		
STD. DEV.	1.76		
INSIDE TRACK (WELD "B")			
1	118.8	SE1	<10
2	109.4	SE1	<10
3	116.5	SE1	<10
4	118.8	SE1	<10
5	94.4	SE1	<10
AVERAGE	**111.6**		
STD. DEV.	9.26		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	129.9	SE1
2	131.0	SE1
3	131.0	SE1
4	129.7	SE1
5	134.3	SE1
AVERAGE	**131.2**	
STD. DEV.	1.65	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-03
LAB ID NO.: L16040-03-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-2

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	103.4	SE1	<10
2	102.1	SE1	<10
3	102.7	SE1	<10
4	99.7	SE1	<10
5	106.3	SE1	<10
AVERAGE	**102.8**		
STD. DEV.	2.13		
INSIDE TRACK (WELD "B")			
1	112.3	SE1	<10
2	111.6	SE1	<10
3	113.6	SE1	<10
4	114.0	SE1	<10
5	116.5	SE1	<10
AVERAGE	**113.6**		
STD. DEV.	1.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	116.1	SE1
2	118.2	SE1
3	117.5	SE1
4	114.9	SE1
5	115.8	SE1
AVERAGE	**116.5**	
STD. DEV.	1.19	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-03
LAB ID NO.: L16040-03-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-3

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	115.4	SE1	<10
2	105.5	SE1	<10
3	102.3	SE1	<10
4	101.2	SE1	<10
5	103.2	SE1	<10
AVERAGE	**105.5**		
STD. DEV.	5.14		
INSIDE TRACK (WELD "B")			
1	113.5	SE1	<10
2	89.6	SE1	<10
3	112.0	SE1	<10
4	112.3	SE1	<10
5	109.3	SE1	<10
AVERAGE	**107.3**		
STD. DEV.	8.98		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	121.6	SE1
2	122.5	SE1
3	126.5	SE1
4	122.7	SE1
5	120.3	SE1
AVERAGE	**122.7**	
STD. DEV.	2.07	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-04
LAB ID NO.: L16040-04-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-4

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	120.2	SE1	<10
2	121.3	SE1	<10
3	111.2	SE1	<10
4	109.2	SE1	<10
5	120.3	SE1	<10
AVERAGE	**116.4**		
STD. DEV.	5.15		
INSIDE TRACK (WELD "B")			
1	110.6	SE1	<10
2	106.3	SE1	<10
3	109.5	SE1	<10
4	102.6	SE1	<10
5	110.1	SE1	<10
AVERAGE	**107.8**		
STD. DEV.	3.01		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.7	SE1
2	132.4	SE1
3	129.5	SE1
4	128.0	SE1
5	127.6	SE1
AVERAGE	**129.2**	
STD. DEV.	1.71	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-05
LAB ID NO.: L16040-05-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-5

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	124.6	SE1	<10
2	111.9	SE1	<10
3	118.7	SE1	<10
4	112.8	SE1	<10
5	112.7	SE1	<10
AVERAGE	**116.1**		
STD. DEV.	4.88		
INSIDE TRACK (WELD "B")			
1	116.4	SE1	<10
2	103.0	SE1	<10
3	111.9	SE1	<10
4	107.7	SE1	<10
5	111.5	SE1	<10
AVERAGE	**110.1**		
STD. DEV.	4.50		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	116.2	SE1
2	120.3	SE1
3	116.3	SE1
4	117.0	SE1
5	115.6	SE1
AVERAGE	**117.1**	
STD. DEV.	1.67	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-05
LAB ID NO.: L16040-05-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-6

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	102.4	SE1	<10
2	102.2	SE1	<10
3	103.2	SE1	<10
4	102.1	SE1	<10
5	100.0	SE1	<10
AVERAGE	**102.0**		
STD. DEV.	1.06		
INSIDE TRACK (WELD "B")			
1	105.4	SE1	<10
2	106.9	SE1	<10
3	108.0	SE1	<10
4	103.7	SE1	<10
5	107.5	SE1	<10
AVERAGE	**106.3**		
STD. DEV.	1.57		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	126.6	SE1
2	125.5	SE1
3	130.1	SE1
4	125.0	SE1
5	129.7	SE1
AVERAGE	**127.4**	
STD. DEV.	2.13	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-7

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	102.3	SE1	<10
2	114.2	SE1	<10
3	108.4	SE1	<10
4	117.2	SE1	<10
5	116.1	SE1	<10
AVERAGE	**111.6**		
STD. DEV.	5.57		
INSIDE TRACK (WELD "B")			
1	103.2	SE1	<10
2	103.0	SE1	<10
3	109.6	SE1	<10
4	111.0	SE1	<10
5	105.0	SE1	<10
AVERAGE	**106.4**		
STD. DEV.	3.32		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	127.5	SE1
2	132.2	SE1
3	130.7	SE1
4	128.1	SE1
5	130.4	SE1
AVERAGE	**129.8**	
STD. DEV.	1.74	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-8

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.0	SE1	<10
2	119.0	SE1	<10
3	123.4	SE1	<10
4	120.1	SE1	<10
5	126.0	SE1	<10
AVERAGE	**122.9**		
STD. DEV.	2.92		
INSIDE TRACK (WELD "B")			
1	135.6	SE1	<10
2	128.0	SE1	<10
3	132.3	SE1	<10
4	127.0	SE1	<10
5	135.0	SE1	<10
AVERAGE	**131.6**		
STD. DEV.	3.53		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.9	SE1
2	132.0	SE1
3	135.0	SE1
4	136.3	SE1
5	139.0	SE1
AVERAGE	**134.2**	
STD. DEV.	3.49	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-9

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	118.5	SE1	<10
2	121.4	SE1	<10
3	122.4	SE1	<10
4	117.8	SE1	<10
5	118.9	SE1	<10
AVERAGE	**119.8**		
STD. DEV.	1.78		
INSIDE TRACK (WELD "B")			
1	111.8	SE1	<10
2	117.7	SE1	<10
3	120.5	SE1	<10
4	116.8	SE1	<10
5	116.1	SE1	<10
AVERAGE	**116.6**		
STD. DEV.	2.82		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	133.0	SE1
2	136.3	SE1
3	131.8	SE1
4	132.1	SE1
5	132.3	SE1
AVERAGE	**133.1**	
STD. DEV.	1.65	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-10

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	113.2	SE1	<10
2	109.0	SE1	<10
3	108.3	SE1	<10
4	108.0	SE1	<10
5	117.0	SE1	<10
AVERAGE	**111.1**		
STD. DEV.	3.50		
INSIDE TRACK (WELD "B")			
1	119.0	SE1	<10
2	119.0	SE1	<10
3	117.7	SE1	<10
4	117.0	SE1	<10
5	117.2	SE1	<10
AVERAGE	**118.0**		
STD. DEV.	0.86		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	130.5	SE1
2	124.9	SE1
3	126.9	SE1
4	129.0	SE1
5	128.4	SE1
AVERAGE	**127.9**	
STD. DEV.	1.91	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-05
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-11

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	113.3	SE1	<10
2	113.0	SE1	<10
3	117.5	SE1	<10
4	111.1	SE1	<10
5	104.0	SE1	<10
AVERAGE	**111.8**		
STD. DEV.	4.42		
INSIDE TRACK (WELD "B")			
1	117.4	SE1	<10
2	119.0	SE1	<10
3	128.4	SE1	<10
4	121.1	SE1	<10
5	115.6	SE1	<10
AVERAGE	**120.3**		
STD. DEV.	4.44		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	125.1	SE1
2	124.2	SE1
3	129.1	SE1
4	126.0	SE1
5	126.6	SE1
AVERAGE	**126.2**	
STD. DEV.	1.66	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-07
LAB ID NO.: L16040-07-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-12

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	114.2	SE1	<10
2	110.2	SE1	<10
3	111.6	SE1	<10
4	110.2	SE1	<10
5	111.0	SE1	<10
AVERAGE	**111.4**		
STD. DEV.	1.48		
INSIDE TRACK (WELD "B")			
1	122.7	SE1	<10
2	110.3	SE1	<10
3	116.4	SE1	<10
4	109.5	SE1	<10
5	107.0	SE1	<10
AVERAGE	**113.2**		
STD. DEV.	5.67		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	119.0	SE1
2	118.8	SE1
3	118.0	SE1
4	114.0	SE1
5	117.6	SE1
AVERAGE	**117.5**	
STD. DEV.	1.81	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-07
LAB ID NO.: L16040-07-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-13

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	114.3	SE1	<10
2	109.2	SE1	<10
3	110.5	SE1	<10
4	109.1	SE1	<10
5	110.2	SE1	<10
AVERAGE	**110.7**		
STD. DEV.	1.90		
INSIDE TRACK (WELD "B")			
1	128.0	SE1	<10
2	121.1	SE1	<10
3	123.3	SE1	<10
4	122.7	SE1	<10
5	121.3	SE1	<10
AVERAGE	**123.3**		
STD. DEV.	2.50		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	125.1	SE1
2	123.7	SE1
3	124.3	SE1
4	125.0	SE1
5	130.9	SE1
AVERAGE	**125.8**	
STD. DEV.	2.60	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-08
LAB ID NO.: L16040-08-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-14

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	125.8	SE1	<10
2	121.7	SE1	<10
3	118.4	SE1	<10
4	115.7	SE1	<10
5	116.2	SE1	<10
AVERAGE	**119.6**		
STD. DEV.	3.77		
INSIDE TRACK (WELD "B")			
1	112.3	SE1	<10
2	111.2	SE1	<10
3	112.8	SE1	<10
4	112.8	SE1	<10
5	110.6	SE1	<10
AVERAGE	**111.9**		
STD. DEV.	0.89		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	114.3	SE1
2	114.0	SE1
3	115.3	SE1
4	114.7	SE1
5	118.4	SE1
AVERAGE	**115.3**	
STD. DEV.	1.59	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-10
LAB ID NO.: L16040-10-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-15

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	122.0	SE1	<10
2	116.1	SE1	<10
3	117.1	SE1	<10
4	116.9	SE1	<10
5	118.2	SE1	<10
AVERAGE	**118.1**		
STD. DEV.	2.08		
INSIDE TRACK (WELD "B")			
1	124.1	SE1	<10
2	106.3	SE1	<10
3	119.0	SE1	<10
4	119.5	SE1	<10
5	119.4	SE1	<10
AVERAGE	**117.7**		
STD. DEV.	5.98		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	120.3	SE1
2	121.0	SE1
3	125.9	SE1
4	126.5	SE1
5	122.4	SE1
AVERAGE	**123.2**	
STD. DEV.	2.53	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-10
LAB ID NO.: L16040-10-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-16

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	117.5	SE1	<10
2	112.3	SE1	<10
3	111.7	SE1	<10
4	113.3	SE1	<10
5	116.0	SE1	<10
AVERAGE	**114.2**		
STD. DEV.	2.23		
INSIDE TRACK (WELD "B")			
1	109.6	SE1	<10
2	104.4	SE1	<10
3	104.2	SE1	<10
4	107.1	SE1	<10
5	105.5	SE1	<10
AVERAGE	**106.2**		
STD. DEV.	2.00		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.9	SE1
2	121.1	SE1
3	123.2	SE1
4	122.2	SE1
5	121.1	SE1
AVERAGE	**123.3**	
STD. DEV.	2.91	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-10
LAB ID NO.: L16040-10-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-17

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	116.5	SE1	<10
2	120.5	SE1	<10
3	118.7	SE1	<10
4	119.5	SE1	<10
5	114.0	SE1	<10
AVERAGE	**117.8**		
STD. DEV.	2.33		
INSIDE TRACK (WELD "B")			
1	106.1	SE1	<10
2	118.1	SE1	<10
3	108.4	SE1	<10
4	123.3	SE1	<10
5	99.0	SE1	<10
AVERAGE	**111.0**		
STD. DEV.	8.68		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	136.0	SE1
2	127.0	SE1
3	130.0	SE1
4	134.0	SE1
5	130.8	SE1
AVERAGE	**131.6**	
STD. DEV.	3.15	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-11
LAB ID NO.: L16040-11-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-18

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	112.7	SE1	<10
2	118.0	SE1	<10
3	116.4	SE1	<10
4	118.4	SE1	<10
5	110.1	SE1	<10
AVERAGE	**115.1**		
STD. DEV.	3.22		
INSIDE TRACK (WELD "B")			
1	117.6	SE1	<10
2	118.6	SE1	<10
3	114.6	SE1	<10
4	118.8	SE1	<10
5	116.8	SE1	<10
AVERAGE	**117.3**		
STD. DEV.	1.52		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.1	SE1
2	129.8	SE1
3	129.0	SE1
4	121.3	SE1
5	128.0	SE1
AVERAGE	**127.2**	
STD. DEV.	3.04	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-11
LAB ID NO.: L16040-11-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-19

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	106.1	SE1	<10
2	111.2	SE1	<10
3	105.3	SE1	<10
4	107.2	SE1	<10
5	108.4	SE1	<10
AVERAGE	**107.6**		
STD. DEV.	2.06		
INSIDE TRACK (WELD "B")			
1	111.0	SE1	<10
2	115.0	SE1	<10
3	117.1	SE1	<10
4	115.0	SE1	<10
5	120.2	SE1	<10
AVERAGE	**115.7**		
STD. DEV.	3.01		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.2	SE1
2	123.0	SE1
3	125.2	SE1
4	126.3	SE1
5	123.4	SE1
AVERAGE	**125.2**	
STD. DEV.	1.91	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

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CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-11
LAB ID NO.: L16040-11-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-20

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.2	SE1	<10
2	129.8	SE1	<10
3	137.0	SE1	<10
4	129.0	SE1	<10
5	127.0	SE1	<10
AVERAGE	**129.8**		
STD. DEV.	3.83		
INSIDE TRACK (WELD "B")			
1	131.2	SE1	<10
2	135.5	SE1	<10
3	132.2	SE1	<10
4	129.0	SE1	<10
5	128.1	SE1	<10
AVERAGE	**131.2**		
STD. DEV.	2.61		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	140.1	SE1
2	132.0	SE1
3	134.2	SE1
4	135.2	SE1
5	131.6	SE1
AVERAGE	**134.6**	
STD. DEV.	3.05	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-12
LAB ID NO.: L16040-12-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-21

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	110.7	SE1	<10
2	113.5	SE1	<10
3	110.7	SE1	<10
4	106.6	SE1	<10
5	116.6	SE1	<10
AVERAGE	**111.6**		
STD. DEV.	3.32		
INSIDE TRACK (WELD "B")			
1	108.4	SE1	<10
2	109.3	SE1	<10
3	116.5	SE1	<10
4	109.9	SE1	<10
5	109.6	SE1	<10
AVERAGE	**110.7**		
STD. DEV.	2.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	129.5	SE1
2	127.4	SE1
3	127.3	SE1
4	129.4	SE1
5	133.1	SE1
AVERAGE	**129.3**	
STD. DEV.	2.10	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-12
LAB ID NO.: L16040-12-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-22

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.9	SE1	<10
2	119.0	SE1	<10
3	126.2	SE1	<10
4	124.3	SE1	<10
5	124.6	SE1	<10
AVERAGE	**124.2**		
STD. DEV.	2.77		
INSIDE TRACK (WELD "B")			
1	118.9	SE1	<10
2	114.0	SE1	<10
3	119.3	SE1	<10
4	115.3	SE1	<10
5	117.0	SE1	<10
AVERAGE	**116.9**		
STD. DEV.	2.04		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	127.7	SE1
2	126.2	SE1
3	132.0	SE1
4	126.2	SE1
5	127.5	SE1
AVERAGE	**127.9**	
STD. DEV.	2.13	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-12
LAB ID NO.: L16040-12-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-23

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	116.5	SE1	<10
2	108.7	SE1	<10
3	111.4	SE1	<10
4	118.7	SE1	<10
5	110.9	SE1	<10
AVERAGE	**113.2**		
STD. DEV.	3.74		
INSIDE TRACK (WELD "B")			
1	105.6	SE1	<10
2	101.9	SE1	<10
3	103.9	SE1	<10
4	110.3	SE1	<10
5	102.8	SE1	<10
AVERAGE	**104.9**		
STD. DEV.	2.97		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.5	SE1
2	127.1	SE1
3	129.1	SE1
4	129.2	SE1
5	128.2	SE1
AVERAGE	**128.4**	
STD. DEV.	0.76	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-12
LAB ID NO.: L16040-12-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-24

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.0	SE1	<10
2	128.9	SE1	<10
3	120.8	SE1	<10
4	130.1	SE1	<10
5	127.8	SE1	<10
AVERAGE	**126.7**		
STD. DEV.	3.25		
INSIDE TRACK (WELD "B")			
1	112.2	SE1	<10
2	108.8	SE1	<10
3	109.6	SE1	<10
4	111.8	SE1	<10
5	112.4	SE1	<10
AVERAGE	**111.0**		
STD. DEV.	1.47		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	135.8	SE1
2	132.6	SE1
3	134.1	SE1
4	134.7	SE1
5	133.1	SE1
AVERAGE	**134.1**	
STD. DEV.	1.14	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

Geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-13
LAB ID NO.: L16040-13-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-25

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	118.6	SE1	<10
2	124.4	SE1	<10
3	118.7	SE1	<10
4	121.9	SE1	<10
5	119.7	SE1	<10
AVERAGE	**120.7**		
STD. DEV.	2.22		
INSIDE TRACK (WELD "B")			
1	107.3	SE1	<10
2	108.7	SE1	<10
3	107.0	SE1	<10
4	107.3	SE1	<10
5	108.5	SE1	<10
AVERAGE	**107.8**		
STD. DEV.	0.70		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.1	SE1
2	126.7	SE1
3	129.1	SE1
4	126.4	SE1
5	131.1	SE1
AVERAGE	**128.3**	
STD. DEV.	1.71	

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C:\Excel\Templates\[HDP&S-DFusion.xls]Sheet1

\\geoserver\Data Drive\Synthetics\2016 SYNTHETICS\040 - ENTACT, LLC - HONEYWELL SA6 NORTH & SOUTH CAPS\[L1604C L16040-13-01 7/26/16

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-13
LAB ID NO.: L16040-13-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-26

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.4	SE1	<10
2	122.7	SE1	<10
3	125.9	SE1	<10
4	125.6	SE1	<10
5	122.5	SE1	<10
AVERAGE	**124.6**		
STD. DEV.	1.67		
INSIDE TRACK (WELD "B")			
1	110.8	SE1	<10
2	114.2	SE1	<10
3	90.3	AD-BRK	80
4	102.9	SE1	<10
5	89.7	AD-BRK	40
AVERAGE	**101.6**		
STD. DEV.	10.14		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	129.1	SE1
2	128.7	SE1
3	129.8	SE1
4	127.2	SE1
5	126.0	SE1
AVERAGE	**128.2**	
STD. DEV.	1.37	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-15
LAB ID NO.: L16040-15-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-26B

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	108.6	SE1	<10
2	105.4	SE1	<10
3	105.9	SE1	<10
4	107.2	SE1	<10
5	113.6	SE1	<10
AVERAGE	**108.1**		
STD. DEV.	2.95		
INSIDE TRACK (WELD "B")			
1	118.3	SE1	<10
2	114.0	SE1	<10
3	116.1	SE1	<10
4	119.9	SE1	<10
5	117.4	SE1	<10
AVERAGE	**117.1**		
STD. DEV.	2.00		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	123.7	SE1
2	125.4	SE1
3	123.5	SE1
4	126.3	SE1
5	125.3	SE1
AVERAGE	**124.8**	
STD. DEV.	1.07	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-14
LAB ID NO.: L16040-14-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-27

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	109.9	SE1	<10
2	113.2	SE1	<10
3	111.3	SE1	<10
4	111.3	SE1	<10
5	113.1	SE1	<10
AVERAGE	**111.8**		
STD. DEV.	1.25		
INSIDE TRACK (WELD "B")			
1	107.2	SE1	<10
2	107.0	SE1	<10
3	105.3	SE1	<10
4	104.1	SE1	<10
5	100.3	SE1	<10
AVERAGE	**104.8**		
STD. DEV.	2.51		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.7	SE1
2	128.0	SE1
3	129.5	SE1
4	127.4	SE1
5	133.0	SE1
AVERAGE	**129.3**	
STD. DEV.	1.97	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-15
LAB ID NO.: L16040-15-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-28

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	107.3	SE1	<10
2	105.0	SE1	<10
3	100.3	SE1	<10
4	102.8	SE1	<10
5	103.7	SE1	<10
AVERAGE	**103.8**		
STD. DEV.	2.32		
INSIDE TRACK (WELD "B")			
1	101.6	SE1	<10
2	98.9	SE1	<10
3	100.7	SE1	<10
4	94.2	SE1	<10
5	96.8	SE1	<10
AVERAGE	**98.4**		
STD. DEV.	2.68		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	116.5	SE1
2	116.5	SE1
3	117.4	SE1
4	117.0	SE1
5	118.5	SE1
AVERAGE	**117.2**	
STD. DEV.	0.74	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-16
LAB ID NO.: L16040-16-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-29

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	115.1	SE1	<10
2	108.1	SE1	<10
3	111.6	SE1	<10
4	110.0	SE1	<10
5	112.4	SE1	<10
AVERAGE	**111.4**		
STD. DEV.	2.35		
INSIDE TRACK (WELD "B")			
1	114.6	SE1	<10
2	102.1	SE1	<10
3	107.6	SE1	<10
4	106.9	SE1	<10
5	106.1	SE1	<10
AVERAGE	**107.5**		
STD. DEV.	4.05		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	126.9	SE1
2	127.4	SE1
3	128.8	SE1
4	127.8	SE1
5	133.2	SE1
AVERAGE	**128.8**	
STD. DEV.	2.28	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-17
LAB ID NO.: L16040-17-01
MATERIAL: 60 MIL HDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-30

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	105.5	SE1	<10
2	103.1	SE1	<10
3	101.8	SE1	<10
4	107.7	SE1	<10
5	106.3	SE1	<10
AVERAGE	**104.9**		
STD. DEV.	2.15		
INSIDE TRACK (WELD "B")			
1	101.4	SE1	<10
2	103.5	SE1	<10
3	102.1	SE1	<10
4	104.8	SE1	<10
5	100.7	SE1	<10
AVERAGE	**102.5**		
STD. DEV.	1.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	112.5	SE1
2	108.0	SE1
3	107.7	SE1
4	107.0	SE1
5	107.2	SE1
AVERAGE	**108.5**	
STD. DEV.	2.04	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-19
LAB ID NO.: L16040-19-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-31

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	129.2	SE1	<10
2	120.7	SE1	<10
3	114.0	SE1	<10
4	110.4	SE1	<10
5	112.3	SE1	<10
AVERAGE	**117.3**		
STD. DEV.	6.88		
INSIDE TRACK (WELD "B")			
1	117.1	SE1	<10
2	110.4	SE1	<10
3	124.2	SE1	<10
4	124.1	SE1	<10
5	123.6	SE1	<10
AVERAGE	**119.9**		
STD. DEV.	5.44		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	130.1	SE1
2	133.8	SE1
3	129.7	SE1
4	128.0	SE1
5	130.1	SE1
AVERAGE	**130.3**	
STD. DEV.	1.90	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-19
LAB ID NO.: L16040-19-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-32

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.0	SE1	<10
2	122.1	SE1	<10
3	119.0	SE1	<10
4	118.3	SE1	<10
5	121.7	SE1	<10
AVERAGE	**121.4**		
STD. DEV.	2.72		
INSIDE TRACK (WELD "B")			
1	118.2	SE1	<10
2	114.4	SE1	<10
3	113.3	SE1	<10
4	111.4	SE1	<10
5	115.3	SE1	<10
AVERAGE	**114.5**		
STD. DEV.	2.25		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	129.5	SE1
2	133.0	SE1
3	138.6	SE1
4	134.0	SE1
5	128.7	SE1
AVERAGE	**132.8**	
STD. DEV.	3.54	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-20
LAB ID NO.: L16040-20-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-33

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	115.1	SE1	<10
2	110.4	SE1	<10
3	113.0	SE1	<10
4	113.3	SE1	<10
5	113.1	SE1	<10
AVERAGE	**113.0**		
STD. DEV.	1.50		
INSIDE TRACK (WELD "B")			
1	112.1	SE1	<10
2	114.3	SE1	<10
3	110.1	SE1	<10
4	112.1	SE1	<10
5	111.3	SE1	<10
AVERAGE	**112.0**		
STD. DEV.	1.37		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	132.4	SE1
2	131.0	SE1
3	131.5	SE1
4	132.2	SE1
5	134.0	SE1
AVERAGE	**132.2**	
STD. DEV.	1.02	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-20
LAB ID NO.: L16040-20-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-34

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	126.4	SE1	<10
2	123.2	SE1	<10
3	127.6	SE1	<10
4	123.0	SE1	<10
5	129.0	SE1	<10
AVERAGE	**125.8**		
STD. DEV.	2.38		
INSIDE TRACK (WELD "B")			
1	114.2	SE1	<10
2	117.4	SE1	<10
3	117.5	SE1	<10
4	117.1	SE1	<10
5	116.5	SE1	<10
AVERAGE	**116.5**		
STD. DEV.	1.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	133.0	SE1
2	130.7	SE1
3	131.4	SE1
4	131.8	SE1
5	136.0	SE1
AVERAGE	**132.6**	
STD. DEV.	1.87	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-21
LAB ID NO.: L16040-21-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-35

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	116.7	SE1	<10
2	114.0	SE1	<10
3	127.4	SE1	<10
4	116.0	SE1	<10
5	114.5	SE1	<10
AVERAGE	**117.7**		
STD. DEV.	4.94		
INSIDE TRACK (WELD "B")			
1	119.0	SE1	<10
2	111.1	SE1	<10
3	120.5	SE1	<10
4	118.7	SE1	<10
5	115.0	SE1	<10
AVERAGE	**116.9**		
STD. DEV.	3.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	133.3	SE1
2	131.0	SE1
3	124.0	SE1
4	130.4	SE1
5	134.9	SE1
AVERAGE	**130.7**	
STD. DEV.	3.73	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-21
LAB ID NO.: L16040-21-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DS-36

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	117.0	SE1	<10
2	119.6	SE1	<10
3	116.0	SE1	<10
4	111.4	SE1	<10
5	114.0	SE1	<10
AVERAGE	**115.6**		
STD. DEV.	2.77		
INSIDE TRACK (WELD "B")			
1	111.7	SE1	<10
2	114.1	SE1	<10
3	100.0	SE1	<10
4	115.1	SE1	<10
5	111.6	SE1	<10
AVERAGE	**110.5**		
STD. DEV.	5.42		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	126.0	SE1
2	125.1	SE1
3	121.8	SE1
4	124.4	SE1
5	128.1	SE1
AVERAGE	**125.1**	
STD. DEV.	2.06	

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Date: 2016-06-24

Mail To:
Dan Bosworth
Langan Environmental Services

, ,

e-mail:dbosworth@langan.com

Bill To:

Langan Environmental Services

Dear Mr. Bosworth,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Honeywell 5A-6 North**
TRI Job Reference Number:	**21760**
Material(s) Tested:	(1) Heat Fusion Weld Seam(s) (1) Single Extrusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

James Burgess

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 21760

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	103	114	107	105	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	118	115	125	111	107	**115**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	123	122	122	125	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Date: 2016-07-12

Mail To:
Dan Bosworth
Langan Environmental Services

, ,

e-mail:dbosworth@langan.com

Bill To:

Langan Environmental Services

Dear Mr. Bosworth,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Honeywell 5A-6 North**
TRI Job Reference Number:	**22194**
Material(s) Tested:	(1) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

James Burgess

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 22194

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	124	136	120	119	132	**126**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	113	113	114	113	117	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	117	118	117	115	114	**116**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Date: 2016-07-26

Mail To:
Dan Bosworth
Langan Environmental Services

, ,

e-mail:dbosworth@langan.com

Bill To:

Langan Environmental Services

Dear Mr. Bosworth,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Honeywell 5A-6 North**
TRI Job Reference Number:	**22590**
Material(s) Tested:	(1) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

James Burgess

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 22590

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	121	119	123	120	119	**120**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	111	109	105	113	111	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	131	131	133	131	131	**131**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Date: 2016-08-17

Mail To:
Dan Bosworth
Langan Environmental Services

Bill To:

Langan Environmental Services

, ,

e-mail:dbosworth@langan.com

Dear Mr. Bosworth,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Honeywell 5A-6 North**
TRI Job Reference Number:	**23291**
Material(s) Tested:	(1) Heat Fusion Weld Seam(s) (1) Single Extrusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

James Burgess

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 23291

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-36 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	111	108	114	117	**113**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	115	116	110	109	106	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	129	132	128	127	128	**129**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Honeywell SA-6 Capping

Comparison of ESI / Langan (QA) Destruct Samples - Extrusion Welds

Sample ID	***Weld Type***	***Submitted By:***	***Test***	***Peel Strength (ppi)***					**Avg. Strength (ppi)**	***Meets Spec Requirement***
DSX-1	Extrusion	Langan	Peel	134	142	137	136	136	**137**	**Yes**
DSX-1		Entact	Peel	140.9	139.6	140.3	138.5	138.5	**139.6**	**Yes**
DSX-1		Langan	Shear	127	130	128	124	126	**127**	**Yes**
DSX-1		Entact	Shear	136.5	137.1	137.1	134.8	134.8	**136.1**	**Yes**
DSX-2	Extrusion	Entact	Peel	128.1	125.7	128.2	126.1	128.5	**127.3**	**Yes**
			Shear	136.2	131.8	132.6	136.1	134.8	**134.3**	**Yes**
DSX-3	Extrusion	Entact	Peel	124.6	124.1	125.2	129.4	125.5	**125.8**	**Yes**
			Shear	128.5	128.9	133.8	127.2	127.8	**129.2**	**Yes**
DSX-4	Extrusion	Entact	Peel	105.1	114	109.8	114.8	112	**111.1**	**Yes**
			Shear	132.5	129.3	136.2	129.2	131	**131.6**	**Yes**
DSX-5	Extrusion	Entact	Peel	120.6	118.6	119.8	118.8	122.8	**120.1**	**Yes**
			Shear	122.3	131.8	120.3	121.7	129.5	**125.1**	**Yes**
DSX-6	Extrusion	Entact	Peel	110.4	117.4	125.7	122.8	120.6	**119.4**	**Yes**
			Shear	127.7	126.1	127.5	127.4	131.5	**128.0**	**Yes**
DSX-7	Extrusion	Entact	Peel	123.4	113.7	115.5	119.5	110.2	**116.5**	**Yes**
			Shear	123.8	127.3	125.5	126.1	122.9	**125.1**	**Yes**
DSX-8	Extrusion	Entact	Peel	93.5	113.2	123.2	102	108.6	**108.1**	**Yes**
			Shear	137.8	141	136.9	135.5	137	**137.6**	**Yes**
DSX-9	Extrusion	Entact	Peel	125.4	129.2	126	122.2	128.9	**126.3**	**Yes**
			Shear	139.5	139.8	145.3	139.6	140.4	**140.9**	**Yes**
DSX-10	Extrusion	Entact	Peel	121.2	118.9	118.5	119.6	113.9	**118.4**	**Yes**
			Shear	124.1	121.4	125.8	122.7	126.1	**124.0**	**Yes**
DSX-11	Extrusion	Entact	Peel	108.7	109.9	110.7	109.4	116.9	**111.1**	**Yes**
			Shear	118.4	118.3	119.5	120.3	124.5	**120.2**	**Yes**
DSX-12	Extrusion	Entact	Peel	102.2	112.6	123.2	118.7	123.8	**116.1**	**No**
			Shear	135.2	134.2	136.6	127.5	134.6	**133.6**	**Yes**
DSX-13	Extrusion	Langan	Peel	140	139	138	155	138	**142**	**Yes**
		Entact	Peel	114.6	112.6	114.7	110.3	112.8	**113.0**	**Yes**
		Langan	Shear	147	149	155	157	151	**152**	**Yes**
		Entact	Shear	115.5	116.8	114.2	114	118.7	**115.8**	**Yes**
DSX-14	Extrusion	Entact	Peel	112.5	111	110.6	113.4	111	**111.7**	**Yes**
			Shear	111.9	113.4	111.5	112	114.6	**112.7**	**Yes**
DSX-15	Extrusion	Entact	Peel	120.7	123	106.2	127.4	121	**119.7**	**Yes**
			Shear	132.2	136	132.7	132	132.1	**133.0**	**Yes**
DSX-16	Extrusion	Entact	Peel	129	127.4	125	125.7	130.7	**127.6**	**Yes**
			Shear	130.3	127.1	129.2	133	133.9	**130.7**	**Yes**
DSX-17	Extrusion	Langan	Peel	118	119	118	119	123	**119**	**Yes**
		Entact	Peel	124	118.5	120.5	126	125	**122.8**	**Yes**
		Langan	Shear	133	130	132	129	130	**131**	**Yes**
		Entact	Shear	129.9	129	129.8	129.2	134	**130.4**	**Yes**

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-03
LAB ID NO.: L16040-03-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-1

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	140.9	SE3	<10
2	139.6	SE3	<10
3	140.3	SE3	<10
4	138.5	SE3	<10
5	138.5	SE3	<10
AVERAGE	**139.6**		
STD. DEV.	0.96		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	136.5	SE1
2	137.1	SE1
3	137.1	SE1
4	134.8	SE1
5	134.8	SE1
AVERAGE	**136.1**	
STD. DEV.	1.05	

CHECKED BY: CMT DATE: 6-27-16

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS

PROJECT NO.: L16040-04
LAB ID NO.: L16040-04-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-2

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	128.1	SE3	<10
2	125.7	SE3	<10
3	128.2	SE3	<10
4	126.1	SE3	<10
5	128.5	SE3	<10
AVERAGE	**127.3**		
STD. DEV.	1.17		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	136.2	SE1
2	131.8	SE1
3	132.6	SE1
4	136.1	SE1
5	134.8	SE1
AVERAGE	**134.3**	
STD. DEV.	1.80	

CHECKED BY: CWT DATE: 6.27.16

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-06
LAB ID NO.: L16040-06-06
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-3

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	124.6	SE3	<10
2	124.1	SE3	<10
3	125.2	SE3	<10
4	129.4	SE3	<10
5	125.5	SE3	<10
AVERAGE	**125.8**		
STD. DEV.	1.88		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	128.5	SE1
2	128.9	SE1
3	133.8	SE1
4	127.2	SE1
5	127.8	SE1
AVERAGE	**129.2**	
STD. DEV.	2.35	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-07
LAB ID NO.: L16040-07-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-4

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	105.1	SE3	<10
2	114.0	SE3	<10
3	109.8	SE3	<10
4	114.8	SE3	<10
5	112.0	SE3	<10
AVERAGE	**111.1**		
STD. DEV.	3.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	132.5	SE1
2	129.3	SE1
3	136.2	SE1
4	129.2	SE1
5	131.0	SE1
AVERAGE	**131.6**	
STD. DEV.	2.58	

CHECKED BY: TO DATE: 7-2-16

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-08
LAB ID NO.: L16040-08-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-5

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	120.6	SE3	<10
2	118.6	SE3	<10
3	119.8	SE3	<10
4	118.8	SE3	<10
5	122.8	SE3	<10
AVERAGE	**120.1**		
STD. DEV.	1.52		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	122.3	SE1
2	131.8	SE1
3	120.3	SE1
4	121.7	SE1
5	129.5	SE1
AVERAGE	**125.1**	
STD. DEV.	4.62	

CHECKED BY: JO DATE: 7-8-16

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

Geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-09
LAB ID NO.: L16040-09-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-6

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	110.4	SE3	<10
2	117.4	SE3	<10
3	125.7	SE3	<10
4	122.8	SE3	<10
5	120.6	SE3	<10
AVERAGE	**119.4**		
STD. DEV.	5.25		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	127.7	SE1
2	126.1	SE1
3	127.5	SE1
4	127.4	SE1
5	131.5	SE1
AVERAGE	**128.0**	
STD. DEV.	1.82	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-10
LAB ID NO.: L16040-10-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-7

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	123.4	SE3	<10
2	113.7	SE3	<10
3	115.5	SE3	<10
4	119.5	SE3	<10
5	110.2	SE3	<10
AVERAGE	**116.5**		
STD. DEV.	4.59		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	123.8	SE1
2	127.3	SE1
3	125.5	SE1
4	126.1	SE1
5	122.9	SE1
AVERAGE	**125.1**	
STD. DEV.	1.58	

CHECKED BY: cmt DATE: 7-12-16

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-12
LAB ID NO.: L16040-12-05
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-8

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	93.5	SE3	<10
2	113.2	SE3	<10
3	123.2	SE3	<10
4	102.0	SE3	<10
5	108.6	SE3	<10
AVERAGE	**108.1**		
STD. DEV.	10.05		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	137.8	SE1
2	141.0	SE1
3	136.9	SE1
4	135.5	SE1
5	137.0	SE1
AVERAGE	**137.6**	
STD. DEV.	1.84	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-13
LAB ID NO.: L16040-13-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-9

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	125.4	SE3	<10
2	129.2	SE3	<10
3	126.0	SE3	<10
4	122.2	SE3	<10
5	128.9	SE3	<10
AVERAGE	**126.3**		
STD. DEV.	2.56		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	139.5	SE1
2	139.8	SE1
3	145.3	SE1
4	139.6	SE1
5	140.4	SE1
AVERAGE	**140.9**	
STD. DEV.	2.21	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-14
LAB ID NO.: L16040-14-02
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-10

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	121.2	SE3	<10
2	118.9	SE3	<10
3	118.5	SE3	<10
4	119.6	SE3	<10
5	113.9	SE3	<10
AVERAGE	**118.4**		
STD. DEV.	2.44		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	124.1	SE1
2	121.4	SE1
3	125.8	SE1
4	122.7	SE1
5	126.1	SE1
AVERAGE	**124.0**	
STD. DEV.	1.79	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-15
LAB ID NO.: L16040-15-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-11

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	108.7	SE3	<10
2	109.9	SE3	<10
3	110.7	SE3	<10
4	109.4	SE3	<10
5	116.9	SE3	<10
AVERAGE	**111.1**		
STD. DEV.	2.96		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	118.4	SE1
2	118.3	SE1
3	119.5	SE1
4	120.3	SE1
5	124.5	SE1
AVERAGE	**120.2**	
STD. DEV.	2.27	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

Geotechnics
INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-15
LAB ID NO.: L16040-15-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-12

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	102.2	SE3	<10
2	112.6	SE3	<10
3	123.2	SE3	<10
4	118.7	SE3	<10
5	123.8	SE3	<10
AVERAGE	**116.1**		
STD. DEV.	8.02		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	135.2	SE2
2	134.2	SE2
3	136.6	SE2
4	127.5	SE2
5	134.6	SE2
AVERAGE	**133.6**	
STD. DEV.	3.17	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-16
LAB ID NO.: L16040-16-01
MATERIAL: 60 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DSX-13

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	114.6	SE1	<10
2	112.6	SE1	<10
3	114.7	SE1	<10
4	110.3	SE1	<10
5	112.8	SE1	<10
AVERAGE	**113.0**		
STD. DEV.	1.61		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	115.5	SE1
2	116.8	SE1
3	114.2	SE1
4	114.0	SE1
5	118.7	SE1
AVERAGE	**115.8**	
STD. DEV.	1.75	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-17
LAB ID NO.: L16040-17-02
MATERIAL: 60 MIL HDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-14

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	112.5	SE3	<10
2	111.0	SE3	<10
3	110.6	SE3	<10
4	113.4	SE3	<10
5	111.0	SE3	<10
AVERAGE	**111.7**		
STD. DEV.	1.07		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	111.9	SE1
2	113.4	SE1
3	111.5	SE1
4	112.0	SE1
5	114.6	SE1
AVERAGE	**112.7**	
STD. DEV.	1.15	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392

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CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-20
LAB ID NO.: L16040-20-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-15

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	120.7	SE3	<10
2	123.0	SE3	<10
3	106.2	SE3	<10
4	127.4	SE3	<10
5	121.0	SE3	<10
AVERAGE	**119.7**		
STD. DEV.	7.14		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	132.2	SE2
2	136.0	SE2
3	132.7	SE2
4	132.0	SE2
5	132.1	SE2
AVERAGE	**133.0**	
STD. DEV.	1.52	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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INTEGRITY IN TESTING

CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-21
LAB ID NO.: L16040-21-03
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-16

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	129.0	SE3	<10
2	127.4	SE3	<10
3	125.0	SE3	<10
4	125.7	SE3	<10
5	130.7	SE3	<10
AVERAGE	**127.6**		
STD. DEV.	2.10		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	130.3	SE1
2	127.1	SE1
3	129.2	SE1
4	133.0	SE1
5	133.9	SE1
AVERAGE	**130.7**	
STD. DEV.	2.49	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392

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CLIENT: ENTACT, LLC
CLIENT PROJECT: HONEYWELL SA6 NORTH & SOUTH CAPS
PROJECT NO.: L16040-21
LAB ID NO.: L16040-21-04
MATERIAL: 60 MIL LLDPE
SEAM TYPE: EXTRUSION

SAMPLE I.D.: DSX-17

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
1	124.0	SE3	<10
2	118.5	SE3	<10
3	120.5	SE3	<10
4	126.0	SE3	<10
5	125.0	SE3	<10
AVERAGE	**122.8**		
STD. DEV.	2.84		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	129.9	SE1
2	129.0	SE1
3	129.8	SE1
4	129.2	SE1
5	134.0	SE1
AVERAGE	**130.4**	
STD. DEV.	1.84	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 21760

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DSX-1 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	134	142	137	136	136	**137**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	130	128	124	126	**127**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Date: 2016-08-09

Mail To:
Dan Bosworth
Langan Environmental Services

, ,

e-mail:dbosworth@langan.com

Bill To:

Langan Environmental Services

Dear Mr. Bosworth,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Honeywell 5A-6 North**
TRI Job Reference Number:	**23021**
Material(s) Tested:	(1) Single Extrusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

James Burgess

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 23021

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DSX-13 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	140	139	138	155	138	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	147	149	155	157	151	**152**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Langan Environmental Services
Project: Honeywell 5A-6 North

Material: 60 mil. LLDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 23291

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DSX-17 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	118	119	118	119	123	**119**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	133	130	132	129	130	**131**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

Appendix M
Summary of Non-Compliance & Corrective Action Sheets

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 1

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 6/23/16 Contractor in NC: Entact Non-Compliance No.: 1 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at Panel P6. This non-compliance issue is also noted on the 6/23/16 Repair Report, and is identified as R-10. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 3 ft. by 3 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372). Refer to Photo #12 and Photo #14 of 6/23/16 photo log for repair of R-10.

Geosynthetic Installer Representative _____ Date 6/24/16

Independent CQA Monitor _____ -LANGAN Date 6/24/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 2

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 6/29/16 Contractor in NC: Entact Non-Compliance No.: 2 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at Panel P26. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 6/29/16 Repair Report, and is identified as R-98. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response. Assess GVL deployment methods to determine most effective method in reducing dislodgment of subgrade material.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 2 ft. by 2 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372). Refer to Photo #2 of 6/29/16 photo log for repair of R-98.

Geosynthetic Installer Representative _____ Date 6/30/16

Independent CQA Monitor _____ LANGAN Date 6/30/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 3

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/6/16 Contractor in NC: ESI Non-Compliance No.: 3 Notes: Failed Spark Test
Reference	
Item: Failed Spark Test Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

During spark testing of Gas Vent GV-5 on 7/6/16, a small pinhole deficiency was identified (via spark test) within the vertical weld of the boot. As the point probe was passed over the weld, a visual spark was observed. The failed weld was marked by ESI and the area to be grinded, re-welded, and re-tested on 7/7/16. Additional details on the spark testing are also noted on the 7/6/16 Spark Test Log.

Contractor's Response

Failed spark test identified and confirmed on vertical weld for Gas Vent GV-5 pipe boot. Weld to be grinded, re-welded, and re-tested on 7/7/16 as outlined in the project specifications.

Follow Up Action Required

Grind area of weld requiring retesting, re-weld the vertical seam, and conduct additional spark testing to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Area of vertical weld identified during spark testing was grinded, re-welded, and re-tested on 7/7/16. The extrusion weld was grinded by ESI to scratch / mar the surface and the area was re-welded. Following the welding activities, Entact conducted methane testing to confirm that the methane concentration was below 1% (measured as 0.0%). Following methane testing, ESI conducted a spark retest along the vertical weld, and no sparks or deficiencies were identified (spark retest passed). Refer to Photo #5 and Photo #6 of 7/7/16 Photo Log for spark retest details.

Geosynthetic Installer Representative Carlos Ramos Date 7/7/16

Independent CQA Monitor Langan Date 7/7/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 4

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/6/16 Contractor in NC: ESI Non-Compliance No.: 4 Notes: Failed Spark Test
Reference	
Item: Failed Spark Test Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

During spark testing of Well 115-W1-SO on 7/6/16, two small pinhole deficiencies were identified (via spark test) within the vertical weld of the boot. As the point probe was passed over the weld, a visual spark was observed along two areas of the weld. The failed weld was marked by ESI and the areas were to be grinded, re-welded, and re-tested on 7/7/16. Additional details on the spark testing are also noted on the 7/6/16 Spark Test Log.

Contractor's Response

Failed spark test identified and confirmed on vertical weld for Well 115-W1-SO pipe boot. Weld to be grinded, re-welded, and re-tested on 7/7/16 as outlined in the project specifications.

Follow Up Action Required

Grind area of weld requiring retesting, re-weld the vertical seam, and conduct additional spark testing to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Two areas of vertical weld for Well 115-W1-SO identified during spark testing were grinded, re-welded, and re-tested on 7/7/16. The extrusion weld was grinded by ESI to scratch / mar the surface and the area was re-welded. Following the welding activities, Entact conducted methane testing to confirm that the methane concentration was below 1% (measured as 0.0%). Following methane testing, ESI conducted a spark retest along the vertical weld, and no sparks or deficiencies were identified (spark retest passed). Refer to Photo #7 and Photo #8 of 7/7/16 Photo Log for spark retest details.

Geosynthetic Installer Representative _____ Date 7/7/16

Independent CQA Monitor _____ Date 7/7/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 5

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/7/16 Contractor in NC: Entact Non-Compliance No.: 5 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at Panel P38. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 7/7/16 Repair Report, and is identified as R-170. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response. Assess GVL deployment methods to determine most effective method in reducing dislodgment of subgrade material.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 2 ft. by 2 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372).

Geosynthetic Installer Representative Carolina Flores Date 7/8/16

Independent CQA Monitor LANGAN Date 7/8/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 6

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/8/16 Contractor in NC: Entact Non-Compliance No.: 6 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at Panel P45. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 7/8/16 Repair Report, and is identified as R-222. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response. Assess GVL deployment methods to determine most effective method in reducing dislodgment of subgrade material.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 2 ft. by 3 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372).

Geosynthetic Installer Representative Carolina Ramos Date 7/11/16

Independent CQA Monitor DCS - LANGAN Date 7/11/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 7

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/12/16 Contractor in NC: Entact Non-Compliance No.: 7 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at southern end of Panel P49 / P50. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were identified during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 7/12/16 Repair Report, and is identified as R-242. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response. Assess GVL deployment methods to determine most effective method in reducing dislodgment of subgrade material.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane along the southern edge of SA-6 North (approximately 3 ft. from the edge of the cap. As such, the edge of the LLDPE was cut to remove the stone. This cut was then repaired with an extrusion weld bead. Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the cut / bead was properly sealed (as outlined in Section 02372).

Geosynthetic Installer Representative _____ Date 7/13/16

Independent CQA Monitor _____ Date 7/13/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 8

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/27/16 Contractor in NC: Entact Non-Compliance No.: 8 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at southern end of Panel P72. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were identified during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 7/27/16 Repair Report, and is identified as R-328. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 2 ft. by 2 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372).

Geosynthetic Installer Representative _____ Date 7/28/16

Independent CQA Monitor _____ Date 7/28/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 9

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 7/28/16 Contractor in NC: ESI Non-Compliance No.: 9 Notes: Failed Destruct Sample
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Destruct sample DS-26 (Repair R-312) collected from Panel P72 / P74 failed two of the five specimens for peel testing completed by the Geosynthetic Installer's Laboratory. Although the peel strength parameters exceeded the minimum strength requirements outlined in the project specifications, the break was reported as EPA Break Classification Code "AD BRK" by the laboratory. Although the coupons met the peel strength requirements, since the break was reported at the weld and not considered a film tearing bond (FTB), the sample was considered a failed sample and reported as a non-conformance item.

Contractor's Response

Destruct sample DS-26 break failure for two of the five specimens confirmed. As per project specs, an additional two field samples will be collected 10 ft. on each side of the failed sample. Both field samples will be tested for peel and shear strength parameters. The sample with the lower of the peel and shear strength parameters will be sent for confirmatory laboratory analysis.

Follow Up Action Required

Collect two field samples approximately 10 ft. on each side of failed destruct sample DS-26. If both samples pass the peel and shear strength requirements, the entire Panel 72/74 seam will be capped, sealed with an extrusion weld, and vacuum box tested.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Two field samples (DS-26A and DS-26B) were cut approximately 10 ft. on each side of destruct sample DS-26 (along Panel P72 / P74 seam). Both samples passed the peel and shear strength requirements during field testing. Sample DS-26B exhibited peel and shear strength parameters slightly less than DS-26A. As such, DS-26B was sent for laboratory analysis and passed the peel and shear requirements. Panel P72 / P74 seam from sample DS-26A to DS-26B was capped, sealed with an extrusion weld, and vacuum box tested on 8/2/16.

Geosynthetic Installer Representative _____ Date 8/2/16

Independent CQA Monitor _____ Date 8/2/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 10

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 8/5/16 Contractor in NC: Entact Non-Compliance No.: 10 Notes: Equipment Puncture
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Equipment puncture through SA-6 North observed at Panel P36 (northern end of SA-6 North cap). Grounding rod was driven through liner by others. Puncture to be patched / repaired according to project specs. Additional details on the patch / repair work completed are described in the *8/5/16 Daily Report* and *8/5/16 Photograph Log*. This non-compliance issue was also noted on the 8/5/16 Repair Report, and is identified as RP-418. The location of this repair was recorded and logged (via GPS) by the team (along the hydraulic barrier [HB] wall).

Contractor's Response

Equipment puncture through geomembrane along SCB wall confirmed. Puncture to be covered with new patch, sealed, and extrusion welded according to project specifications.

Follow Up Action Required

Place patch over puncture location and repair and seal with extrusion weld according to project specs. Vacuum box to then be conducted to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Geomembrane patch was placed over the equipment puncture and was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). The weld was then vacuum box tested and passed. Additional details provided in the 8/5/16 Daily Report and 8/5/16 Photograph Log (Photos 3 & 4).

Geosynthetic Installer Representative Caroline Dana Date 8/8/16

Independent CQA Monitor D. Bob-Langan Date 8/8/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 11

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 8/9/16 Contractor in NC: ESI Non-Compliance No.: 11 Notes: Failed Spark Test
Reference	
Item: Failed Spark Test Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

During spark testing of Piezometer PZ4, a spark was observed through the weld as the probe transmitted through the weld thus causing the spark to arc. As the point probe was passed over the weld, a visual spark was observed. The failed weld was marked by ESI and the area to be grinded, re-welded, and re-tested on 8/9/16. Additional details on the spark testing are also noted on the 8/9/16 Spark Test Log.

Contractor's Response

Failed spark test identified and confirmed on vertical weld for Piezometer PZ4 pipe boot. Weld to be grinded, re-welded, and re-tested as outlined in the project specifications.

Follow Up Action Required

Grind area of weld requiring retesting, re-weld the vertical seam, and conduct additional spark testing to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Area of vertical weld identified during spark testing was grinded, re-welded, and re-tested on 8/9/16. The extrusion weld was grinded by ESI to scratch / mar the surface and the area was re-welded. Following the welding activities, Entact conducted methane testing to confirm that the methane concentration was below 1% (measured as 0.0%). Following methane testing, ESI conducted a spark retest along the vertical weld, and no sparks or deficiencies were identified (spark retest passed).

Geosynthetic Installer Representative Carolina Ramos Date 8/10/16

Independent CQA Monitor D. R. C. Langan Date 8/10/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 12

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 8/9/16 Contractor in NC: ESI Non-Compliance No.: 12 Notes: Failed Spark Test
Reference	
Item: Failed Spark Test Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

During spark testing of Monitoring Well 115-E5-SO, a spark was observed through the weld as the probe transmitted through the weld thus causing the spark to arc. As the point probe was passed over the weld, a visual spark was observed. The failed weld was marked by ESI and the area to be grinded, re-welded, and re-tested on 8/9/16. Additional details on the spark testing are also noted on the 8/9/16 Spark Test Log.

Contractor's Response

Failed spark test identified and confirmed on vertical weld for Monitoring Well 115-E5-SO pipe boot. Weld to be grinded, re-welded, and re-tested as outlined in the project specifications.

Follow Up Action Required

Grind area of weld requiring retesting, re-weld the vertical seam, and conduct additional spark testing to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Area of vertical weld identified during spark testing was grinded, re-welded, and re-tested on 8/9/16. The extrusion weld was grinded by ESI to scratch / mar the surface and the area was re-welded. Following the welding activities, Entact conducted methane testing to confirm that the methane concentration was below 1% (measured as 0.0%). Following methane testing, ESI conducted a spark retest along the vertical weld, and no sparks or deficiencies were identified (spark retest passed).

Geosynthetic Installer Representative Caroline Purves Date 8/10/16

Independent CQA Monitor [signature] Date 8/10/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 13

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 8/10/16 Contractor in NC: Entact Non-Compliance No.: 13 Notes: Soil Subgrade Irregularity
Reference	
Item: Soil Subgrade Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

Rock / loose debris (>1/2 – inches) observed underneath LLDPE geomembrane at southern end of Panel P107 / P108. Prior to deployment of the panel, the subgrade was observed by a field engineer who walked the placement area in approximate 200 ft. by 8 ft. transects to observe soil bearing conditions as well as items requiring removal prior to panel placement (i.e. materials such as rocks or other items that protrude >1/2" above the surface). In the event these conditions were identified during the subgrade observation, the material was removed and the area was observed again. After deployment of the GVL and LLDPE, the area was walked again (following the same procedure during the soil subgrade observation) to attempt to identify the presence of materials larger than ½" protruding below the LLDPE. During this latest observation, a rock was noted to be present below the LLDPE. It is possible that this rock may have been dislodged during deployment of the GVL which was pulled over a small portion of the subgrade surface. This non-compliance issue was repaired as defined below and on the 8/10/16 Repair Report, and is identified as R-457. The location of this repair was recorded and logged (via GPS) by the team.

Contractor's Response

Loose debris / rock area identified as subgrade irregularity. Rock to be removed and the area will be patched / repaired, and sealed with an extrusion weld as outlined in the project specifications. Vacuum box testing will then be conducted to confirm repair.

Follow Up Action Required

Remove rock / debris from underneath cap and patch / repair area with extrusion welds following project specifications and as outlined in the Contractor's Response.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Rock was removed from underneath LLDPE geomembrane as a small hole (< 4-inches) was made in the LLDPE to remove the stone. This hole was then repaired with approximate 2 ft. by 3 ft. geomembrane patch. The patch was overlapped a minimum of 4-inches beyond the edges of the cut, conformed so that the edges were rounded, and sealed with an extrusion weld (as outlined in Section 02372). Once extrusion welding was completed, vacuum box testing was conducted along the seams to confirm the hole was properly patched (as outlined in Section 02372).

Geosynthetic Installer Representative Caroline Dann Date 8/11/16

Independent CQA Monitor [signature] LANGAN Date 8/11/16

LANGAN

Notice of Non-Compliance and Corrective Action

Sheet # 14

General Project Information	
Project Name: SA-6 North Project No.: 100530001 Owner/Contr.: Honeywell / AmecFW QA Monitor: Langan	Date: 8/12/16 Contractor in NC: ESI Non-Compliance No.: 14 Notes: Failed Spark Test
Reference	
Item: Failed Spark Test Specification Sec. No.: 02372	Drawing No.: Other:

Description of Non-Compliance

Cross Reference (QA Inspection Form & Sheet No.):

During spark testing of Monitoring Well 115-E4-SO, a spark was observed along the edge of the extrusion weld as the weld was not directly centered over the wire. As the point probe was passed over the edge of the weld, a visual spark was observed. The failed weld was marked by ESI and the area was to be grinded, re-welded, and re-tested on 8/12/16. Additional details on the spark testing are also noted on the 8/12/16 Spark Test Log.

Contractor's Response

Failed spark test identified and confirmed on vertical weld for Monitoring Well 115-E4-SO pipe boot. Weld to be grinded, re-welded, and re-tested as outlined in the project specifications.

Follow Up Action Required

Grind area of weld requiring retesting, re-weld the vertical seam, and conduct additional spark testing to confirm integrity of weld.

Follow Up Action Taken

Cross Reference (QA Inspection Form & Sheet No.):

Area of vertical weld identified during spark testing was grinded, re-welded, and re-tested on 8/12/16. The extrusion weld was grinded by ESI to scratch / mar the surface and the area was re-welded. Following the welding activities, Entact conducted methane testing to confirm that the methane concentration was below 1% (measured as 0.0%). Following methane testing, ESI conducted a spark retest along the vertical weld, and no sparks or deficiencies were identified (spark retest passed).

Geosynthetic Installer Representative Carolina Parra Date 8/13/16

Independent CQA Monitor - LANGAN Date 8/13/16

Appendix N
Penetration & Pipe Boot Logs

Honeywell

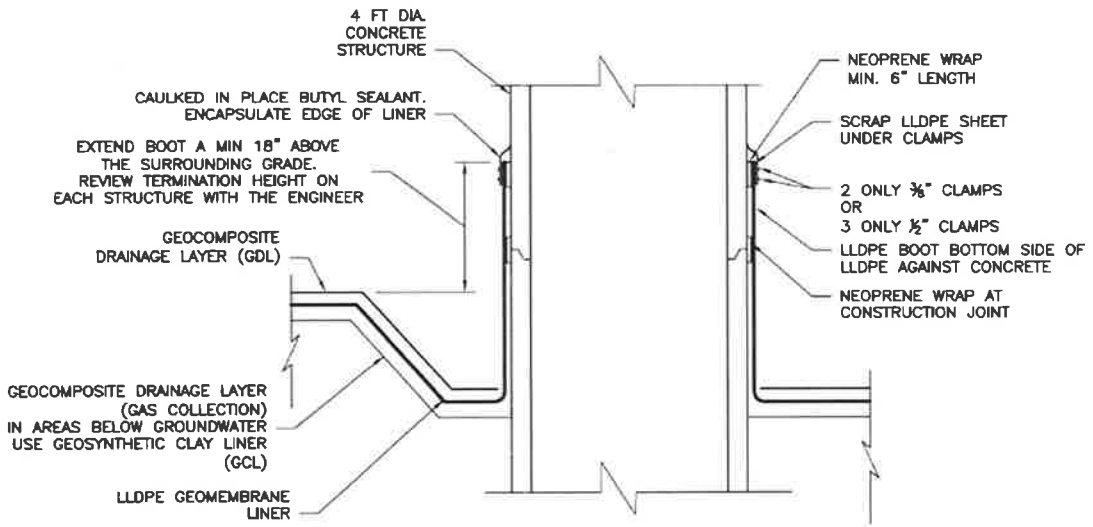
STUDY AREA 6 - CAP INSTALLATION

LANGAN

Project: Study Area 6 North

Date: 6/23/16

QA – Manhole Boot Installation



LINER ANCHOR TO CONCRETE STRUCTURE

NTS

CE TYP C-304

***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ SS Band Clamps tightened and uniform

☒ Caulked Butyl Sealant around top edge of liner

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

Location: Access Manhole #1 (Sta. 1+50) located near approximate center of SA-6 North Cap on Panel P10 (approximately 93 ft. south of northern end of cap and 4 ft. east from Panel P10/P11 seam). Identified as R-29 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Signature: -LANGAN

Comments: Initial boot fabrication and construction conducted on 6/23/16 for skirt and boot with vertical welding completed on 6/24/16. Methane testing / spark testing completed on 6/27/16. Methane testing conducted by AmecFW and a concentration of 0.1% was measured, thus spark testing was subsequently completed by ESI for the base of the boot and vertical weld and no sparks were observed (spark test passed).

Honeywell

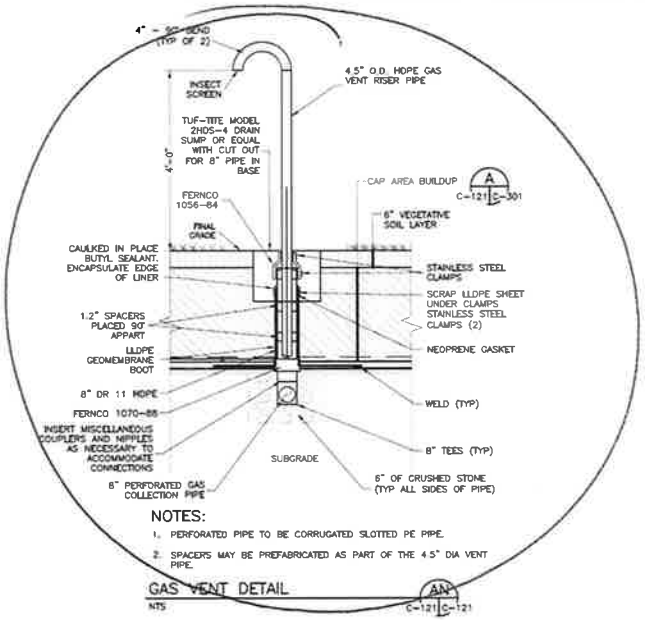
STUDY AREA 6 - CAP INSTALLATION

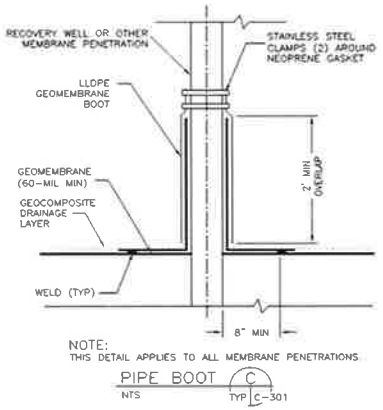
LANGAN

Project: Study Area 6 North

Date: 6/23/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-6 located near approximate center of SA-6 North Cap on Panel P11 (approximately 105 ft. north of southern end of cap and 3 ft. east of Panel P10/P11 seam). Identified as R-38 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding and completed on 6/23/16. Methane testing / spark testing completed on 6/24/16. Methane testing conducted by AmecFW and concentration of 0.0% was measured prior to spark testing. Spark testing was conducted by ESI and no sparks observed during test (passed spark test). Following spark testing the stainless steel clamps and butyl sealant was applied to complete the boot construction.

Honeywell

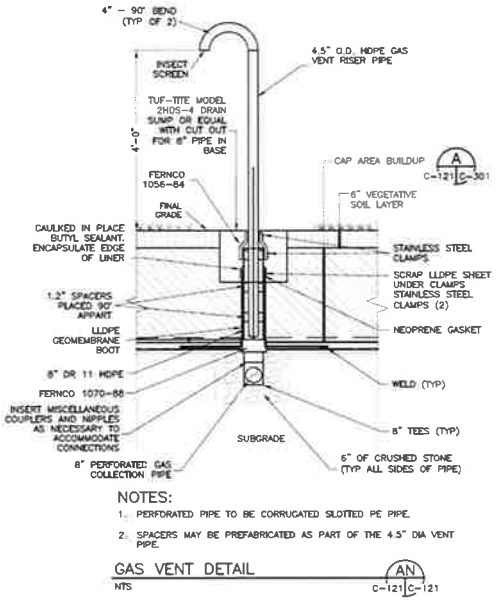
STUDY AREA 6 - CAP INSTALLATION

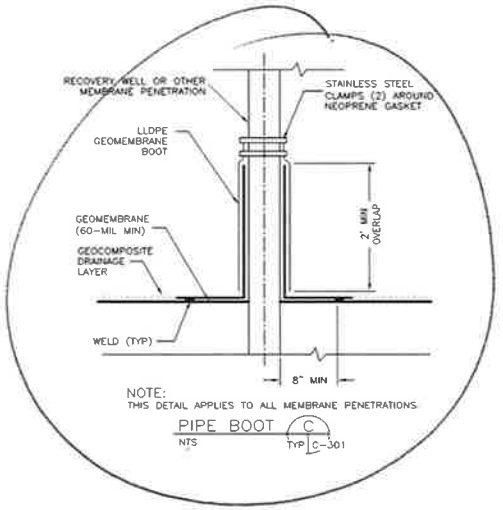
LANGAN

Project: Study Area 6 North

Date: 6/23/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Piezometer PZ10 located at approximate center of SA-6 North Cap on Panel P1 (approximately 35 ft. north of Panel P1 / P2 seam and 8 ft. west). Identified as R-1 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 6/23/16. Methane testing / spark testing completed on 6/24/16. Methane testing conducted by AmecFW and concentration of 0.8% measured prior to spark testing. Spark testing was conducted by ESI and no sparks observed during spark test (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

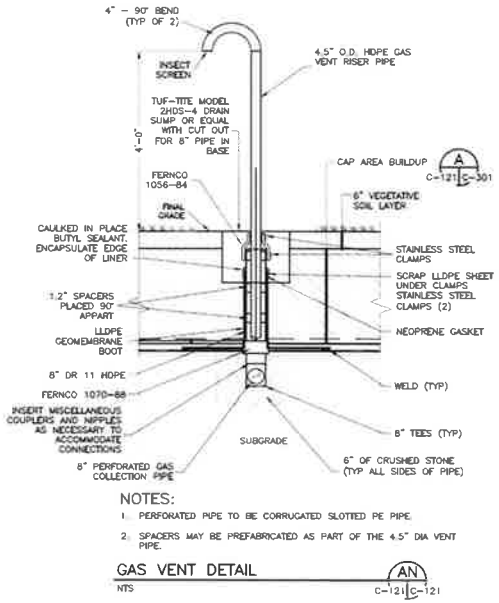
STUDY AREA 6 - CAP INSTALLATION

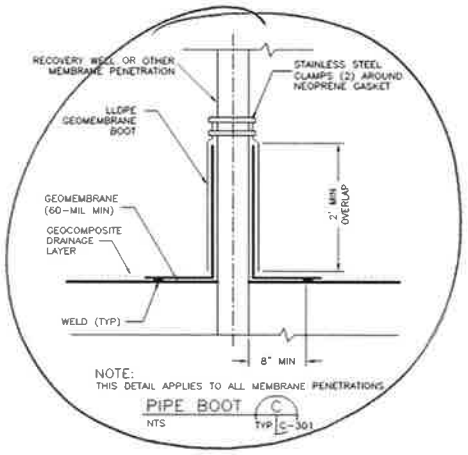
LANGAN

Project: Study Area 6 North

Date: 6/23/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☐ Field fabricated, spark test ☒ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Well 115-W6-SO located near southern end of SA-6 North Cap on Panel P5 / P6 seam (approximately 15 ft. north of southern end of cap). Identified as R-7 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: - LANGAN

Comments: Boot fabrication, construction, and welding completed on 6/23/16. Methane testing completed on 6/24/16 by AmecFW, and no spark testing was conducted as methane measured concentration of 1.4% prior to spark testing. Since the concentration was greater than 1% no spark testing was completed. Welds visually observed for deficiencies and none were noted. Following visual observation, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

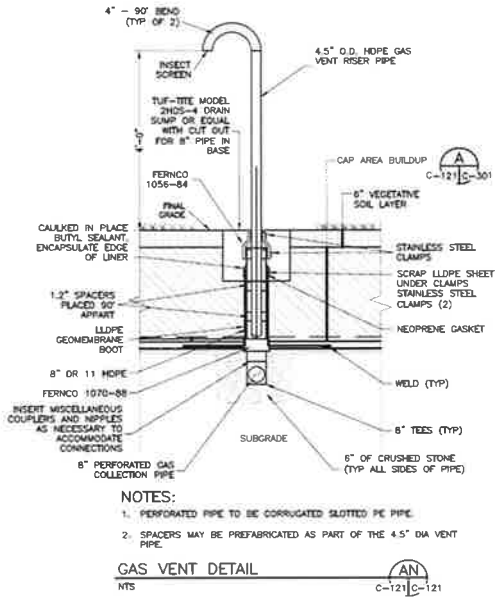
STUDY AREA 6 - CAP INSTALLATION

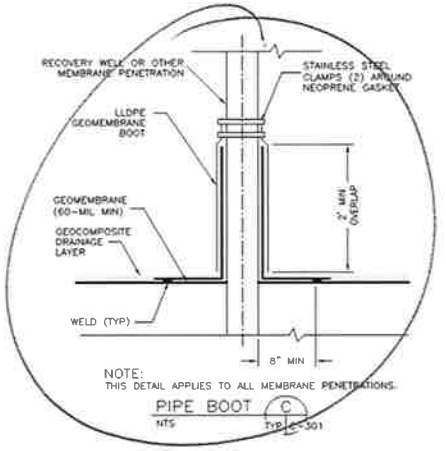
LANGAN

Project: Study Area 6 North

Date: 6/27/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Piezometer PZ8 located along northern end of SA-6 North Cap on Panel P21 (approximately 171 ft. north of south end of cap and 3 ft. east of Panel P20/P21 seam). Identified as R-81 on *As Built* and *Repair Report.*

AmecFW QA Signature:

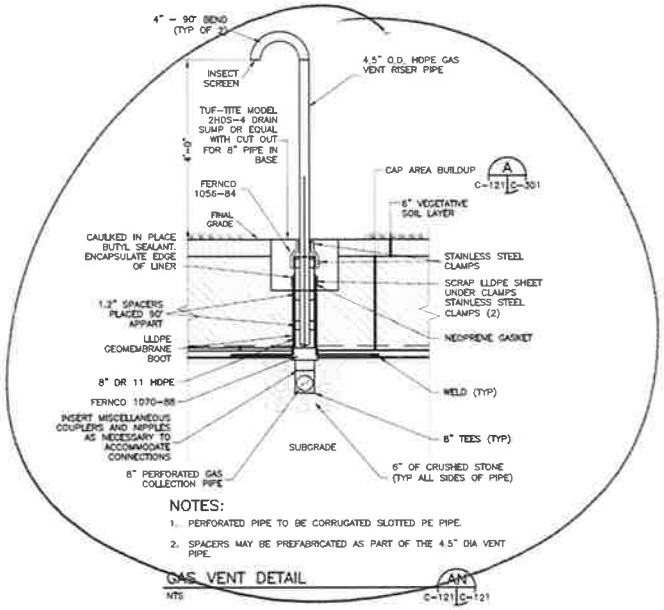
Independent CQA Monitor Signature: -LANGAN

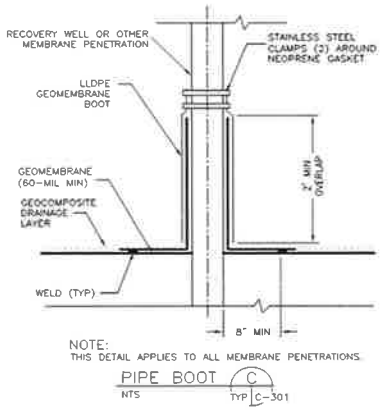
Comments: Boot fabrication, construction, and welding completed on 6/27/16. Methane testing / spark testing completed on 7/6/16. Methane testing conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks observed (spark test passed). Following spark testing the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 6/29/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-5 located near approximate center of SA-6 North Cap on Panel P27 (approximately 124 ft. north of southern end of cap and 3 ft. east from Panel P26/P27 seam). Identified as R-102 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 6/29/16. Methane testing / spark testing completed on 7/6/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI for the base of the boot and vertical weld. During spark testing of vertical weld, a spark was observed and identified a minor pinhole location along the edge of the weld that was re-welded and re-tested on 7/7/16 (spark retest passed). Following the spark retest, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

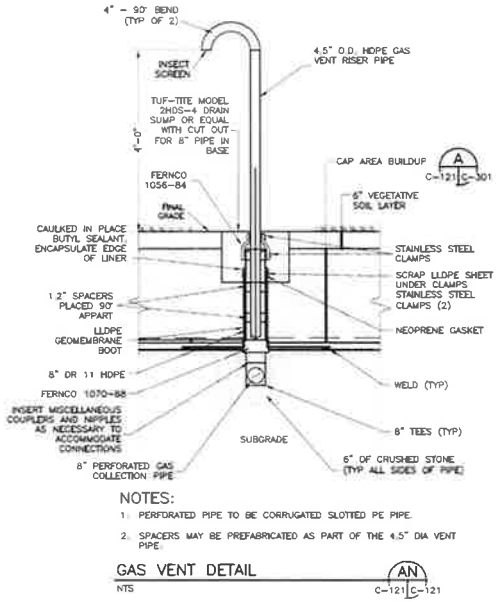
STUDY AREA 6 - CAP INSTALLATION

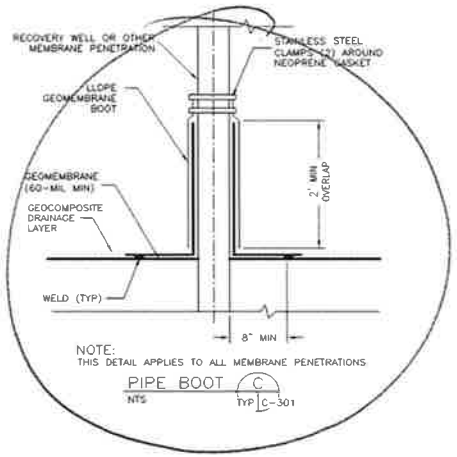
LANGAN

Project: Study Area 6 North

Date: 7/1/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Well 115-W1-SO located along southern end of SA-6 North Cap on Panel P28 / P29 seam (approximately 15 ft. north of south end of cap). Identified as R-156 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 7/1/16. Methane testing / spark testing completed on 7/6/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld. During spark testing of the vertical weld, two small pinhole deficiencies were observed and the area was grinded, rewelded, and re-tested on 7/7/16 (spark retest passed). Following the spark retest, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

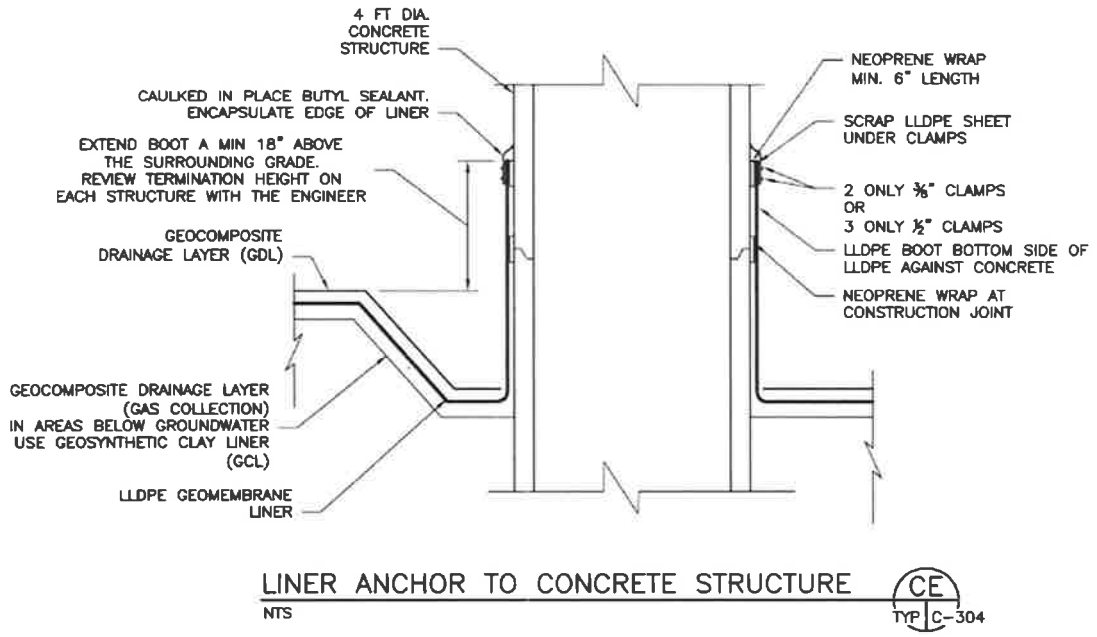
STUDY AREA 6 - CAP INSTALLATION

LANGAN

Project: Study Area 6 North

Date: 7/7/16

QA – Manhole Boot Installation



LINER ANCHOR TO CONCRETE STRUCTURE
NTS

CE TYP C-304

***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ SS Band Clamps tightened and uniform

☒ Caulked Butyl Sealant around top edge of liner

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

Location: Extraction Pump Station #1 located near approximate center of SA-6 North Cap on Panel P42 / P43 seam (approximately 136 ft. north of southern end of cap). Identified as R-189 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Signature: - LANGAN

Comments: Boot fabrication, construction, and welding completed on 7/7/16. Methane testing / spark testing completed on 7/12/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

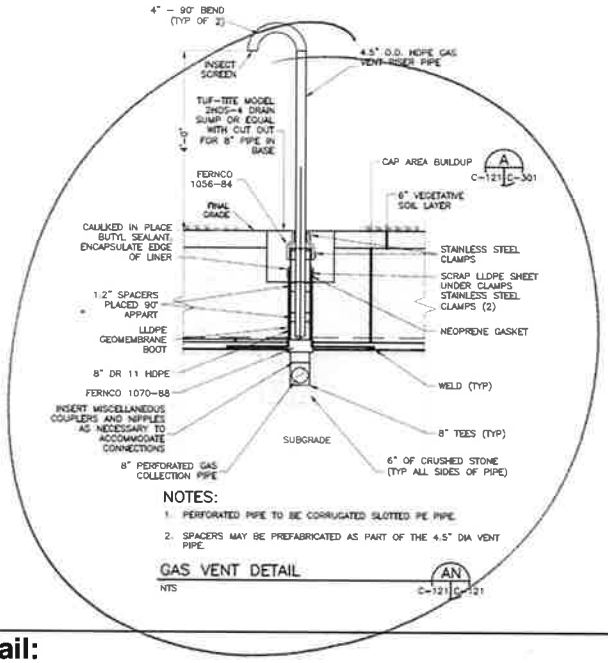
STUDY AREA 6 - CAP INSTALLATION

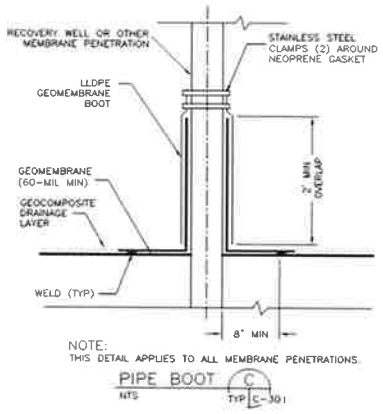
LANGAN

Project: Study Area 6 North

Date: 7/12/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-4 located near approximate center of SA-6 North Cap on Panel P46 (approximately 147 ft. north of southern end of cap and 8 ft. east from Panel P44/P46 seam). Identified as R-237 on *As Built* and *Repair Report.*

AmecFW QA Signature:

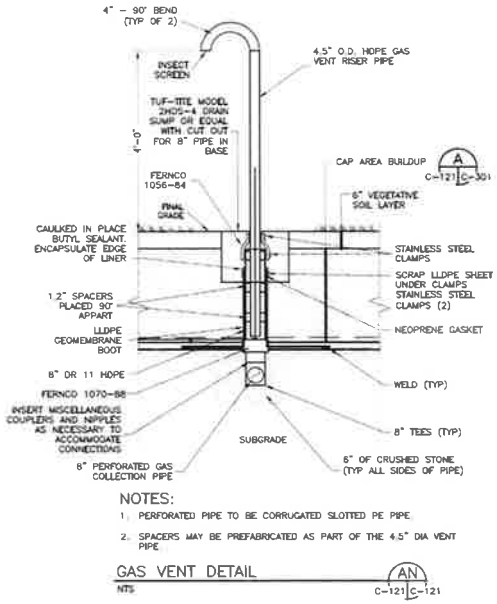
Independent CQA Monitor Signature: LANGAN

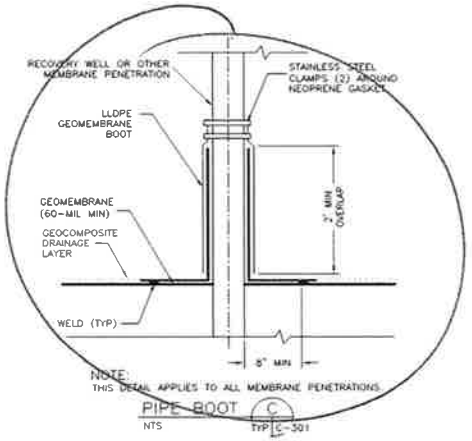
Comments: Boot fabrication, construction, and welding completed on 7/12/16. Methane testing / spark testing completed after boot construction on 7/12/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 7/12/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Piezometer PZ6 located near northern end of SA-6 North Cap on Panel P55 (approximately 285 ft. north of southern end of cap and 20 ft. east from Panel P54/P55 seam). Identified as R-261 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: -LANGAN

Comments: Boot fabrication and construction completed on 7/12/16. Methane testing / spark testing completed on 7/27/16. Methane testing completed by AmecFW and yielded methane concentration of 0.0%. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (i.e. spark test passed). Following spark testing the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

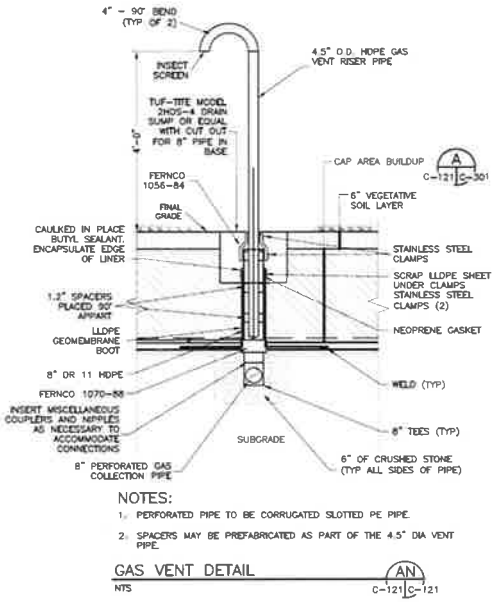
STUDY AREA 6 - CAP INSTALLATION

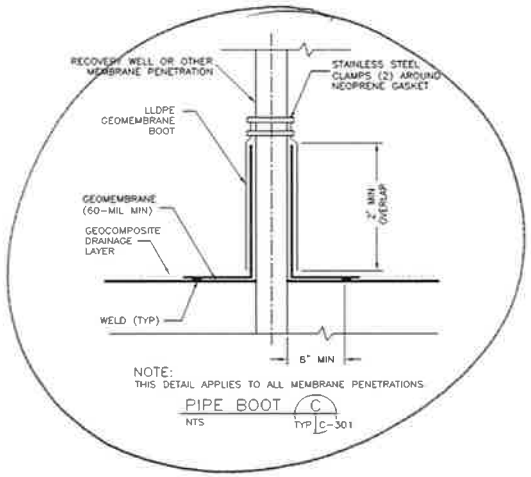
LANGAN

Project: Study Area 6 North

Date: 7/14/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Cleanout 1 located near southern half of SA-6 North Cap on Panel P65 (approximately 90 ft. north of southern end of cap and 7 ft. west from Panel P65/P67 seam). Identified as R-288 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: -LANGAN

Comments: Boot fabrication, construction and welding completed on 7/14/16. Methane testing / spark testing completed on 7/27/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was completed by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

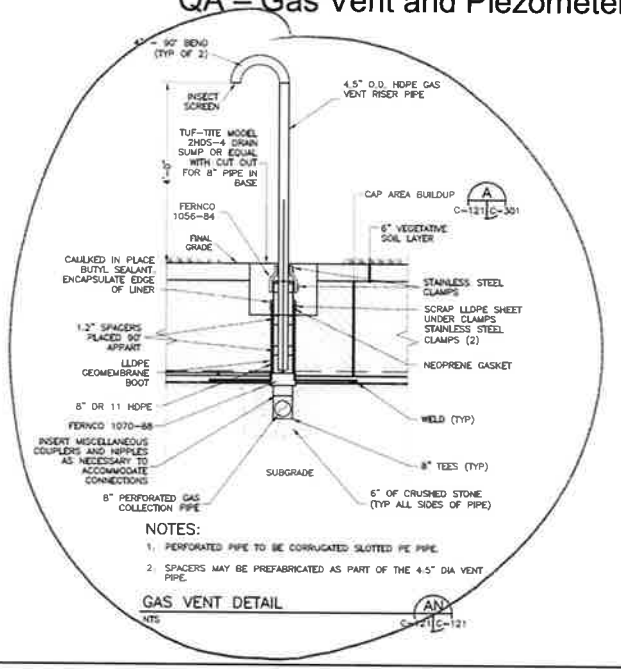
STUDY AREA 6 - CAP INSTALLATION

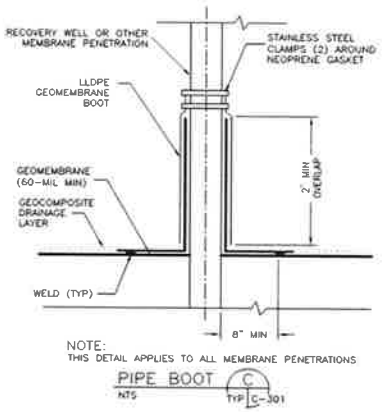
LANGAN

Project: Study Area 6 North

Date: 7/14/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-3 located near approximate center of SA-6 North Cap on Panel P66 (approximately 148 ft. north of southern end of cap and 3 ft. west from Panel P66/P68 seam). Identified as R-292 on *As Built* and *Repair Report*.

AmecFW QA Signature:

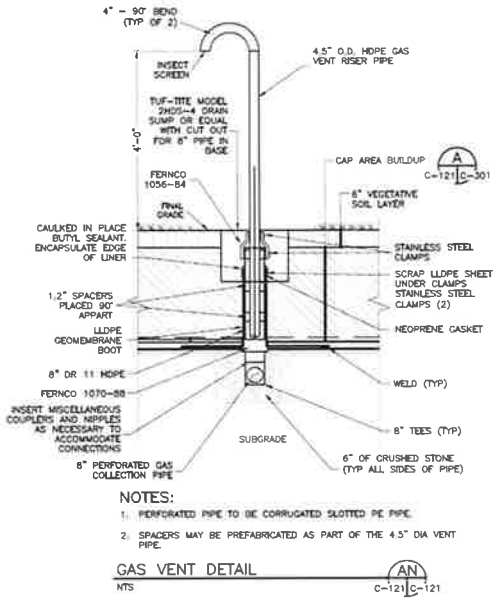
Independent CQA Monitor Signature: LANGAN

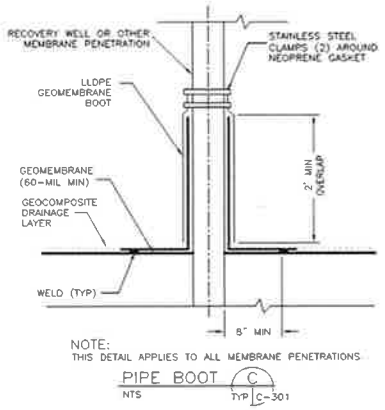
Comments: Boot fabrication, construction and welding completed on 7/14/16. Methane testing / spark testing completed on 7/28/16. Methane testing conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 7/25/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Cleanout 2 located near approximate center of SA-6 North Cap on Panel P72 (approximately 158 ft. north of southern end of cap and 6 ft. west from Panel P72/P74 seam). Identified as R-313 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction and welding completed on 7/25/16. Methane testing / spark testing completed on 7/28/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

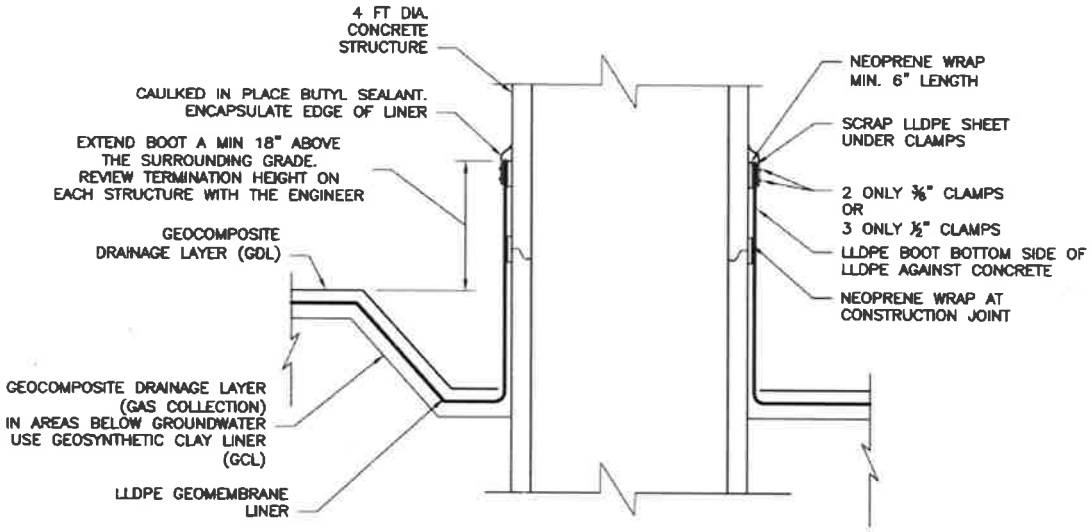
STUDY AREA 6 - CAP INSTALLATION

LANGAN

Project: Study Area 6 North

Date: 7/27/16

QA – Manhole Boot Installation



LINER ANCHOR TO CONCRETE STRUCTURE

NTS

CE TYP C-304

***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ SS Band Clamps tightened and uniform

☒ Caulked Butyl Sealant around top edge of liner

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

Location: Extraction Pump Station #2 located near approximate center of SA-6 North Cap on Panel P80 (approximately 140 ft. north of southern end of cap and 1 ft. west of Panel P80/P81 seam). Identified as R-357 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Signature: - LANGAN

Comments: Boot fabrication, construction, and welding completed on 7/27/16. Methane testing / spark testing completed on 8/9/16. Methane testing completed by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

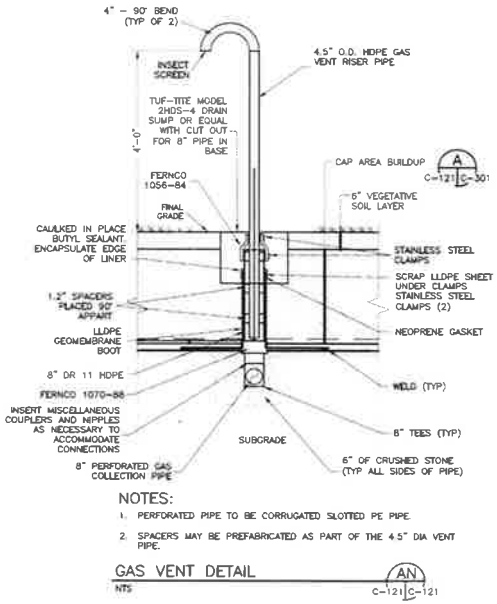
STUDY AREA 6 - CAP INSTALLATION

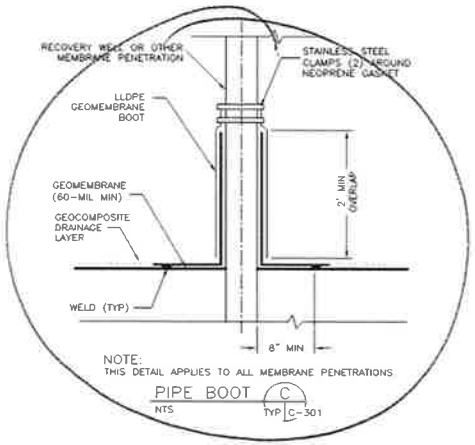
LANGAN

Project: Study Area 6 North

Date: 7/27/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Monitoring well 115-E5-SO located along southern end of SA-6 North Cap on Panel P78 (approximately 15 ft. north of southern end of cap and 9 ft. west from Panel P78/P79 seam). Identified as R-343 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 7/27/16. Methane testing / spark testing completed on 8/9/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI along the base of the boot and vertical weld. A spark was observed along the vertical weld as the weld over the wire was too thin thus causing the spark to arc. The area was grinded, rewelded, and retested and the spark retest passed. Following the spark retest the stainless steel clamps and final butyl sealant were applied to complete the boot construction.

Honeywell

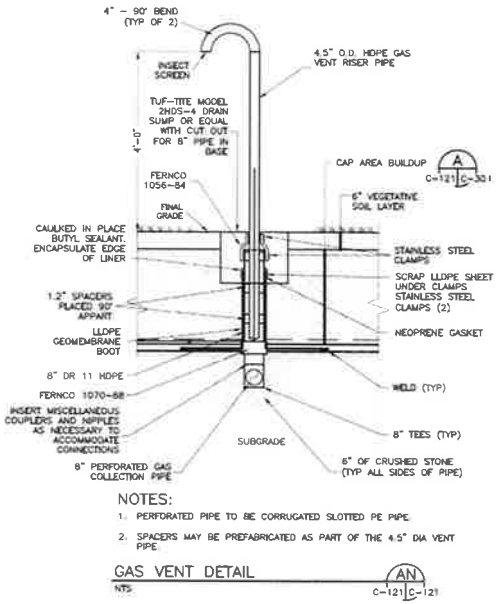
STUDY AREA 6 - CAP INSTALLATION

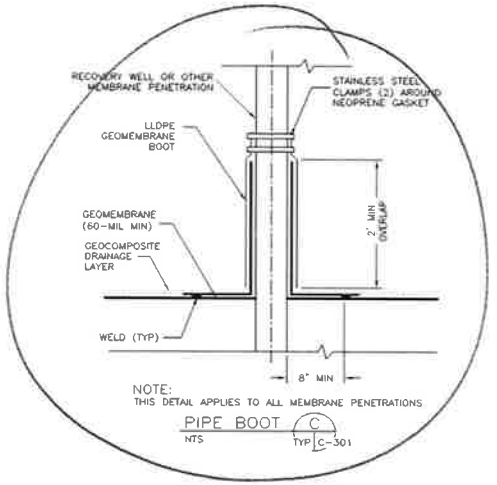
LANGAN

Project: Study Area 6 North

Date: 7/28/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Injection Well 088-IW-03 located near southern end of SA-6 North Cap on Panel P81 (approximately 32 ft. north of southern end of cap and 7 ft. west from Panel P81/P83 seam). Identified as R-384 on *As Built* and *Repair Report*.

AmecFW QA Signature:

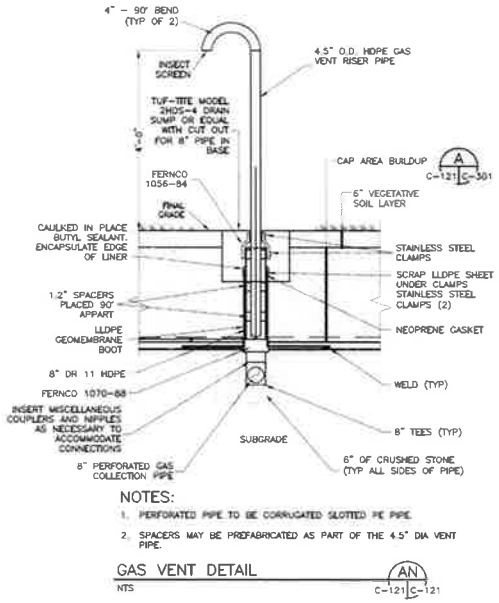
Independent CQA Monitor Signature: LANGAN

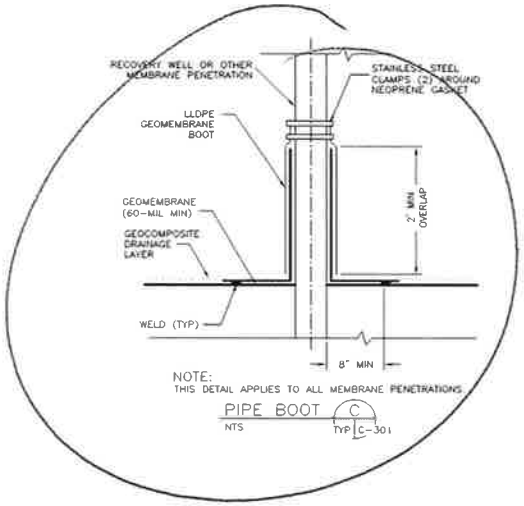
Comments: Boot fabrication, construction, and welding completed on 7/28/16. Methane testing / spark testing completed on 8/9/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI along base of boot and vertical weld and no sparks were identified (spark test passed). Following spark testing the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 7/28/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Utility corridor horizontal drain pipe located along southern end of SA-6 North Cap on Panel P76 (approximately 6 ft. north of southern end of cap and 4 ft. west from Panel P76/P78 seam). Identified as R-380 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction welding and testing completed on 7/28/16. Methane testing / spark testing completed on 8/9/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

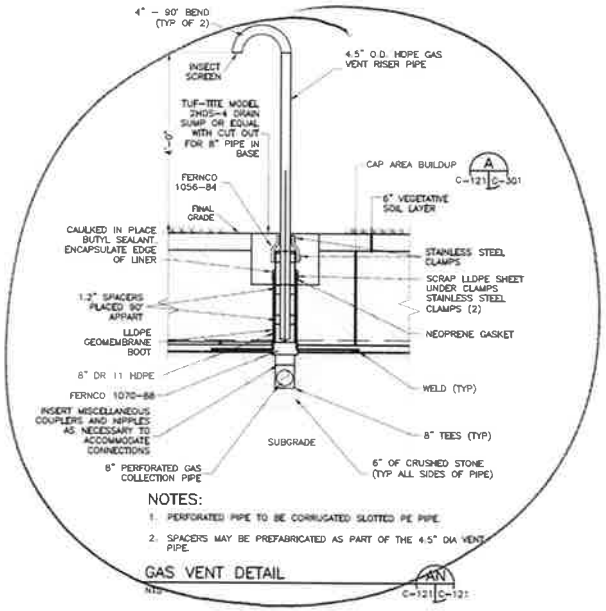
STUDY AREA 6 - CAP INSTALLATION

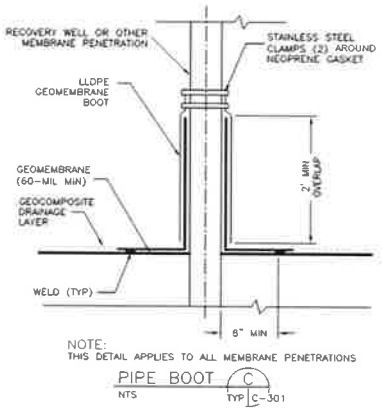
LANGAN

Project: Study Area 6 North

Date: 8/3/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-2 located at the approximate center of SA-6 North Cap on Panel P91 (approximately 107 ft. north of southern end of cap and 5 ft. east from Panel P90/P91 seam). Identified as R-409 on *As Built* and *Repair Report*.

AmecFW QA Signature:

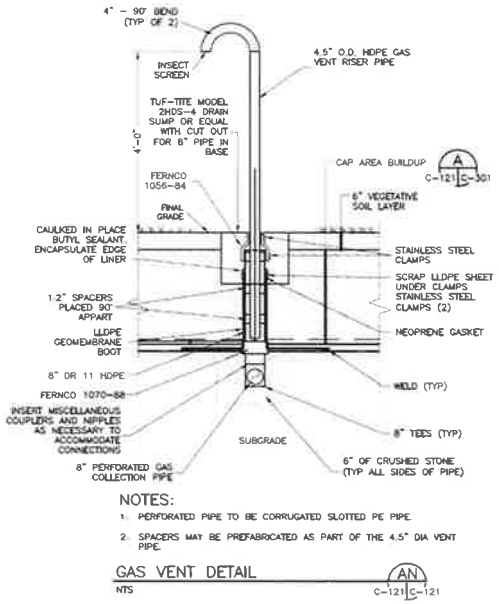
Independent CQA Monitor Signature: LANGAN

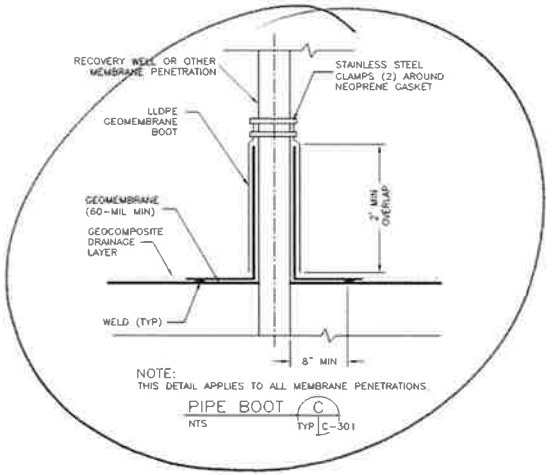
Comments: Boot fabrication, construction, and welding completed on 8/3/16. Methane testing / spark testing completed on 8/9/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 8/3/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Piezometer PZ4 located along northern end of SA-6 North Cap on Panel P90 (approximately 238 ft. north of southern end of cap and 7 ft. west from Panel P90/P91 seam). Identified as R-408 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: -LANGAN

Comments: Boot fabrication, construction, and welding completed on 8/3/16. Methane testing / spark testing completed on 8/9/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI along the base of the boot and the vertical weld and a spark was observed (for both the vertical weld and base) as the weld was too thin over the wire, thus causing the spark to arc. The areas were grinded, re-welded, and retested on 8/9/16 and the spark retest passed. Following the spark retest, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

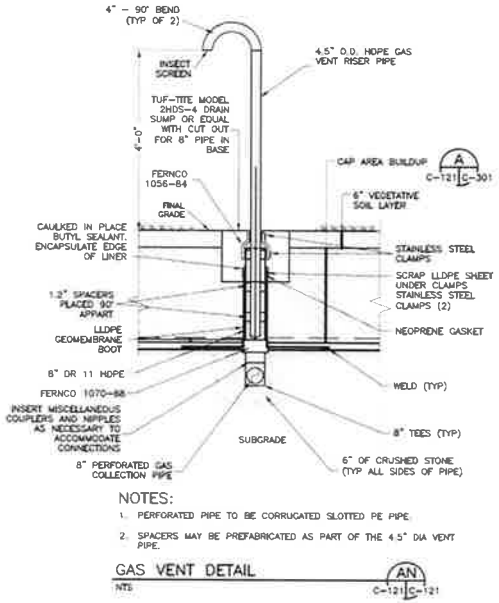
STUDY AREA 6 - CAP INSTALLATION

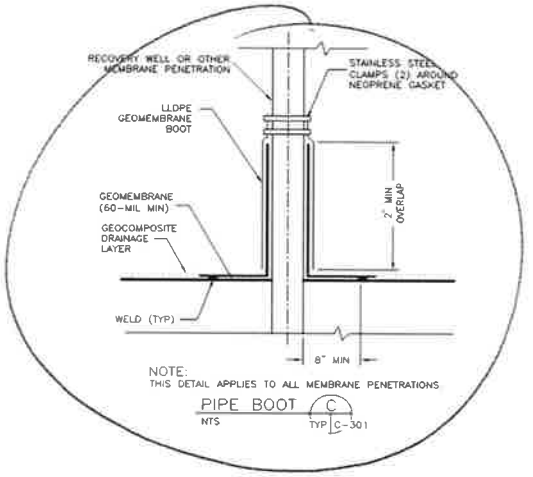
LANGAN

Project: Study Area 6 North

Date: 8/5/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Injection Well 088-IW-02 located at the approximate center of SA-6 North Cap on Panel P97 (approximately 109 ft. north of southern end of cap and 2 ft. west from Panel P97/P98 seam). Identified as R-430 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 8/5/16. Methane testing / spark testing completed on 8/9/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

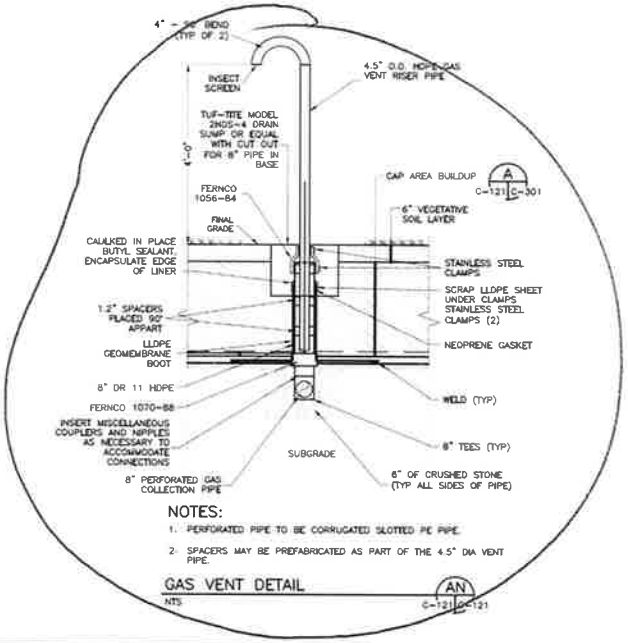
STUDY AREA 6 - CAP INSTALLATION

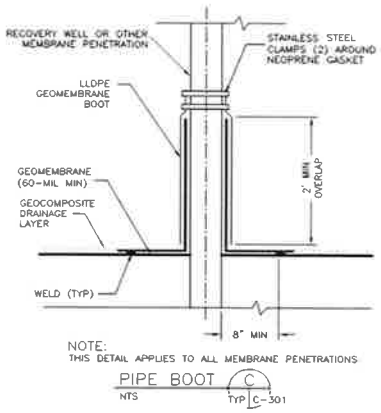
LANGAN

Project: Study Area 6 North

Date: 8/10/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Gas Vent GV-1 located at the approximate center of SA-6 North Cap on Panel P103 (approximately 113 ft. north of southern end of cap and 13 ft. east from Panel P102/P103 seam). Identified as R-449 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature:

Comments: Boot fabrication, construction, and welding completed on 8/10/16. Methane testing / spark testing completed on 8/12/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

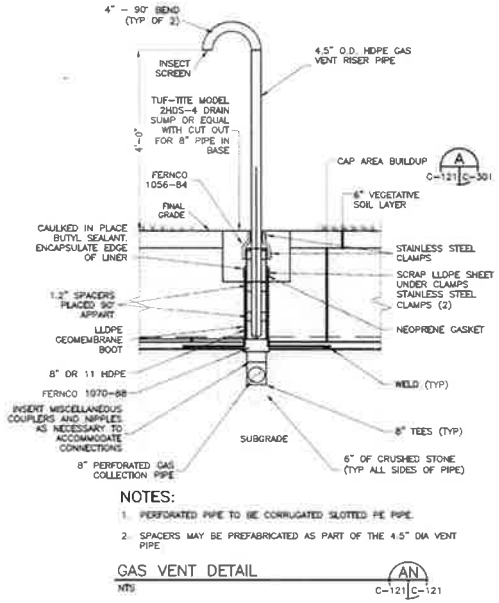
STUDY AREA 6 - CAP INSTALLATION

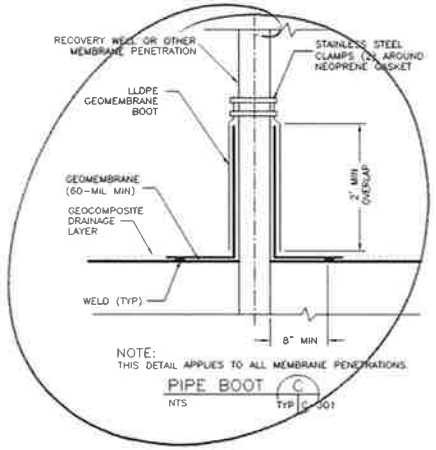
LANGAN

Project: Study Area 6 North

Date: 8/10/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Monitoring Well 115-E4-SO located along the southern end of SA-6 North on Panel P104 (approximately 6 ft. north of southern end of cap and 5 ft. east from Panel P103/P104 seam). Identified as R-450 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 8/10/16. Methane testing / spark testing completed on 8/12/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI for the base of the boot and vertical weld. During testing of the vertical weld, a spark was observed along the edge of the weld (weld not centered over wire). The area was grinded, rewelded, and retested, and the spark retest passed. Following the spark retest, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

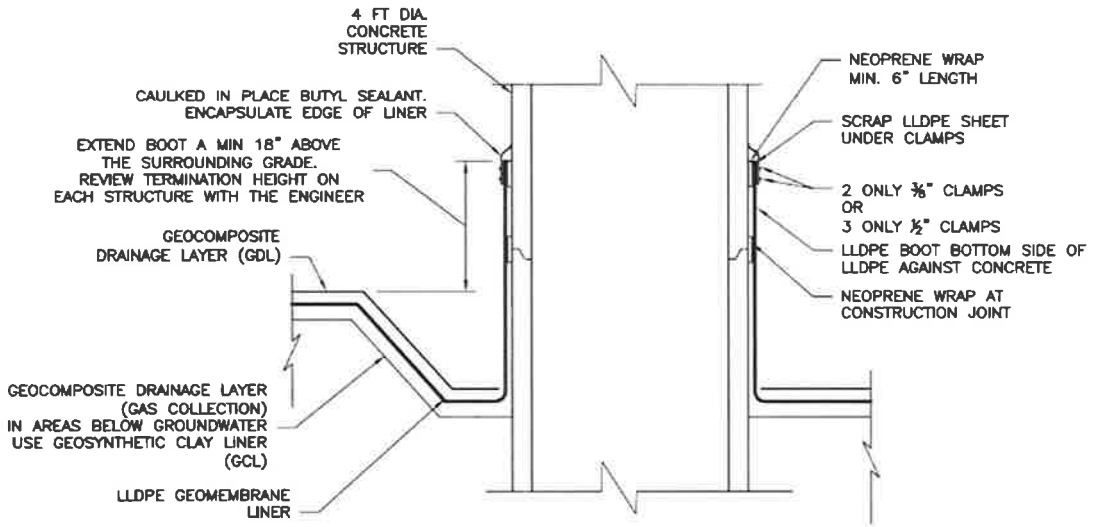
STUDY AREA 6 - CAP INSTALLATION

LANGAN

Project: Study Area 6 North

Date: 8/12/16

QA – Manhole Boot Installation



LINER ANCHOR TO CONCRETE STRUCTURE

NTS

CE TYP C-304

***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ SS Band Clamps tightened and uniform

☒ Caulked Butyl Sealant around top edge of liner

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

Location: Access Manhole Sta. 18+00 located near approximate center of SA-6 North Cap on Panel P113 (approximately 110 ft. north of southern end of cap and 10 ft. east of Panel P112/P113 seam). Identified as R-492 on *As Built* and *Repair Report.*

AmecFW QA Signature:

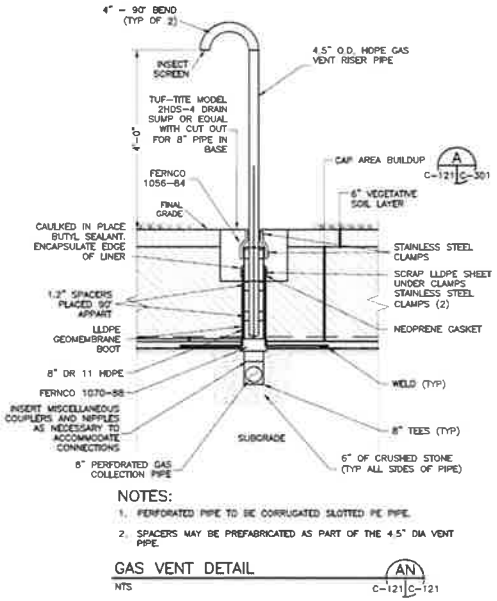
Independent CQA Signature: LANGAN

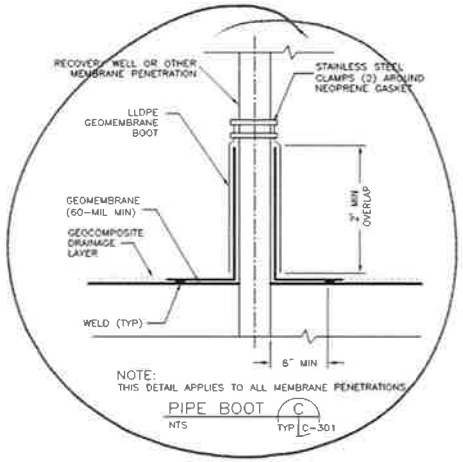
Comments: Boot fabrication, construction, and welding completed on 8/12/16. Methane testing / spark testing completed on 8/13/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed). Additionally, vacuum box testing was conducted along horizontal and vertical welds completed for the boot construction (vacuum box testing passed). Following testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Project: Study Area 6 North

Date: 8/12/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Injection Well 088-IW-01 located along northern end of SA-6 North Cap on Panel P114 (approximately 206 ft. north of southern end of cap and 13 ft. east from Panel P113/P114 seam). Identified as R-493 on *As Built* and *Repair Report.*

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 8/12/16. Methane testing / spark testing completed on 8/13/16. Methane testing was conducted by AmecFW and concentration of 0.0% was measured. As such, spark testing was conducted by ESI at the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot construction.

Honeywell

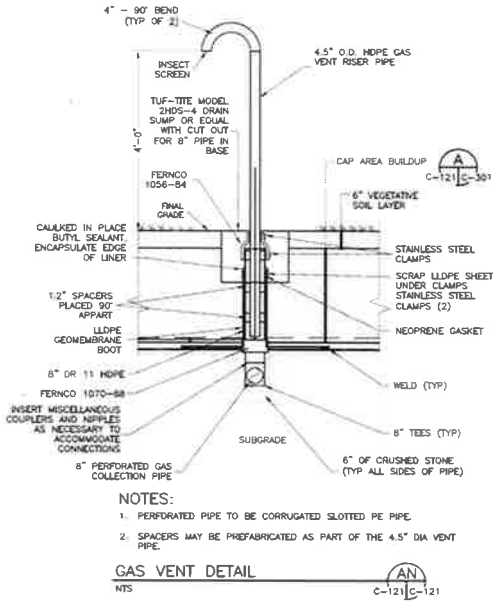
STUDY AREA 6 - CAP INSTALLATION

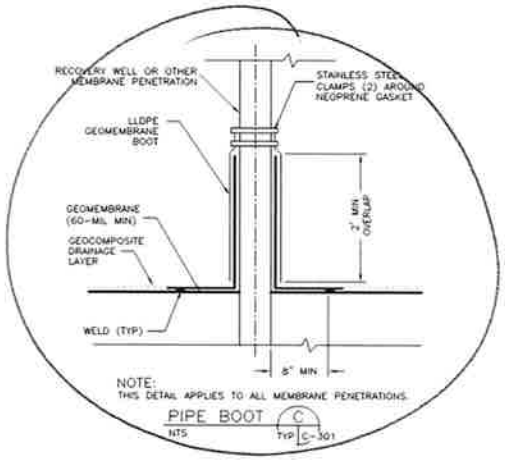
LANGAN

Project: Study Area 6 North

Date: 8/15/2016

QA – Gas Vent and Piezometer Penetrations (circle type of boot)





***Check applicable Detail:**

Boot Fabrication Details (check one)

☐ Pre-fabricated, no field test ☒ Field fabricated, spark test ☐ Field fabricated, visual

☒ 18-in. overlap between boot and geomembrane

☒ Neoprene rubber gasket and/or silicone caulking shall be used between the boot or shroud and the penetration structure

☒ LLDPE sacrificial sheet shall be used between the boot or shroud and the clamp for protection

☒ If penetration is greater than 4-in. in diameter, a second clamp shall be used.

☒ Boot connection (minimum 18-inch overlap) field tested to ensure seal (ex. vacuum box testing) and spark testing of boot vertical seam and penetration edge extrusion welds

☒ Caulked Butyl Sealant around top edge of liner

Location: Piezometer PZ2 located along northern end of SA-6 North Cap on Panel P116 (approximately 176 ft. north of southern end of cap and 13 ft. east from Panel P116/P118 seam). Identified as R-509 on *As Built* and *Repair Report*.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Comments: Boot fabrication, construction, and welding completed on 8/15/16. Methane testing / spark testing also completed on 8/15/16. Methane testing was conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI at the base of the boot and vertical weld and no sparks were observed (spark test passed). Following spark testing, the stainless steel clamps and butyl sealant were applied to complete the boot.

Appendix O
Spark Test Logs

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

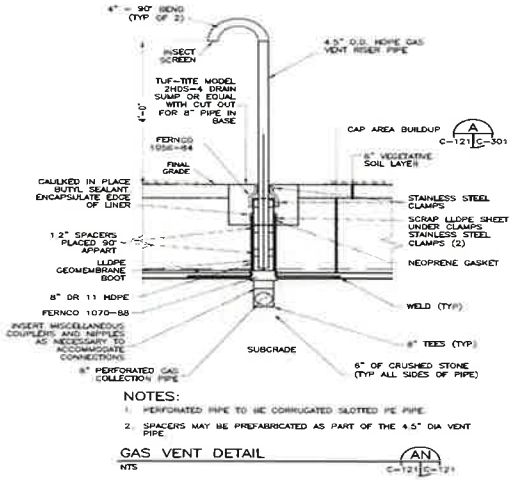
Project: Study Area 6 North

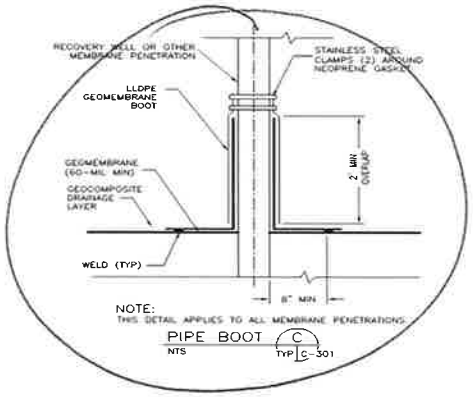
Location: Piezometer PZ10 located at approximate center of SA-6 North Cap on Panel P1 (approximately 35 ft. north of Panel P1 / P2 seam and 8 ft. west). Identified as R-1 on *As Built* and *Repair Report.*

Date: 6/24/16 **Repair Number:** R-1

Boot Log QA Form (cross-reference): 6/23/16 Piezometer PZ10 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0925

% Methane 0.8% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 6/23/16. Methane / spark testing completed on 6/24/16. Methane testing completed by AmecFW and yielded concentration of 0.8%. As such, spark testing was conducted by ESI at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: Langan

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

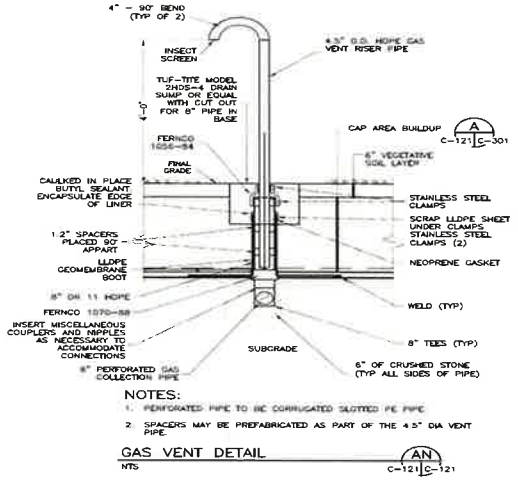
Project: Study Area 6 North

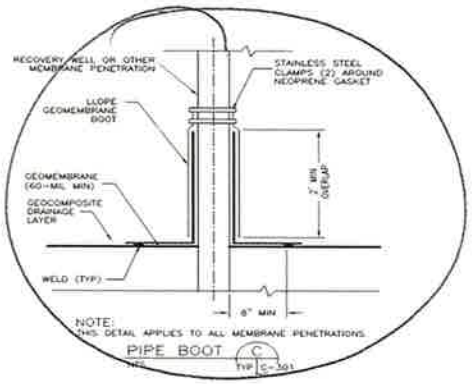
Location: Well 115-W6-SO located near southern end of SA-6 North Cap on Panel P5 / P6 seam (approximately 15 ft. north of southern end of cap). Identified as R-7 on *As Built* and *Repair Report*.

Date: 6/24/16 **Repair Number:** R-7

Boot Log QA Form (cross-reference): 6/23/16 Well 115-W6-SO Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0910

% Methane 1.4%

☐Methane < 1%; Proceed with spark testing

☒Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld:

☐Vacuum Box Tested

☐Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot										
Vertical weld										

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 6/23/16. Methane testing completed on 6/24/16 by AmecFW. Methane testing yielded concentration of 1.4%. (>1%). As such, no spark testing was completed for the boot. The vertical weld and the weld at the base of the boot were visually observed by the Independent CQA Monitor and AmecFW QA and no deficiencies along the welds were noted.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

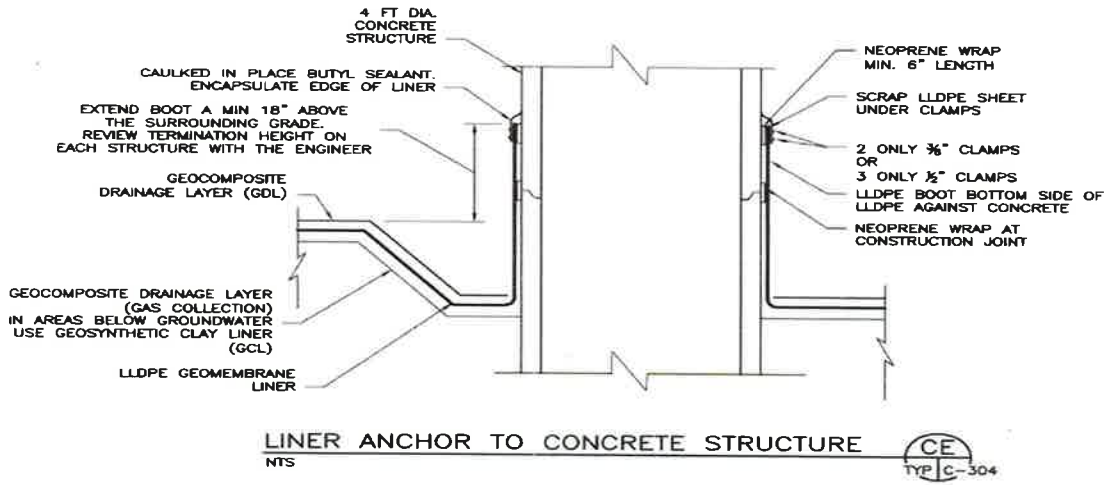
Project: Study Area 6 North

Location: Access Manhole #1 (Sta. 1+50) located near approx. .center of SA-6 North on Panel P10 (approx. 93 ft. south of northern end and 4 ft. east from Panel P10/P11 seam). Identified as R-29 on *As Built* and *Repair Report*.

Date: 6/27/16 **Repair Number:** R-29

Boot Log QA Form (cross-reference): 6/23/16 Access Manhole #1 (Sta. 1+50) Form

QA – Spark Test Log – Manhole



Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1030

% Methane 0.1%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Panel Extrusion Weld: ☐Vacuum Box Tested ☐Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (kV)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 6/23/16 and 6/24/16. Spark / methane testing conducted on 6/27/16. Methane testing conducted by AmecFW and concentration of 0.1% methane was measured prior to spark testing. As such, spark testing was conducted by ESI along the base of the boot and the vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

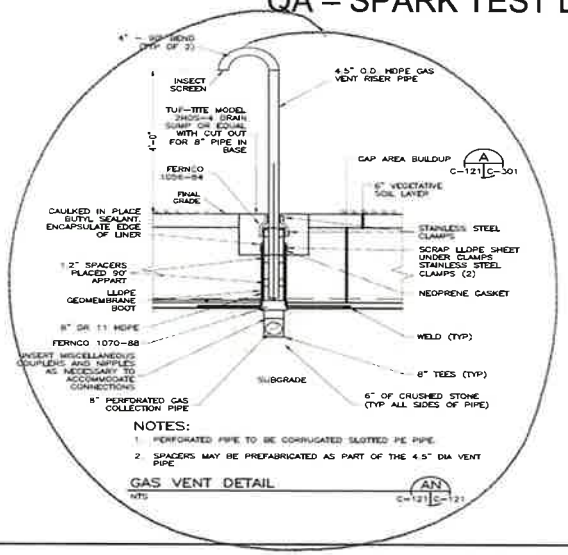
Project: Study Area 6 North

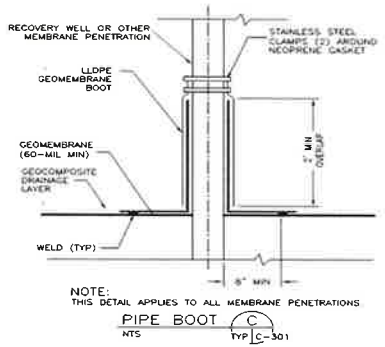
Location: Gas Vent GV-6 located near approximate center of SA-6 North Cap on Panel P11 (approximately 105 ft. north of southern end of cap and 3 ft. east of Panel P10/P11 seam). Identified as R-38 on *As Built* and *Repair Report*.

Date: 6/24/16 **Repair Number:** R-38

Boot Log QA Form (cross-reference): 6/23/16 Gas Vent GV-6 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0915

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 6/23/16. Methane / spark testing completed on 6/24/16. Methane testing was conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld by ESI. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

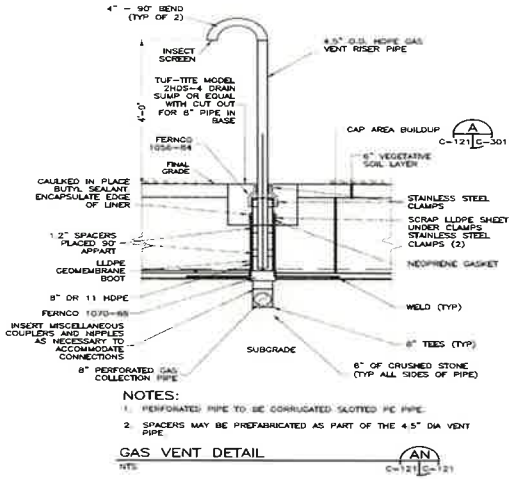
Project: Study Area 6 North

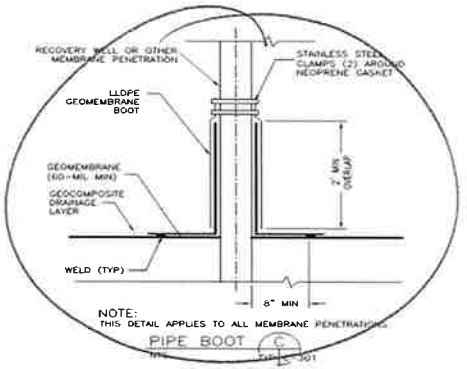
Location: Piezometer PZ8 located along northern end of SA-6 North on Panel P21 (approx. 171 ft. north of south end of cap and 3 ft. east of Panel P20/P21 seam). Identified as R-81 on *As Built* and *Repair Report*

Date: 7/6/16 **Repair Number:** R-81

Boot Log QA Form (cross-reference): 6/27/16 Piezometer PZ8 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1525

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 6/27/16. Methane / spark testing conducted on 7/6/16. Methane testing conducted by AmecFW and concentration of 0.0% was measured. Spark testing completed on 7/6/16 by ESI. Vertical weld and base of boot tested and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature:

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

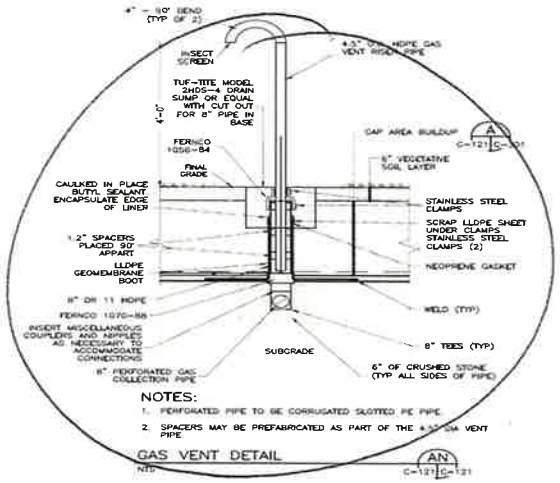
Project: Study Area 6 North

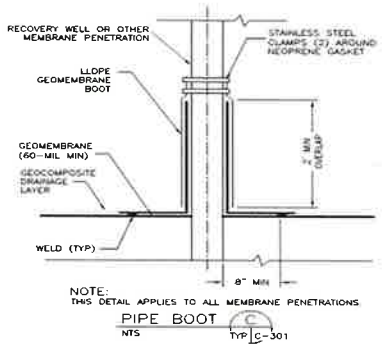
Location: Gas Vent GV-5 located near approximate center of SA-6 North Cap on Panel P27 approximately 124 ft. north of southern end of cap and 3 ft. east from Panel P26/P27 seam.

Date: 7/6/16 & 7/7/16 **Repair Number:** R-102

Boot Log QA Form (cross-reference): 6/29/16 Gas Vent GV-5 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1545

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass (7/6/16)		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass (7/7/16)	CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 6/29/16. Methane testing conducted by AmecFW and concentration of 0.0% was measured. Spark testing conducted on 7/6/16 by ESI. Base of boot spark tested and no sparks were observed (spark test passed). During spark testing of vertical weld, a spark was observed during testing which identified a pinhole location along the edge of the weld. This minor anomaly was subsequently re-welded and re-tested on 7/7/16. During the retest on 7/7/16 no sparks were observed (passed re-test).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

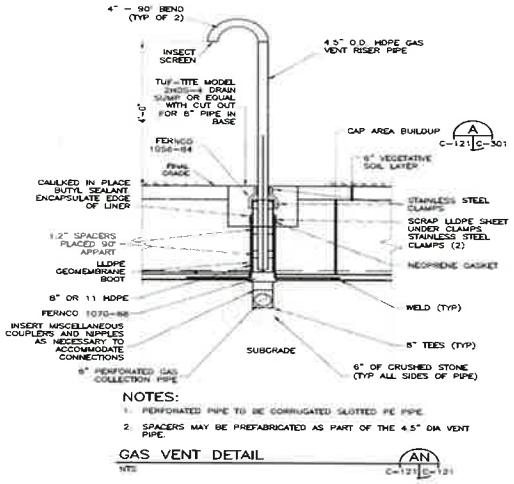
Project: Study Area 6 North

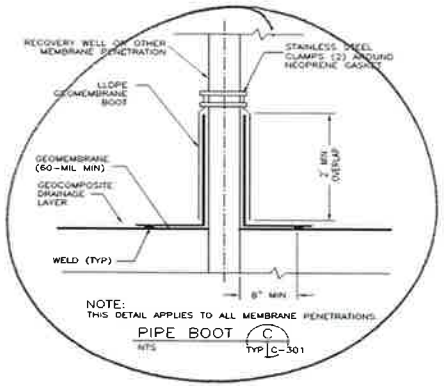
Location: Well 115-W1-SO located along southern end of SA-6 North on Panel P28/P29 seam (approximately 15 ft. north of south end of cap). Identified as R-156 on *As Built* and *Repair Report*

Date: 7/6/16 & 7/7/16 **Repair Number:** R-156

Boot Log QA Form (cross-reference): 7/1/16 Well 115-W1-SO Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1550

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass (7/6/16)		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass (7/7/16)	CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/1/16. Methane testing conducted by AmecFW on 7/6/16 & 7/7/16 and concentration of 0.0% was measured. Spark testing was conducted by ESI at the base of boot and no sparks were observed (spark test passed). During spark testing of the vertical weld, two small pinholes were identified on 7/6/16 and subsequently re-welded and re-tested on 7/7/16. Retesting on 7/7/16 yielded no sparks (spark retest passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

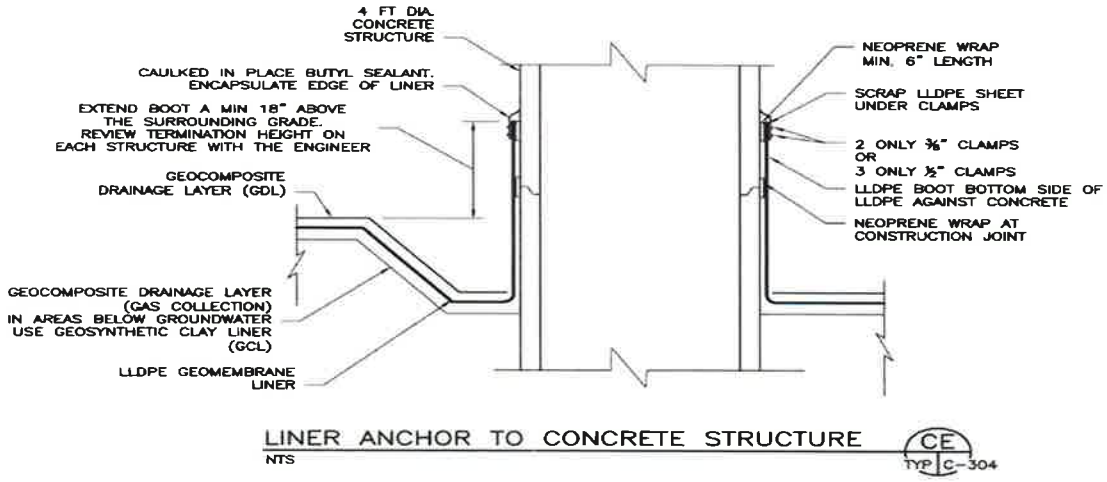
Project: Study Area 6 North

Location: Extraction Pump Station #1 located near approximate center of SA-6 North Cap on Panel P42 / P43 seam (approximately 136 ft. north of southern end of cap). Identified as R-189 on *As Built* and *Repair Report*.

Date: 7/12/16 **Repair Number:** R-189

Boot Log QA Form (cross-reference): 7/7/16 Extraction Pump Station #1 Form

QA – Spark Test Log – Manhole



Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0905

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Panel Extrusion Weld: ☐Vacuum Box Tested ☐Spark Tested (as outlined below)

Spark Test Information

Item Tested	Thickness	Operator Initials	Voltage (kV)	AC / DC	Brush Probe	Point Probe	QCR I.D*	Pass / Fail	Retest Pass /Fail	QCR I.D*
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/7/12. Spark / methane testing conducted on 7/12/16. Methane testing conducted by AmecFW and concentration of 0.0% measured prior to spark testing. As such, spark testing was conducted by ESI along the base of the boot and the vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

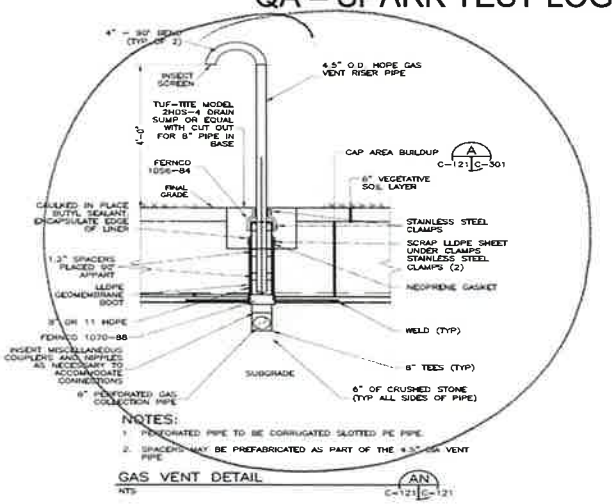
Project: Study Area 6 North

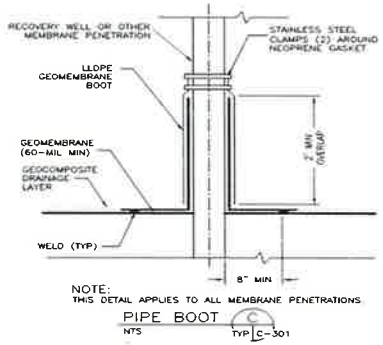
Location: Gas Vent GV-4 located near approximate center of SA-6 North Cap on Panel P46 (approximately 147 ft. north of southern end of cap and 8 ft. east from Panel P44/P46 seam). Identified as R-237 on *As Built* and *Repair Report*.

Date: 7/12/16 **Repair Number:** R-237

Boot Log QA Form (cross-reference): 7/12/16 Gas Vent GV-4 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0905

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/12/16. Methane / spark testing completed on 7/12/16 also. Prior to spark testing, methane testing was conducted by AmecFW and a concentration of 0.0% was measured. As such, spark testing was conducted by ESI along the base of the boot and vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature:

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

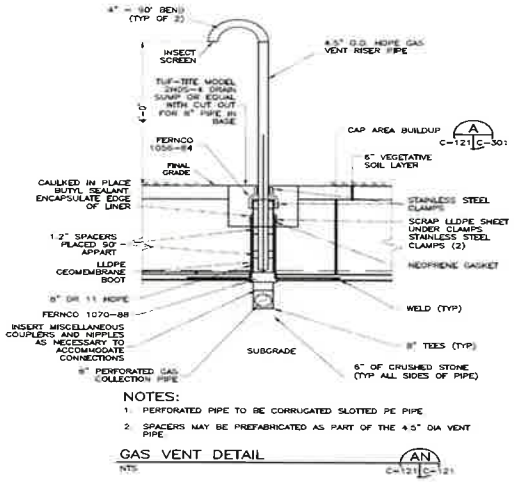
Project: Study Area 6 North

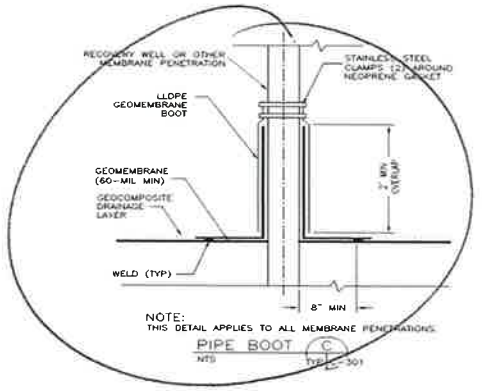
Location: Piezometer PZ6 located near northern end of SA-6 North on Panel P55 (approx. 285 ft. N of southern end of cap and 20 ft. E from Panel P54/P55 seam). Identified as R-261 on *As Built* and *Repair Report*.

Date: 7/27/16 **Repair Number:** R-261

Boot Log QA Form (cross-reference): 7/12/16 Piezometer PZ6 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1420

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/12/16. Methane / Spark testing completed on 7/27/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. Spark testing conducted by ESI along vertical weld and base of boot and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

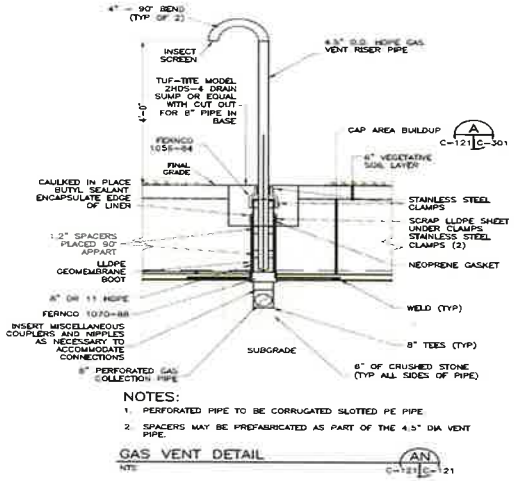
Project: Study Area 6 North

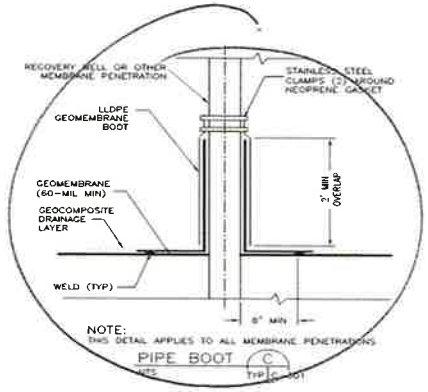
Location: Cleanout 1 located near southern half of SA-6 North on Panel P65 (approx. 90 ft. north of south end of cap and 7 ft. west from Panel P65/P67 seam). Identified as R-288 on *As Built* and *Repair Report.*

Date: 7/27/16 **Repair Number:** R-288

Boot Log QA Form (cross-reference): 7/14/16 Cleanout 1 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1440

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/14/16. Methane / Spark testing completed on 7/27/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. Spark testing completed by ESI along vertical weld and base of boot and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

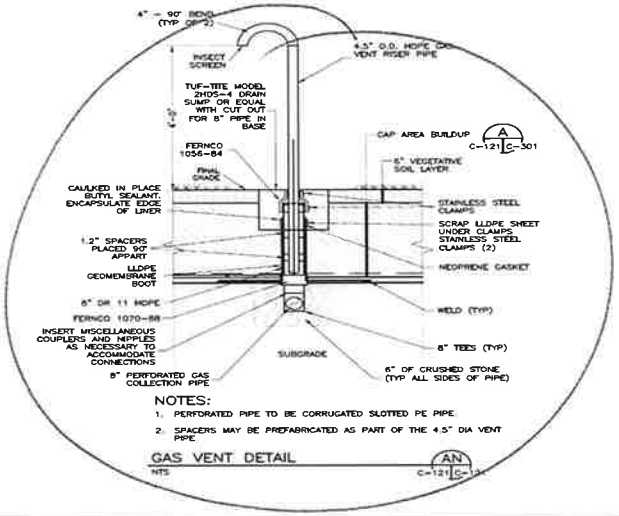
Project: Study Area 6 North

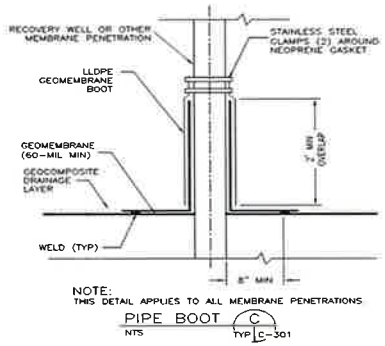
Location: Gas Vent GV-3 located near approximate center of SA-6 North Cap on Panel P66 (approximately 148 ft. north of southern end of cap and 3 ft. west from Panel P66/P68 seam). Identified as R-292 on *As Built* and *Repair Report.*

Date: 7/28/16 **Repair Number:** R-292

Boot Log QA Form (cross-reference): 7/14/16 Gas Vent GV-3 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1005

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/14/16. Methane / Spark testing completed on 7/28/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. Spark testing was conducted by ESI for the vertical weld and base of boot and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

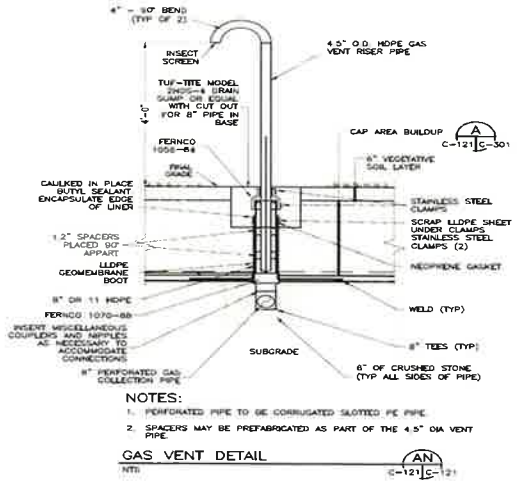
Project: Study Area 6 North

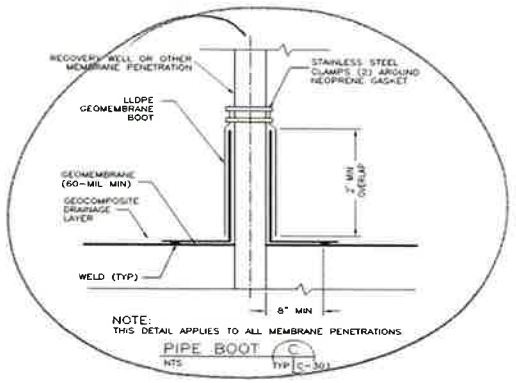
Location: Cleanout 2 located near approximate center of SA-6 North on Panel P72 (approx. 158 ft. north of southern end of cap and 6 ft. west from Panel P72/P74 seam). Identified as R-313 on *As Built* and *Repair Report*.

Date: 7/28/16 **Repair Number:** R-313

Boot Log QA Form (cross-reference): 7/25/16 Cleanout 2 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1010

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/25/16. Methane / Spark testing completed on 7/28/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. Spark testing was conducted by ESI for the vertical weld and base of boot and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

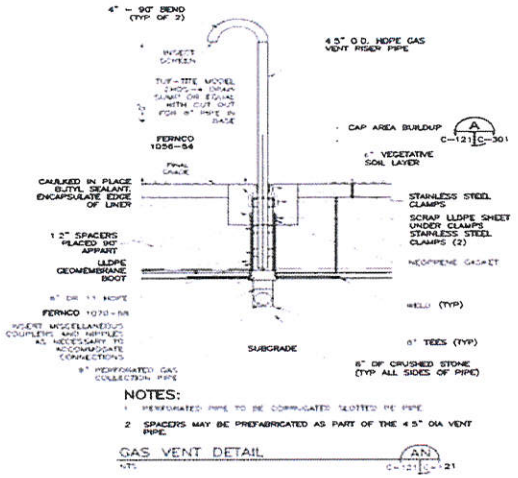
Project: Study Area 6 North

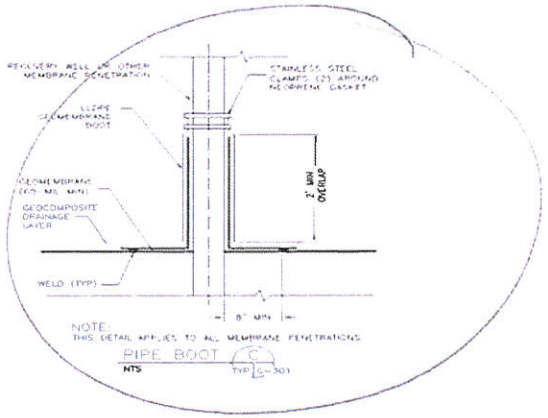
Location: Monitoring well 115-E5-SO located along southern end of SA-6 North Cap on Panel P78 (approximately 15 ft. north of southern end of cap and 9 ft. west from Panel P78/P79 seam). Identified as R-343 on *As Built* and *Repair Report*.

Date: 8/9/16 **Repair Number:** R-343

Boot Log QA Form (cross-reference): 7/27/16 Well 115-E5-SO Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0930

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass	CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 7/27/16. Methane completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. A spark was observed along the vertical weld as the weld over the wire was too thin thus causing the spark to arc. The area was grinded, rewelded, and retested on 8/9/16 and the spark retest passed as no sparks were observed.

AmecFW QA Signature:

Independent CQA Monitor Signature: - LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

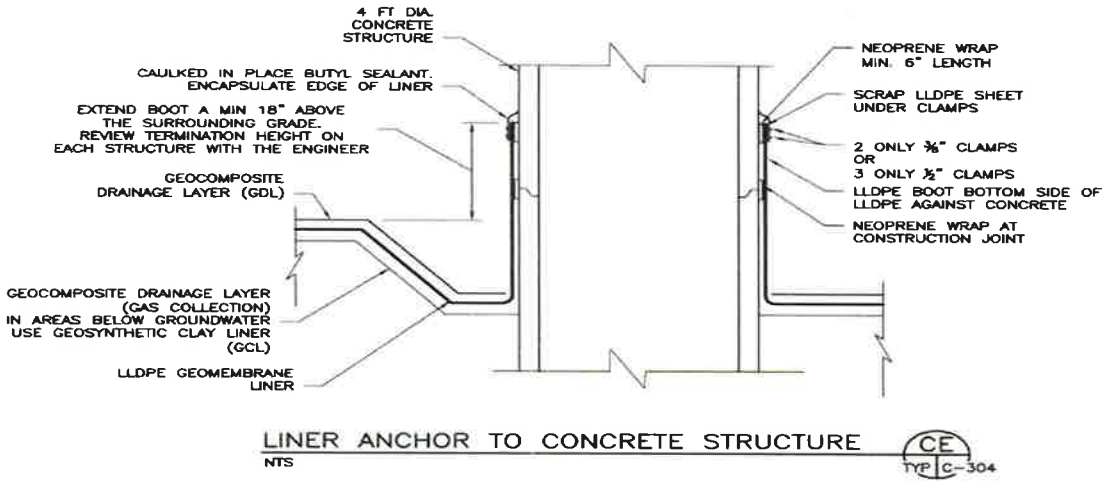
Project: Study Area 6 North

Location: Extraction Pump Station #2 located near approx. center of SA-6 North Cap on Panel P80 (approx.. 140 ft. N of southern end of cap and 1 ft. W of Panel P80/P81 seam). Identified as R-357 on *As Built* and *Repair Report.*

Date: 8/9/16 **Repair Number:** R-357

Boot Log QA Form (cross-reference): 7/27/16 Extraction Pump Station #2 Form

QA – Spark Test Log – Manhole



Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0910

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Panel Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	Thickness	Operator Initials	Voltage (kV)	AC / DC	Brush Probe	Point Probe	QCR I.D.*	Pass / Fail	Retest Pass /Fail	QCR I.D.*
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 7/27/16. Spark / methane testing conducted on 8/9/16. Methane testing was conducted by AmecFW and a concentration of 0.0% was measured prior to spark testing. As such, spark testing was conducted by ESI along the base of the boot and the vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: -Langan

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

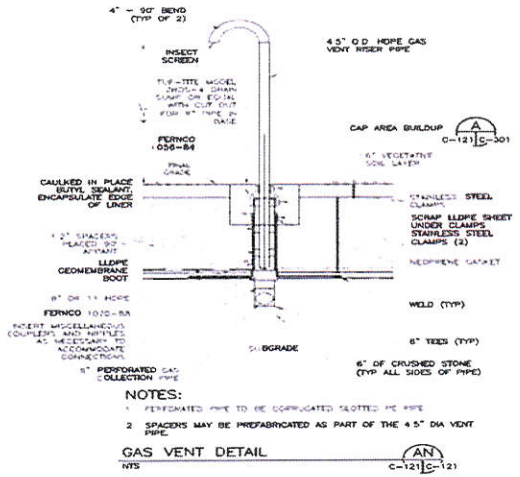
Project: Study Area 6 North

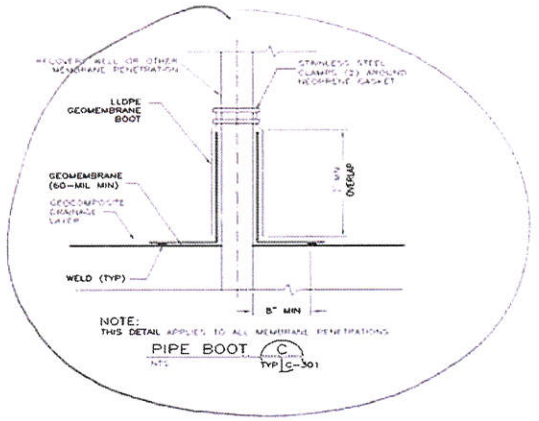
Location: Utility corridor horizontal drain pipe located along southern end of SA-6 North Cap on Panel P76 (approx. 6 ft. north of southern end of cap and 4 ft. west from Panel P76/P78 seam). Identified as R-380 on *As Built* and *Repair Report*.

Date: 8/9/16 **Repair Number:** R-380

Boot Log QA Form (cross-reference): 7/28/16 Utility Corridor Drain Pipe Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0935

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information										
Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 7/28/16. Methane completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

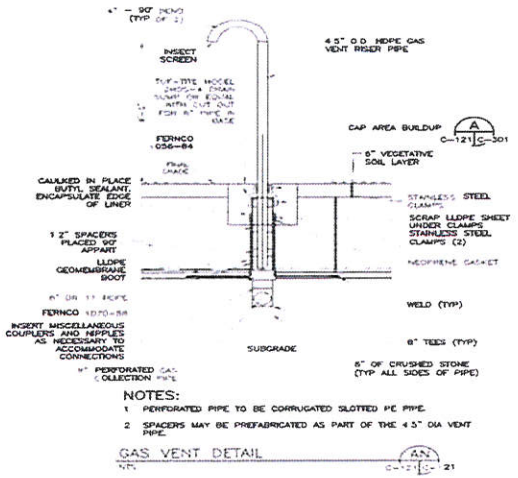
Project: Study Area 6 North

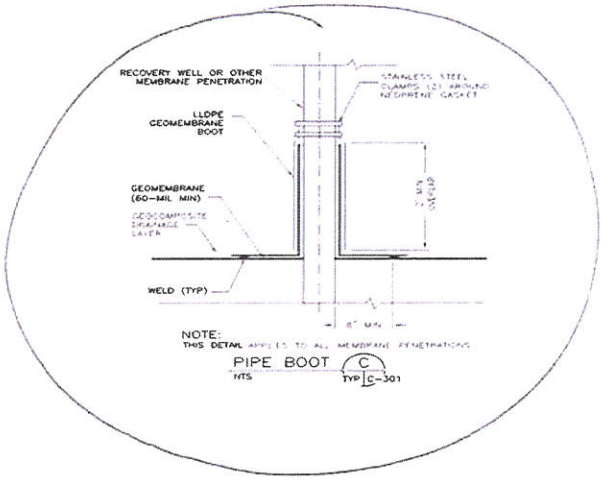
Location: Injection Well 088-IW-03 located near southern end of SA-6 North Cap on Panel P81 (approximately 32 ft. north of southern end of cap and 7 ft. west from Panel P81/P83 seam). Identified as R-384 on *As Built* and *Repair Report*.

Date: 8/9/16 **Repair Number:** R-384

Boot Log QA Form (cross-reference): 7/28/16 Injection Well 088-IW-03 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 1220

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 7/28/16. Methane / spark testing completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

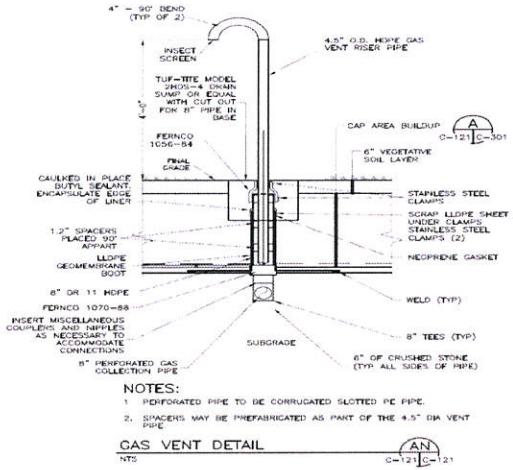
Project: Study Area 6 North

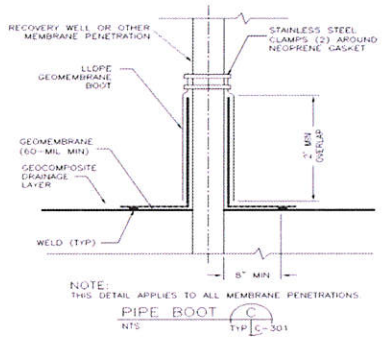
Location: Piezometer PZ4 located along northern end of SA-6 North Cap on Panel P90 (approximately 238 ft. north of southern end of cap and 7 ft. west from Panel P90/P91 seam). Identified as R-408 on *As Built* and *Repair Report.*

Date: 8/9/16 **Repair Number:** R-408

Boot Log QA Form (cross-reference): 8/3/16 Piezometer PZ4 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0855

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass	CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass	CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/3/16. Methane / spark testing completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld and a spark was observed as the weld over the wire was too thin thus causing the spark to arc. The area was grinded, re-welded and retested on 8/9/16 and the subsequent spark re-test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: – LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

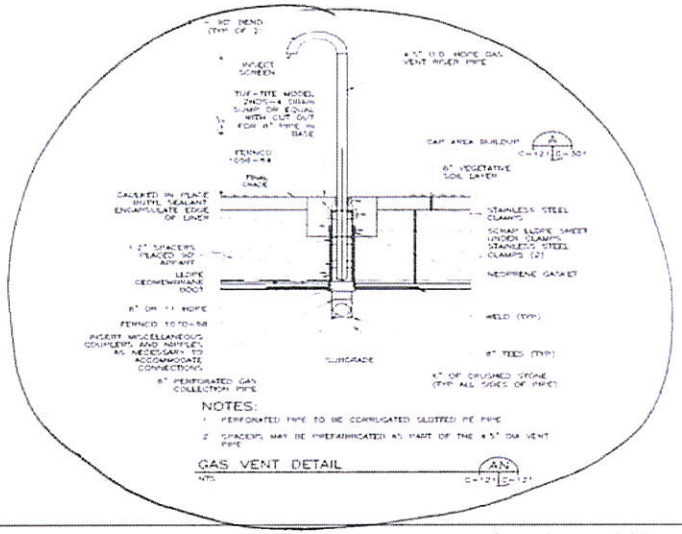
Project: Study Area 6 North

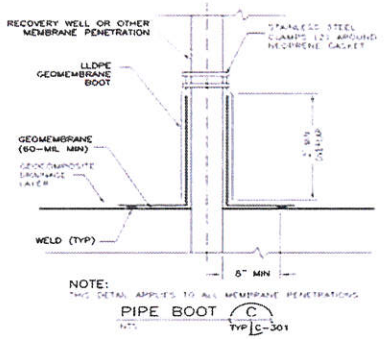
Location: Gas Vent GV-2 located at the approximate center of SA-6 North Cap on Panel P91 (approximately 107 ft. north of southern end of cap and 5 ft. east from Panel P90/P91 seam). Identified as R-409 on *As Built* and *Repair Report*.

Date: 8/9/16 **Repair Number:** R-409

Boot Log QA Form (cross-reference): 8/3/16 Gas Vent GV-2 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0900

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/3/16. Methane / spark testing completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature:

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

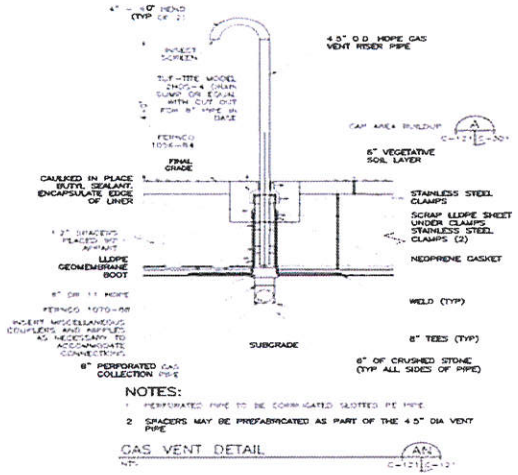
Project: Study Area 6 North

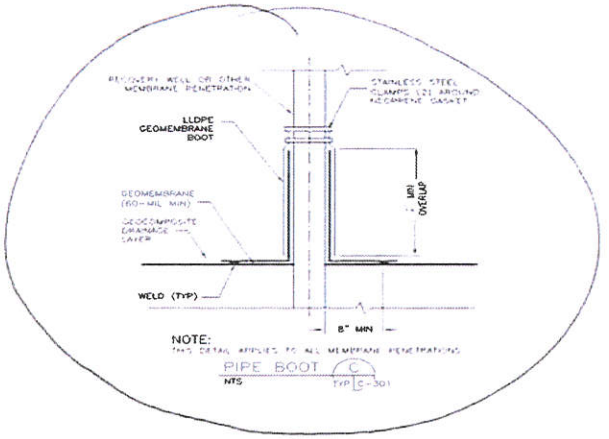
Location: Injection Well 088-IW-02 located at the approx. center of SA-6 North Cap on Panel P97 (approximately 109 ft. north of southern end of cap and 2 ft. west from Panel P97/P98 seam). Identified as R-430 on *As Built* and *Repair Report*.

Date: 8/9/16 **Repair Number:** R-430

Boot Log QA Form (cross-reference): 8/5/16 Injection Well 088-IW-02 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0840

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/5/16. Methane completed on 8/9/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

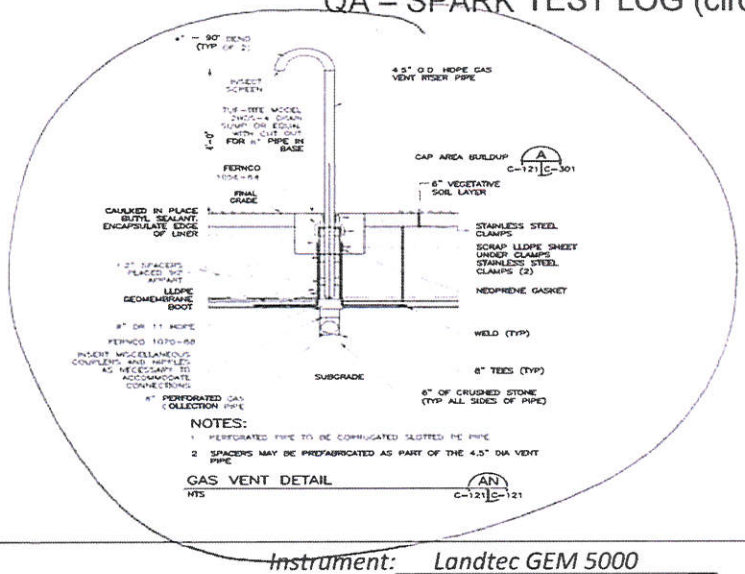
Project: Study Area 6 North

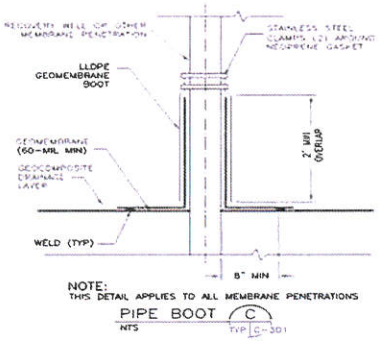
Location: Gas Vent GV-1 located at the approximate center of SA-6 North Cap on Panel P103 (approximately 113 ft. north of southern end of cap and 13 ft. east from Panel P102/P103 seam). Identified as R-449 on *As Built* and *Repair Report*.

Date: 8/12/16 **Repair Number:** R-449

Boot Log QA Form (cross-reference): 8/10/16 Gas Vent GV-1 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0800

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/10/16. Methane / spark testing completed on 8/12/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing, thus the spark test passed.

AmecFW QA Signature:

Independent CQA Monitor Signature: -LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

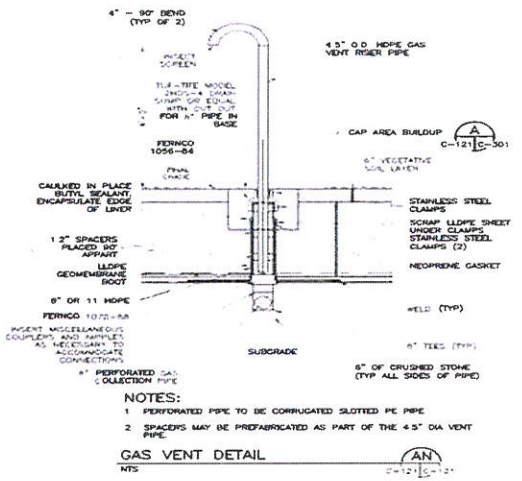
Project: Study Area 6 North

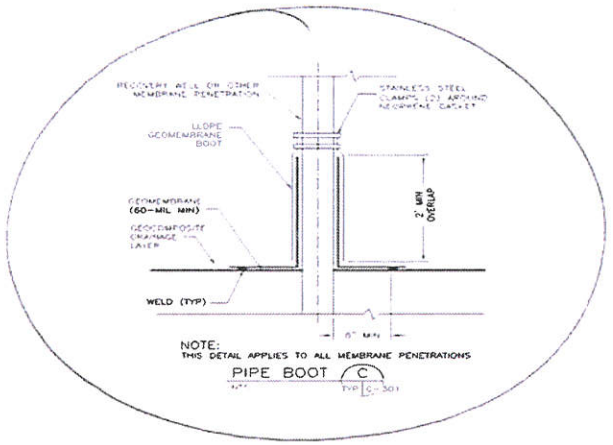
Location: Monitoring Well 115-E4-SO located along the southern end of SA-6 North on Panel P104 (approx. 6 ft. north of southern end of cap and 5 ft. east from Panel P103/P104 seam). Identified as R-450 on *As Built* and *Repair Report*.

Date: 8/12/16 **Repair Number:** R-450

Boot Log QA Form (cross-reference): 8/10/16 Monitoring Well 115-E4-SO Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0810

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D.**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D.**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Fail	Pass	CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/10/16. Methane / spark testing completed on 8/12/16 by ESI. Methane testing yielded concentration of 0.0%. As such, spark testing was conducted at the base of boot and along the vertical weld. No sparks were observed during testing of the base of the boot, thus the spark test passed. During spark testing of the vertical weld a spark was observed along the edge of the weld (weld not centered over wire) thus the test failed. The area was grinded, rewelded, and retested on 8/12/16 and no sparks were observed (spark retest passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: -LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

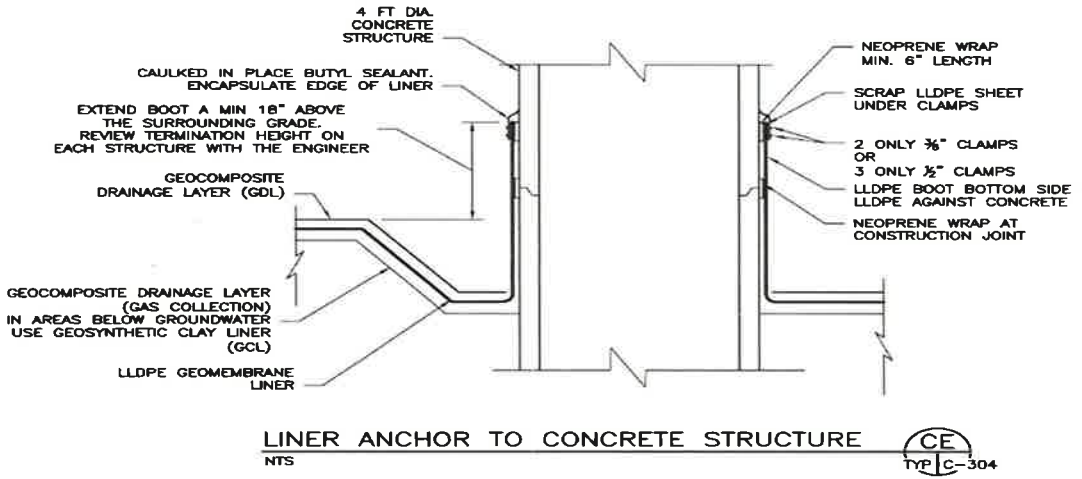
Project: Study Area 6 North

Location: Access Manhole Sta. 18+00 located near approximate center of SA-6 North Cap on Panel P113 (approximately 110 ft. north of southern end of cap and 10 ft. east of Panel P112/P113 seam). Identified as R-492 on *As Built* and *Repair Report*.

Date: 8/13/16 **Repair Number:** R-492

Boot Log QA Form (cross-reference): 8/12/16 Access Manhole Sta. 18+00 Form

QA – Spark Test Log – Manhole



Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0910

% Methane 0.0%

☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Panel Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	Thickness	Operator Initials	Voltage (kV)	AC / DC	Brush Probe	Point Probe	QCR I.D*	Pass / Fail	Retest Pass /Fail	QCR I.D*
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication completed on 8/12/16. Spark / methane testing conducted on 8/13/16. Concentration of 0.0% methane measured prior to spark testing. As such, spark testing was conducted along the base of the boot and the vertical weld and no sparks were observed (spark test passed). Additionally, vacuum box testing was conducted along vertical and horizontal extrusion welds completed for the boot construction.

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

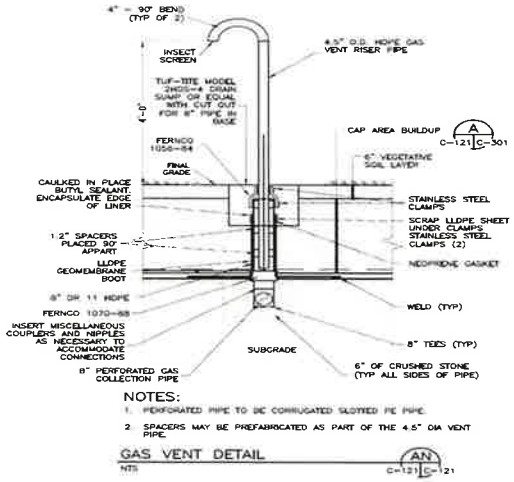
Project: Study Area 6 North

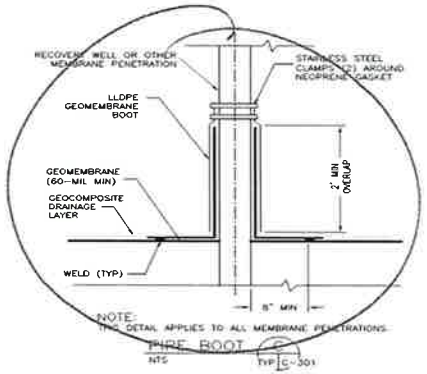
Location: Injection Well 088-IW-01 located along N end of SA-6 North Cap on Panel P114 (approx.. 206 ft. north of southern end of cap and 13 ft. east from Panel P113/P114 seam). Identified as R-493 on *As Built* and *Repair Report*.

Date: 8/13/16 **Repair Number:** R-493

Boot Log QA Form (cross-reference): 8/12/16 Injection Well 088-IW-01 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0800

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/12/16. Methane / spark testing completed on 8/13/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI at the base of boot and along the vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: - LANGAN

Honeywell

STUDY AREA 6 - CAP INSTALLATION

LANGAN

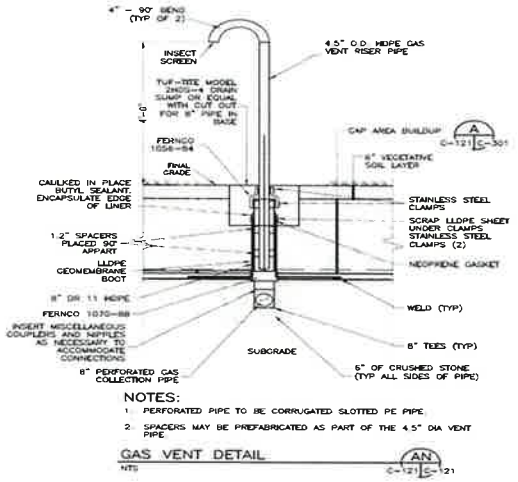
Project: Study Area 6 North

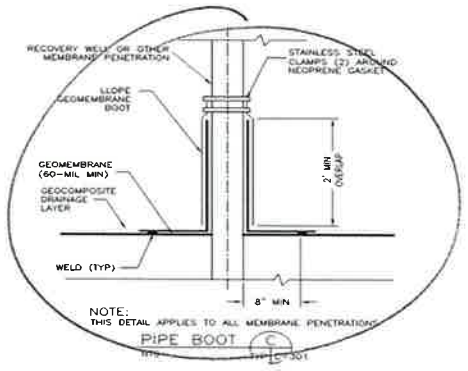
Location: Piezometer PZ2 located along northern end of SA-6 North Cap on Panel P116 (approximately 176 ft. north of southern end of cap and 13 ft. east from Panel P116/P118 seam). Identified as R-509 on *As Built* and *Repair Report*.

Date: 8/15/16 **Repair Number:** R-509

Boot Log QA Form (cross-reference): 8/15/16 Piezometer PZ2 Form

QA – SPARK TEST LOG (circle type of boot)





Methane Testing: *Instrument:* Landtec GEM 5000 *Time:* 0800

% Methane 0.0% ☒Methane < 1%; Proceed with spark testing ☐Methane > 1%; Visual observation of welds

Skirt to Boot Extrusion Weld: ☐Vacuum Box Tested ☒Spark Tested (as outlined below)

Spark Test Information

Item Tested	*Thickness*	*Operator Initials*	*Voltage (Volts)*	*AC / DC*	*Brush Probe*	*Point Probe*	*QCR I.D**	*Pass / Fail*	*Retest Pass /Fail*	*QCR I.D**
Base of boot	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP
Vertical weld	~20 Gauge Copper	TU	20,000 – 45,000	AC		Model BD-10A	CP	Pass		CP

*QCR represents the designated Quality Control representative determined by the Geosynthetic Installer

Comments: Boot fabrication and construction completed on 8/15/16. Methane / spark testing also completed on 8/15/16. Methane testing conducted by AmecFW and yielded concentration of 0.0%. As such, spark testing was conducted by ESI at the base of boot and along the vertical weld and no sparks were observed (spark test passed).

AmecFW QA Signature:

Independent CQA Monitor Signature: LANGAN

APPENDIX R

IN-SITU TREATMENT DOCUMENATION

TA-7/TA-8
MEMORANDUM 9/12/14
MEMORANDUM 8/10/16

TA-10
MEMORANDUM 10/12/15
MEMORANDUM 5/6/16
MEMORANDUM 1/12/17

Honeywell

Honeywell
101 Columbia Rd
Morristown, NJ 07962

September 12, 2014 *Via Express Mail*

Honorable Robert G. Torricelli
Office of the Special Master
49 Bridge Street, Suite 2
Lambertville, NJ 08530

Subject: SA-6 North Treatability – Areas 7 & 8
CAS Injection Test Results

Dear Senator Torricelli:

I am attaching a technical memorandum prepared by Honeywell's Engineer, Amec, which provides a summary of the post treatment analytical results for the program conducted at the chromium contaminated soils Area 7 & 8.

We are very pleased to report that this treatment program has successfully reduced the hexavalent chrome levels to below 20 mg/kg. All program implementation details and analytical results are provided in the attached memorandum. Should you have any questions on these materials please contact the undersigned.

Sincerely,

William J. Hague
Director, Remediation
Engineering and Construction

WJH:sgf

Encl: 09/09/14 Amec Memorandum: Summary of In-Situ Treatment of Hexavalent Chromium Impacted Soils, SA-6 North, Treatment Areas 7 & 8

cc: (electronic copy only)
Joe Clifford - AMEC
Michael Daneker - Arnold & Porter LLP
Jeremy Karpatkin - Arnold & Porter LLP
Dr. Bruce Bell - Carpenter Environmental Associates, Inc.
Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
Jason Watson – City Hall
Agnieszka Antonian - Connell Foley LLP
Kevin Coakley, Esq. - Connell Foley LLP
Liza Walsh - Connell Foley LLP
Frank Borin - DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella - DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross - Disposal Safety, Inc.
David Isabel - Golub & Isabel PC
Tom Byrne - Honeywell

Maria Kaouris - Honeywell
John Morris - Honeywell
Alicia Clark Alcorn - Terris, Pravlik & Millian, LLP
Kathleen Millian - Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik - Terris, Pravlik & Millian, LLP
Steve Egnaczyk - The Louis Berger Group, Inc.
Thomas Lewis - The Louis Berger Group, Inc.

Memo

Date:	**September 9, 2014**	cc:	**John Morris, Maria Kaouris, John Mojka – Honeywell Jeremy Karpatkin, Michael Daneker – A&P**
From:	**Joe Clifford/Dennis Nagg, Amec**		
To:	**Bill Hague – Honeywell**		
Subject:	**Summary of In-Situ Treatment of Hexavalent Chromium Impacted Soils, SA-6 North, Treatment Areas 7 & 8**		

This memorandum presents a summary of the in-situ treatment of hexavalent chromium (Cr(VI)) impacted soils and initial post-treatment sampling conducted adjacent to active pipelines at SA-6 North (the Site) within Treatment Areas 7 and 8 (TA-7 and TA-8). As shown in the attached tables, the analytical data demonstrate that the program succeeded in reducing Cr(VI) concentrations in soils to below the 20 milligram per kilogram (mg/kg) objective in these two treatment areas.

The in-situ approach for TA-10 was updated as a result of the barrier wall relocation proximate to the 72-inch force main and the treatment program associated with this location will be implemented and documented under separate cover.

BACKGROUND

Amec retained In-Situ Oxidative Technologies, Inc. (Isotec) of Lawrenceville, New Jersey to implement the in-situ injection of calcium polysulfide (CAPS) on behalf of Honeywell. The Amec/Isotec team implemented the in-situ program in TA-7 and TA-8 between June 17, 2013 and June 30, 2013 in accordance with the following documents:

- NJDEP Permit-by-Rule, Discharge to Groundwater Authorization, dated April 30, 2012;
- Amec's Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil, dated February 2013 (Amec Revised WP); and
- Isotec's Chromium Treatment Program Operations Plan, dated April 8, 2013 (Isotec WP).

TREATMENT AREAS

TA-7 is located within the portion of the Site occupied by the Jersey City Municipal Utilities Authority (JCMUA). Chromium-impacted soils at TA-7 are located immediately adjacent to two in-service above ground storage tank (AST) systems containing Gasoline and Diesel motor fuels and beneath the associated dispenser island used daily by JCMUA. The Cr(VI)-impacted soils exceeding 20 mg/kg were detected in TA-7 at 2 to 4 and 16 to 18 feet below existing grade during the initial remedial investigation (RI). The Cr(VI) concentration in the 2 to 4 foot depth interval was 43.6 mg/kg and the Cr(VI) concentration in the 16 to 18 foot depth interval was 84.4 mg/kg. An active 72-inch Force Main (FM) is also proximate to TA-7 to the north.

TA-8 is located within the portion of the Site occupied by the Jersey City Department of Public Works (JCDPW). Chromium-impacted soils at TA-8 are located within approximately 7 feet of a 96-inch Combined Sewer Overflow (CSO) line. The Cr(VI)-impacted soils exceeding 20 mg/kg were detected in TA-8 at a depth of 10 to 12 feet and 18 to 20 feet below existing grade during the initial RI. The Cr(VI) concentration in the 10 to 12 foot depth interval was 68.8 mg/kg and

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the Cr(VI) concentration in the 18 to 20 foot depth interval was <25.4 mg/kg (below detection limit).

INJECTION PROGRAM MOBILIZATION ACTIVITIES

As indicated in the Amec Revised WP, injections were targeted for a zone from 2 feet above to 2 feet below each contaminated zone. However, injections were not to penetrate below the meadow mat that underlies the Cr(VI)-impacted soil/fill at the Site. Therefore, prior to the initiation of the in-situ injection programs at TA-7 and TA-8, soil borings were drilled in each area to confirm the depth of the meadow mat. At both TA-7 and at TA-8 the top of the meadow mat was encountered at 17.0 feet below ground surface (ft bgs). Based on the confirmed meadow mat depths and the reported sampling intervals (samples were all identified as 2-foot intervals during the initial RI), the injection depths of the deeper intervals at TA-7 was adjusted to 14.0 to 17.0 ft bgs and at TA-8 was adjusted to 15.0 to 17.5 ft bgs. Due to the depth of the deep sample in TA-8 (18 to 20 ft bags) and the confirmed depth to the top of the meadowmat (17 ft bgs), it was decided that the deep injection at TA-8 would be implemented only to 6 inches within the top of the meadow mat, but not penetrate any further into the meadow mat. Therefore, because the deep injection intervals were cut approximately in half, the volume of diluted CAPs solution was also decreased by 50%, but the volume of stock 29% CAPs solution was not decreased, effectively doubling the concentration of the injected solution.

In addition, during drilling of the initial soil boring prior to the initiation of the in-situ injection program in TA-7, it was observed that the top 12 inches of the area consisted of up to 6 inches of asphalt and up to 6 inches of gravel sub-base. Therefore, the shallow injection program in TA-7 was adjusted to start at 1 ft bgs, instead of 0 ft bgs.

TEMPORARY MONITORING WELL INSTALLATION

In each area and at each injection interval, 1-inch diameter temporary monitoring wells were installed prior to the initiation of injections constructed from polyvinyl chloride (PVC) well screen and riser pipe material. As indicated in the Isotec Work Plan, temporary monitoring points (TMPs) were installed within each area and utility line monitoring points (ULMPs) were installed between the area and adjacent major utility pipelines to monitor propagation of the injected fluids. Additionally, during injections in TA-8, Isotec monitored the existing monitoring well, 087-MW-O29, previously installed in that area during the initial RI.

Drilling was performed using a Geoprobe® direct push drill rig (see **Photo 1** on the attached photolog). Boreholes for the temporary monitoring wells were drilled with 2-inch diameter direct push hollow casing sleeves fitted with an expendable drive point to the design depth and the 1-inch diameter PVC well screens/risers were installed within the casings. All temporary monitoring wells installed were screened at the same depth of the injection intervals; therefore, multiple wells were installed in each area to correspond to the shallow and deep injection intervals. As indicated on **Tables 3, 5, 7**, and **9**, screened intervals for all TMPs and ULMPs generally matched the injection intervals. Shallow TMPs and ULMPs were installed first and were abandoned with a cement/bentonite grout upon completion of the shallow injections and prior to installation of the deep TMPs and ULMPs. At the completion of deep injections, all remaining TMPs and ULMPs were also abandoned in the same manner.

Prior to the start of injections, baseline readings were collected from all TMPs and ULMPs as follows:

- Depth to groundwater table;

- Groundwater quality parameters, including pH, oxidation/reduction potential (ORP), specific conductivity (SC), and total dissolved solids (TDS);
- Hydrogen sulfide (H2S) in the headspace of the PVC riser pipe; and
- Groundwater color.

Once injections began, these same readings/observations were recorded in each TMP and ULMP to monitor injectant propagation. Because of their shallow depth, the temporary monitoring wells installed in TA-7 did not encounter groundwater; therefore, it was impossible to measure baseline groundwater quality parameters in the shallow zone in TA-7.

INJECTION PROGRAM

At each area, the shallow injections were completed prior to the start of the deep injections. Boreholes for injection points (IPs) were drilled with a Geoprobe® direct push drill rig. A proprietary steel well screen was then installed in the borehole with the drill rig to the design depth. Isotec conducted all mixing operations in plastic 55-gallon drums in a box truck and delivered the mixed solution using small volume double diaphragm pumps (see **Photo 2**). Up to 4 IPs were installed and injected at a time using a manifold system (see **Photo 3**).

Pertinent information concerning the in-situ injection program at TA-7 and TA-8 is summarized on **Table 1**. The layout of the completed TMPs, ULMPs, and IPs is shown on **Figure 1** and **Figure 2** for TA-7 and TA-8, respectively. A summary of the injection logs and monitoring data collected in the TMPs and ULMPs during the injections is shown on **Table 2** through **Table 9**. During mixing operations and injections, the breathing zone in the work areas and at the perimeter of the areas were monitored for odors and carbon monoxide, oxygen, H_2S, and lower explosive limit using a 4-gas meter, and volatile contaminants were monitored using a photoionization device. Samples of the groundwater from TMPs were collected periodically to check for color change (**Photo 4**).

Table 1 summarizes the operational parameters of the injection program as proposed in the Isotec Work Plan as well as those for the completed injection program to compare one to the other. The proposed and completed information on **Table 1** includes the number of IPs, the number of temporary monitoring wells, and the volume of CAPs, CAPs solution, and concentration of CAPs injected. **Table 1** also shows the calculated radius of influence (ROI) for each treatment area/zone determined by comparing the monitoring data to the distance from the injection point to the TMP at which the data was collected. As seen by **Table 1**, with Amec's approval Isotec increased the volume of stock 29% CAPs solution injected into each area/injection zone, while maintaining or increasing the concentration of the injected solution CAPs solution throughout the areas.

Because of the lack of groundwater in the shallow TMPs and ULMPs in the shallow zone in TA-7, it was not possible to obtain baseline groundwater measurements in the shallow TMPs and ULMPs and subsequently obtain measurements during injections, with one exception (see 087-TMPI-07002 on **Table 3**). Consequently, to be conservative and to verify adequate coverage of the area, with Amec's approval Isotec installed 3 extra IPs during shallow injections in TA-7 and increased the overall diluted CAPs solution volume injected while maintaining the original volume of stock CAPs solution. .

In addition, due to the initially proposed distribution of the temporary monitoring wells and IPs in both zones in TA-8, Isotec elected to install 1 additional TMP and 2 additional IPs in both injection zones in TA-8 to verify adequate coverage of the area.

As discussed above, in both TA-7 and TA-8, the deeper injection intervals were decreased by approximately 50% due to the confirmed depth of the top of meadowmat (17 ft bgs). Consequently, with Amec's approval Isotec decreased the overall diluted CAPs solution volume injected by 50%, while maintaining the original volume of stock CAPs solution.

Key observations of the injection program are summarized below:

- No noticeable smells, or readings above background levels, were noted during the injection program.
- Propagation of injectant fluids was evidenced by one or more of the following:
    - Increase in the depth to groundwater table;
    - Marked increase in pH;
    - Marked decrease in ORP;
    - Changes in SC or TDS;
    - H2S readings or odor; and
    - Change in groundwater color.
- The calculated ROIs ranged from 8 to 13 feet. Given these ROIs, it is clear that the injectant propagation covered the entire footprint of each area in both shallow and deep zones.
- Generally, no evidence of detections of injectant fluids was noted in any of the ULMPs, indicating that the injected fluids did not reach the nearby utilities. As shown on **Table 9**, during the deep zone injections in TA-8, the ORP decreased slightly in the ULMP from 12 millivolts (mV) to -106 mV after injecting for approximately 30 mins into 4 IPs, including the closest IP (087-IP-08009). The ORP rebounded to 64 mV 70 minutes later, at which point injections into 2 additional IPs and 2 repeated IPs were coming to a close. This localized and temporary decrease in ORP in the TA-8 ULMP is likely due to a minor detection of diluted CAPs solution from 087-IP-08009. Given that the TA-8 ULMP is only 8 feet from this IP and the 96-inch CSO is approximately 15 feet from this IP (slightly farther than observed ROI in this area), it is unlikely that injected fluids reached the utility in any significant quantity. .

PERFORMANCE ASSESSMENT SOIL SAMPLING

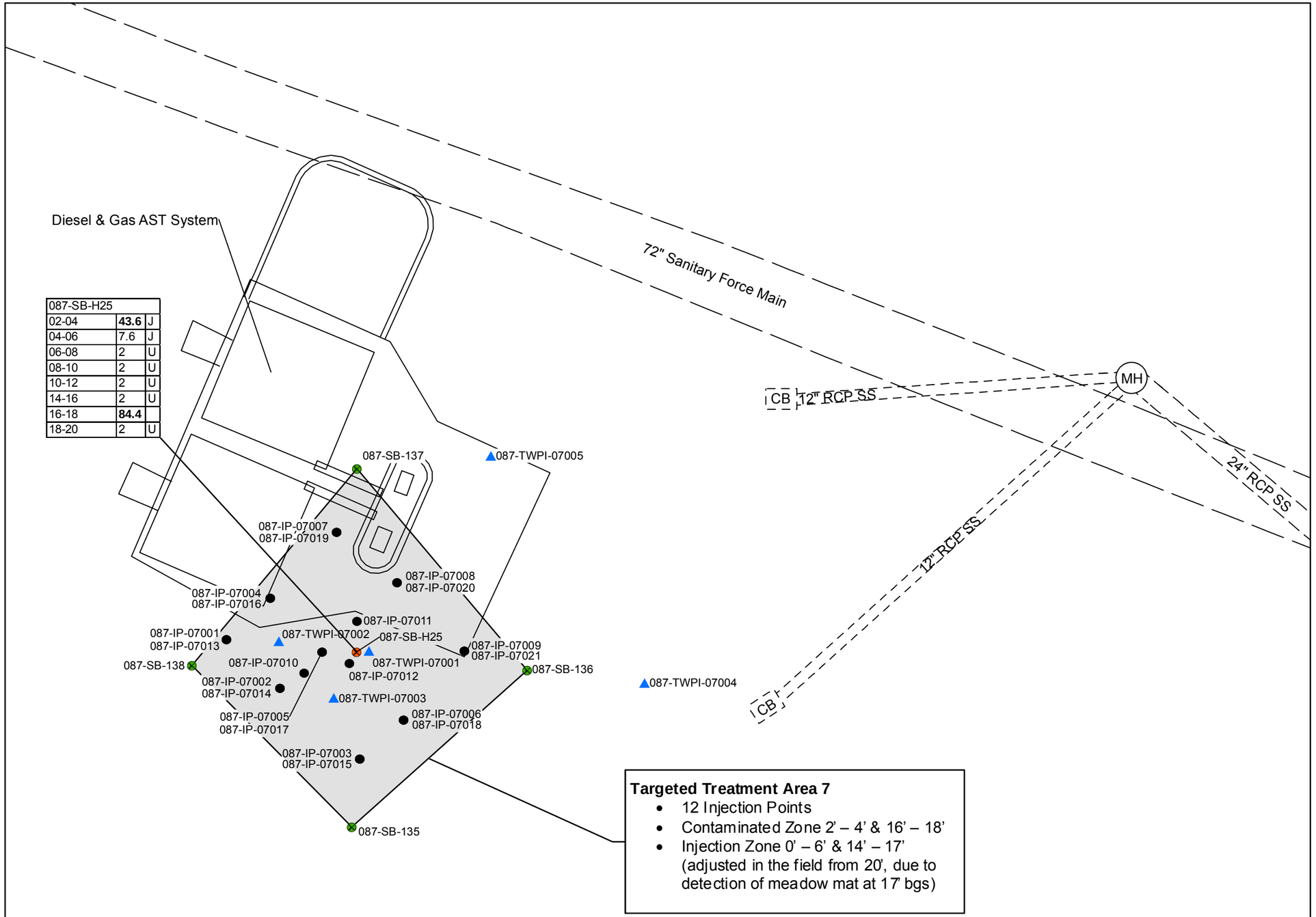
In June 2014, Honeywell authorized Amec to collect performance assessment soil samples in each treatment area and at each treatment zone. These samples were collected in accordance with the Amec Revised WP by drilling 2 soil borings no more than 15 feet apart and straddling the original soil borings which exhibited the elevated Cr(VI) concentrations during the initial RI. The soil borings were drilled with a Geoprobe® direct push drill rig and soil was obtained for the samples in 4-foot long acetate sleeves fitted into a Geoprobe® steel macro core sampler. In accordance with the Amec Revised WP, samples were collected from each boring from 1 foot intervals and the entire 1 foot interval was homogenized and placed into laboratory-provided sample jars for analysis. All samples were analyzed for total chromium and Cr(VI) using

USEPA Method 3060A/7199, Eh and pH, and sulfides using USEPA Method 9030b by Accutest Laboratories of Dayton, New Jersey.

In TA-7, soil borings 087-SB-454 and 087-SB-455 were drilled and in TA-8, soil borings 087-SB-452 and 087-SB-453 were drilled at the locations shown on **Figures 3** and **4**, respectively.

The analytical data is summarized on **Tables 10A** and **10B** for TA-7 and **Tables 11A** and **11B** for TA-8. For comparison, the initial RI samples are included on the tables. As indicated by the analytical results, all performance assessment soil samples collected were below 20 mg/kg for Cr(VI). Thus, the data support that the in-situ injection program was successful at treating the Cr(VI)-impacted soils at TA-7 and TA-8.

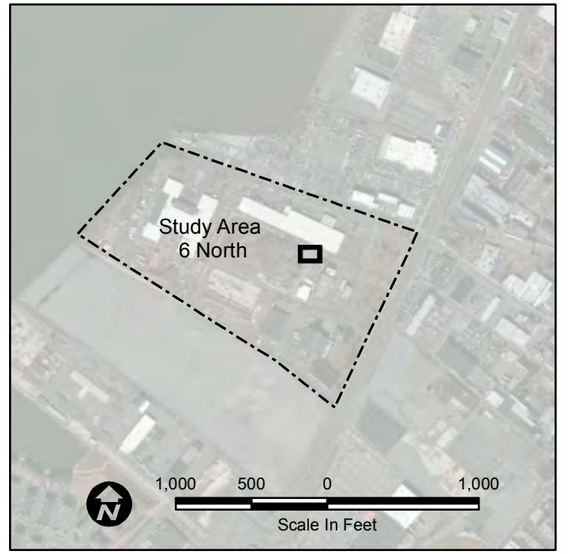
FIGURES



087-SB-H25		
02-04	**43.6**	J
04-06	7.6	J
06-08	2	U
08-10	2	U
10-12	2	U
14-16	2	U
16-18	**84.4**	
18-20	2	U

Targeted Treatment Area 7

- 12 Injection Points
- Contaminated Zone 2' – 4' & 16' – 18'
- Injection Zone 0' – 6' & 14' – 17' (adjusted in the field from 20', due to detection of meadow mat at 17' bgs)



Legend

- Temporary Well Point
- Injection Point
- Previous Soil Sample Location (Hexavalent Chromium Result < 20 ppm)
- Previous Soil Sample Location (Hexavalent Chromium Result > 20 ppm)
- SS — Storm Sewer
- CB — Catch Basin
- MH — Manhole
- Treatment Area 7

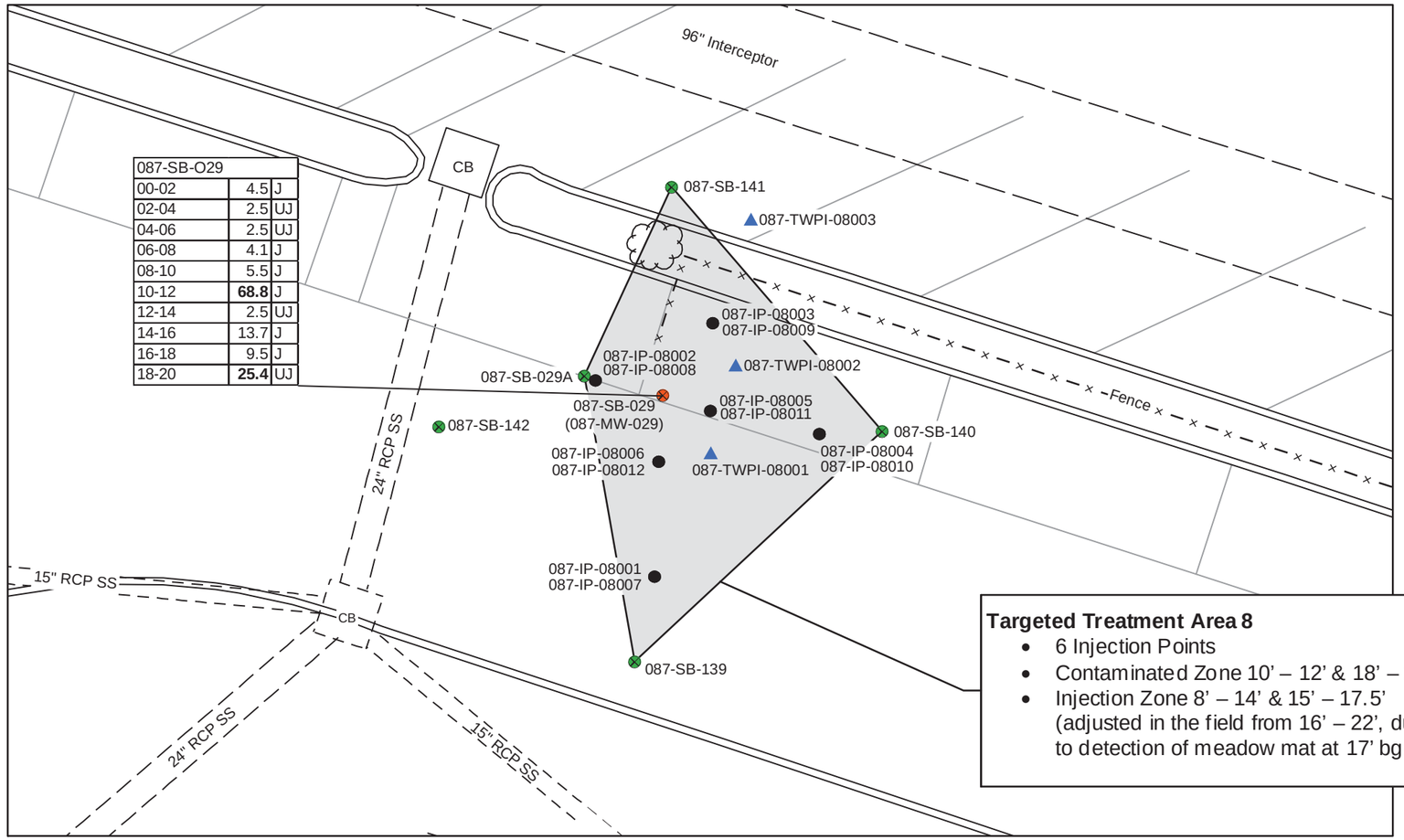
10 5 0 10

Scale In Feet

	Project Number: 3480110298	
	Prepared/Date: WSL 06/25/2013	Checked/Date: JR 07/01/2013

amec
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

Figure 1
Treatment Area 7
In-situ Chemical Injection Treatment Process
Study Area 6 North
Jersey City, New Jersey



087-SB-O29		
00-02	4.5	J
02-04	2.5	UJ
04-06	2.5	UJ
06-08	4.1	J
08-10	5.5	J
10-12	**68.8**	J
12-14	2.5	UJ
14-16	13.7	J
16-18	9.5	J
18-20	**25.4**	UJ

Targeted Treatment Area 8

- 6 Injection Points
- Contaminated Zone 10' – 12' & 18' – 20'
- Injection Zone 8' – 14' & 15' – 17.5' (adjusted in the field from 16' – 22', due to detection of meadow mat at 17' bgs)

Legend

- Temporary Well Point
- Injection Point
- Previous Soil Sample Location (Hexavalent Chromium Result < 20 ppm)
- Previous Soil Sample Location (Hexavalent Chromium Result > 20 ppm)
- SS — Storm Sewer
- CB — Catch Basin
- MH — Manhole
- Treatment Area 8

10 5 0 10

Scale In Feet

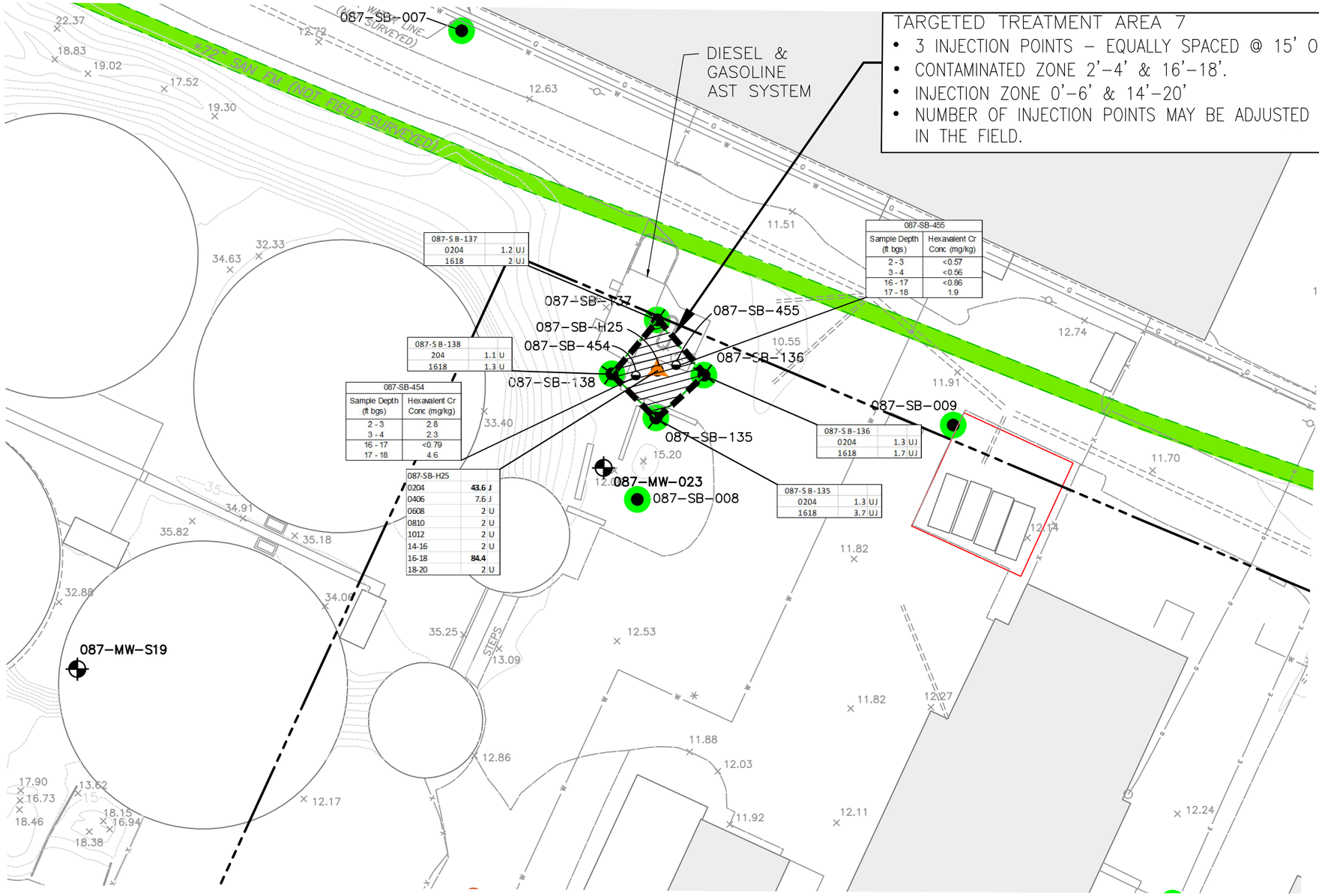
Project Number: 3480110298

Prepared/Date: WSL 06/26/2013

Checked/Date: xx xx/xx/2013

amec
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

Figure 2
Treatment Area 8
In-situ Chemical Injection Treatment Process
Study Area 6 North
Jersey City, New Jersey



LEGEND

- EXISTING SHALOW MONITORING WELL LOCATIONS ASSOCIATED WITH CHROMIUM REMEDIAL INVESTIGATION
- EXISTING DEEP MONITORING WELL LOCATIONS ASSOCIATED WITH CHROMIUM REMEDIAL INVESTIGATION
- EXISTING MONITORING WELL LOCATIONS ASSOCIATED WITH PREVIOUS UST INVESTIGATIONS NOTED IN THE FIELD ON JCIA AND JCMUA PROPERTIES (LOCATION IDs ASSIGNED BY MACTEC 2005)
- PDI SOIL BORINGS
- PREVIOUS RIR SOIL BORING LOCATIONS COMPLETED
- SEDIMENT BASIN HORIZONTAL DRILLING
- PDI BORING (APRIL 2009)
- POST–TREATMENT SOIL BORING LOCATION
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20–240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 72" FORCEMAIN SANITARY SEWER
- 96" COMBINED SEWER OUTLET
- 84" SANITARY SEWER
- 54" OUTFALL (ABANDONED)
- CONSERVATION EASEMENT
- PROPOSED SLURRY WALL
- LIMITS OF TARGETED IN–SITU TREATMENT
- EXISTING BUILDINGS
- IN–SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

0 20 40 80

SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
2	08/26/14	ADD POST–TREATMENT SAMPLE LOCATIONS	STR	DN
1	12/05/11	REVISE CALLOUT, UPDATE TITLE BLOCK	STR	TT

AMEC PROJECT No. 3480110298
DRAWING:
TARGETED IN–SITU TREATMENT AREAS–03

PREPARED/DATE: STR 03/03/10

CHECKED/DATE: TT 03/03/10

amec
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FI□□RE □
TAR□ETED IN-SIT□
TREATMENT AREA □
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\REPORT\TARGETED IN-SITU TREATMENT AREAS-03.dwg Tue, 26 Aug 2014 - 2:20pm scott.rudkin Layout: FIG 3

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P:\CAD\VONEWELL\JERSEY CITY\SA 6 NORTH\REPORT\TARGETED IN-SITU TREATMENT AREAS-03.dwg Tue, 26 Aug 2014 - 2:26pm scott.rudkin Layout: FIG 4

N

087-SB-001
087-SB-031
087-SB-003
087-SB-026
087-SB-037
087-SB-002
087-SB-029
087-SB-141
087-MW-029T
087-SB-452
087-SB-453
087-SB-142
087-SB-140
087-SB-029A
087-MW-029
087-SB-139

96" COMBINED SEWER OUTFALL

087-SB-029	
0002	4.5 J
0204	2.5 UJ
0406	2.5 UJ
0608	4.1 J
0810	5.5 J
1012	**68.8 J**
1214	2.5 UJ
1416	13.7 J
1618	9.5 J
1820	25.4 UJ

087-SB-141	
1012	1.1 U
1820	1.3

087-SB-452	
Sample Depth (ft bgs)	Hexavalent Cr Conc (mg/kg)
10 - 11	<0.54
11 - 12	0.73
17 - 18	<0.70
18 - 19	<9.1

087-SB-453	
Sample Depth (ft bgs)	Hexavalent Cr Conc (mg/kg)
10 - 11	1.3
11 - 12	<0.49
17 - 18	0.79
18 - 19	<11

087-SB-142	
1012	1 U
1820	14 U

087-SB-140	
1012	1 U
1820	14 U

087-SB-029A	
10.5-11 ft	1.1 U
18.5-19 ft	1 U

087-SB-139	
1012	1.9 UJ
1820	1.2 UJ

TARGETED TREATMENT AREA 8
- 1 INJECTION POINT
- CONTAMINATED ZONE 10'–12' & 18'–20'
- INJECTION ZONE 8'–14' & 16'–22'
- NUMBER OF INJECTION POINTS MAY BE ADJUSTED IN THE FIELD

LEGEND

- EXISTING SHALOW MONITORING WELL LOCATIONS ASSOCIATED WITH CHROMIUM REMEDIAL INVESTIGATION
- EXISTING DEEP MONITORING WELL LOCATIONS ASSOCIATED WITH CHROMIUM REMEDIAL INVESTIGATION
- EXISTING MONITORING WELL LOCATIONS ASSOCIATED WITH PREVIOUS UST INVESTIGATIONS NOTED IN THE FIELD ON JCIA AND JCMUA PROPERTIES (LOCATION IDs ASSIGNED BY MACTEC 2005)
- PDI SOIL BORINGS
- PDI BORING (APRIL 2009)
- POST–TREATMENT SOIL BORING LOCATION
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20–240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 96" COMBINED SEWER OUTLET
- LIMITS OF TARGETED IN–SITU TREATMENT
- EXISTING BUILDINGS
- IN–SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

0 20 40 80
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
3	08/26/14	ADD POST–TREATMENT SAMPLE LOCATIONS	STR	DN
2	12/12/12	REVISE IN–SITU AREA	DL	AG
1	12/05/11	REVISE CALLOUT, UPDATE TITLE BLOCK	STR	TT

AMEC PROJECT No. 3480110298
DRAWING: TARGETED IN–SITU TREATMENT AREAS–03

PREPARED/DATE: STR 03/03/10

CHECKED/DATE: TT 03/03/10

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FI□□RE □
TAR□ETED IN-SIT□
TREATMENT AREA □
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

TABLES

TABLE 1
SUMMARY OF IN-SITU INJECTION PROGRAM AT TREATMENT AREAS 7 AND 8

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

			PROPOSED PER ISOTEC WORK PLAN						COMPLETED											
Area	**Injection Zone**	**Injection Date(s)**	**Injection Depth (ft bgs)**	**No. of Temp Injection Points**	**No. of Temporary Monitoring Wells**	**Stock Solution Volume (~29% CAPS) (gals)**	**Diluted CAPS Sol'n Injection Volume (gals)**	**Approx. CAPS Injection Concentration (%)**	**Injection Depth (feet bgs)**	**No. of IPs**	**No. of Temp Monitoring Wells**	**Stock Solution Volume (~29% CAPS) (gals)**	**Diluted CAPS Sol'n Injection Volume (gals)**	**Approx. CAPS Injection Concentration (%)**	**Injection Time (mins)**	**Avg. Injection Flow Rate (gpm)**	**IP Pressure Range Min (psi)**	**IP Pressure Range Max (psi)**	**Minimum Radius of Influence (ft)**	**Notes**
7	Shallow	6/17 - 6/18/2013	0.0-6.0	9	5*	105	2,074	1.47%	1.0-6.0	12	5*	108	2,703	0.75 - 1.5%	1,073	2.87	0.0	5.0	8.0	No problems noted while injecting.
7	Deep	6/19 - 6/20/2013	14.0-20.0	9	5*	201	2,074	2.8%	14.0-17.0	9	5*	216	1,035	6.1%	522	2.07	0.0	10.0	13.0	No problems noted while injecting.
8	Shallow	6/29/2013	8.0-14.0	4	2**	111	1,407	2.3%	8.0-14.0	6	3**	120	1,409	2.5%	318	4.44	0.0	8.0	12.0	No problems noted while injecting.
8	Deep	6/30/2013	16.0-22.0	4	2**	39	1,407	0.8%	15.0-17.5	6	3**	48	704	2.0%	200	3.66	0.0	30.0	13.0	No problems noted while injecting.

Notes:
* For TA-7, 3 temporary monitoring wells (TMWs) were proposed and installed within the area and 2 utility line monitoring points (ULMPs) were proposed and installed between the area and the 72-inch Force Main.
** For TA-8, 1 TMW was proposed within the area and 1 ULMPs was proposed and installed between the area and the 96-inch Combined Sewer Outfall. To increase the monitoring of injections withing the area, 2 TMWs were installed. In addition, the existing shallow monitoring well in TA-8, 087-MW-O29, was used for monitoring.
ft = Feet
bgs = Below Ground Surface
gals = Gallons
mins = Minutes
gpm = Gallons per Minute
psi = Pounds per Square Inch
CAPS = Calcium Polysulfide
IP = Injection Point

TABLE 2
IN-SITU INJECTION LOG AT TREATMENT AREA 7 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Injection Point ID	Injection Date	Injection Depth (feet BGS)	Injection Start Time	Injection Stop Time	CAPS Injection Concentration	CAPS Injection Time (mins)	CAPS Injection Volume (gallons)	Stock Solution Volume (~29% CAPS) (gallons)	CAPS Injection Flow Rate (gals/min)	IP Pressure Range (psi)	Notes
087-IP7001	17-Jun-13	1.0-6.0	12:13 PM	2:20 PM	~1.5%	127	230	12.0	1.81	0-2	No problems noted while injecting.
087-IP7002	18-Jun-13	1.0-6.0	9:25 AM	11:30 AM	~1.5%	125	230	12.0	1.84	0-2	No problems noted while injecting.
087-IP7003	17-Jun-13	1.0-6.0	12:50 PM	2:36 PM	~1.5%	106	230	12.0	2.17	0-2	No problems noted while injecting.
087-IP7004	18-Jun-13	1.0-6.0	12:50 PM	1:14 PM	~0.75%	24	57.5	1.5	2.40	0-2	No problems noted while injecting.
087-IP7004	18-Jun-13	1.0-6.0	2:00 PM	2:19 PM	~0.75%	19	57.5	1.5	3.03	0-5	No problems noted while injecting.
087-IP7004	18-Jun-13	1.0-6.0	2:25 PM	2:45 PM	~0.75%	20	57.5	1.5	2.88	0-5	No problems noted while injecting.
087-IP7004	18-Jun-13	1.0-6.0	3:21 PM	3:40 PM	~0.75%	19	57.5	1.5	3.03	0-5	No problems noted while injecting.
087-IP7005	17-Jun-13	1.0-6.0	2:34 PM	3:54 PM	~1.5%	80	230	12.0	2.88	0-2	No problems noted while injecting.
087-IP7006	17-Jun-13	1.0-6.0	2:15 PM	3:46 PM	~1.5%	91	230	12.0	2.53	0-2	No problems noted while injecting.
087-IP7007	18-Jun-13	1.0-6.0	11:00 AM	11:48 AM	~1.5%	48	57.5	3.0	1.20	0-2	No problems noted while injecting.
087-IP7007	18-Jun-13	1.0-6.0	2:00 PM	2:19 PM	~0.75%	19	57.5	1.5	3.03	0-2	No problems noted while injecting.
087-IP7007	18-Jun-13	1.0-6.0	2:25 PM	2:45 PM	~0.75%	20	57.5	1.5	2.88	0-2	No problems noted while injecting.
087-IP7008	18-Jun-13	1.0-6.0	1:35 PM	1:50 PM	~0.75%	15	57.5	1.5	3.83	0-2	No problems noted while injecting.
087-IP7008	18-Jun-13	1.0-6.0	2:00 PM	2:19 PM	~0.75%	19	57.5	1.5	3.03	0-2	No problems noted while injecting.
087-IP7008	18-Jun-13	1.0-6.0	2:49 PM	3:18 PM	~0.75%	29	115	3.0	3.97	0-2	No problems noted while injecting.
087-IP7009	18-Jun-13	1.0-6.0	9:18 AM	10:48 AM	~1.5%	90	230	12.0	2.56	0-2	No problems noted while injecting.
087-IP7010	18-Jun-13	1.0-6.0	12:50 PM	1:14 PM	~0.75%	24	57.5	1.5	2.40	0-4	No problems noted while injecting.
087-IP7010	18-Jun-13	1.0-6.0	1:15 PM	1:34 PM	~0.75%	19	57.5	1.5	3.03	0-4	No problems noted while injecting.
087-IP7010	18-Jun-13	1.0-6.0	2:25 PM	2:45 PM	~0.75%	20	57.5	1.5	2.88	0-5	No problems noted while injecting.
087-IP7010	18-Jun-13	1.0-6.0	2:49 PM	3:08 PM	~0.75%	19	57.5	1.5	3.03	0-5	No problems noted while injecting.
087-IP7011	18-Jun-13	1.0-6.0	12:50 PM	1:14 PM	~0.75%	24	57.5	1.5	2.40	0-2	No problems noted while injecting.
087-IP7011	18-Jun-13	1.0-6.0	1:15 PM	1:34 PM	~0.75%	19	57.5	1.5	3.03	0-2	No problems noted while injecting.
087-IP7011	18-Jun-13	1.0-6.0	1:35 PM	1:50 PM	~0.75%	15	57.5	1.5	3.83	0-2	No problems noted while injecting.
087-IP7011	18-Jun-13	1.0-6.0	3:21 PM	3:40 PM	~0.75%	19	57.5	1.5	3.03	0-2	No problems noted while injecting.
087-IP7012	18-Jun-13	1.0-6.0	1:15 PM	1:34 PM	~0.75%	19	57.5	1.5	3.03	0-2	No problems noted while injecting.
087-IP7012	18-Jun-13	1.0-6.0	1:35 PM	1:50 PM	~0.75%	15	57.5	1.5	3.83	0-2	No problems noted while injecting.
087-IP7012	18-Jun-13	1.0-6.0	2:49 PM	3:18 PM	~0.75%	29	115	3.0	3.97	0-2	No problems noted while injecting.
TOTAL VOLUME (Gallons)/ AVERAGE FLOW RATE (Gals/Min)							**2,702.5**	**108**	**2.87**		

Notes:

BGS =	Below Ground Surface
Gals =	Gallons
Min =	Minutes
Gals/Min =	Gallons per Minute
IP =	Injection Point
psi =	Pounds per Square Inch
CAPS =	Calcium Polysulfide

Cells shaded gray indicate that the concentration injected into a given location was ~0.75% as opposed to ~1.50% which was the proposed concentration. The concentration was reduced so that additional volume of reagent could be injected to the unsaturated zone to assist in obtaining increased radial distribution to verify propagation.

TABLE 3
SUMMARY OF IN-SITU INJECTION PROGRAM/MONITORING AT TREATMENT AREA 7 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	Type of Monitoring Point	Screened Depth (feet BGS)	Monitoring Date	Time	Water Depth (feet BGS)	Conductivity (uS)	ORP (mV)	pH	TDS (ppm)	H2S Reading (ppm)	H2S Smell	Water Color	Notes
087-TWPI-07001	TMP	0-6	17-Jun-13	11:45 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07001			17-Jun-13	1:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07001			17-Jun-13	4:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07001			18-Jun-13	11:00 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07001			18-Jun-13	2:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07001			18-Jun-13	3:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07002	TMP	0-6	17-Jun-13	11:45 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07002			17-Jun-13	1:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07002			17-Jun-13	4:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07002			18-Jun-13	11:00 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07002			18-Jun-13	1:00 PM	1.00	3563	-460	9.86	2646	0.0	Yes	Dark green/yellowish, black (turbid)	Injections into IP's 4, 10 and 11 were influencing this well.
087-TWPI-07002			18-Jun-13	2:00 PM	1.50	5488	-470	10.17	4304	0.0	Yes	Dark green/yellowish, brown (turbid)	Injections into IP's 4, 10 and 11 were influencing this well.
087-TWPI-07002			18-Jun-13	3:00 PM	1.50	NA	NA	NA	NA	None	Yes	Dark green/yellowish, brown (turbid)	Injections into IP's 4, 10 and 11 were influencing this well.
087-TWPI-07003	TMP	0-6	17-Jun-13	11:45 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07003			17-Jun-13	1:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07003			17-Jun-13	4:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry. Oxygen levels were going down (AMEC data).
087-TWPI-07003			18-Jun-13	11:00 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07003			18-Jun-13	2:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07003			18-Jun-13	3:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07004	ULMP	0-6	17-Jun-13	11:45 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07004			17-Jun-13	1:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07004			17-Jun-13	4:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07004			18-Jun-13	11:00 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07004			18-Jun-13	3:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07005	ULMP	0-6	17-Jun-13	11:45 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07005			17-Jun-13	1:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07005			17-Jun-13	4:30 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07005			18-Jun-13	11:00 AM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.
087-TWPI-07005			18-Jun-13	3:00 PM	NA	NA	NA	NA	NA	None	None	No Water Available for Sample Collection	Wells were dry.

Notes:

TWP =	Temporary Well Point
BGS =	Below Ground Surface
uS =	Micro Siemens
mV =	Milli Volts
PPM =	Parts per Million
NA =	Parameter was not analyzed.
H2S =	Hydrogen Sulfide

Prepared By: DEN 8/22/14
Checked By:

TABLE 4
IN-SITU INJECTION LOG AT TREATMENT AREA 7 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Injection Point ID	Injection Date	Injection Depth (feet BGS)	Injection Start Time	Injection Stop Time	CAPS Injection Concentration*	CAPS Injection Time (mins)	CAPS Injection Volume (gallons)	Stock Solution Volume (~29% CAPS) (gallons)	CAPS Injection Flow Rate (gals/min)	IP Pressure Range (psi)	Notes
087-IP7013	20-Jun-13	14.0-17.0	10:00 AM	10:53 AM	~6.0%	53	115	24.0	2.17	8-10	No problems noted while injecting.
087-IP7014	20-Jun-13	14.0-17.0	10:00 AM	11:07 AM	~6.0%	67	115	24.0	1.72	8-10	No problems noted while injecting.
087-IP7015	20-Jun-13	14.0-17.0	10:00 AM	10:56 AM	~6.0%	56	115	24.0	2.05	6-8	No problems noted while injecting.
087-IP7016	20-Jun-13	14.0-17.0	10:00 AM	11:10 AM	~6.0%	70	115	24.0	1.64	0-5	No problems noted while injecting.
087-IP7017	19-Jun-13	14.0-17.0	11:20 AM	11:56 AM	~6.0%	36	57.5	12.0	1.60	0-5	No problems noted while injecting.
087-IP7017	19-Jun-13	14.0-17.0	1:02 PM	1:25 PM	~6.0%	23	57.5	12.0	2.50	0-5	No problems noted while injecting.
087-IP7018	19-Jun-13	14.0-17.0	11:20 AM	11:56 AM	~6.0%	36	57.5	12.0	1.60	0-2	No problems noted while injecting.
087-IP7018	19-Jun-13	14.0-17.0	1:02 PM	1:25 PM	~6.0%	23	57.5	12.0	2.50	0-2	No problems noted while injecting.
087-IP7019	19-Jun-13	14.0-17.0	2:50 PM	3:30 PM	~6.0%	40	115	24.0	2.88	0-2	No problems noted while injecting.
087-IP7020	19-Jun-13	14.0-17.0	11:20 AM	11:56 AM	~6.0%	36	57.5	12.0	1.60	0-5	No problems noted while injecting.
087-IP7020	19-Jun-13	14.0-17.0	1:02 PM	1:25 PM	~6.0%	23	57.5	12.0	2.50	0-5	No problems noted while injecting.
087-IP7021	19-Jun-13	14.0-17.0	11:20 AM	11:56 AM	~6.0%	36	57.5	12.0	1.60	0-5	No problems noted while injecting.
087-IP7021	19-Jun-13	14.0-17.0	1:02 PM	1:25 PM	~6.0%	23	57.5	12.0	2.50	0-5	No problems noted while injecting.
TOTAL VOLUME (Gallons)/ AVERAGE FLOW RATE (Gals/Min)							**1,035**	**216**	**2.07**		

Notes:

BGS = Below Ground Surface
Gals = Gallons
Min = Minutes
Gals/Min = Gallons per Minute
IP = Injection Point
psi = Pounds per Square Inch
CAPS = Calcium Polysulfide
* = The concentration injected into a given location was ~6.0% as opposed to ~3.0% which was the proposed concentration. The concentration was increased because the vertical interval was decreased from 14-20 ft bgs (6 ft thickness) to 14-17 ft bgs (3 ft thickness) due to the depth of the underlying meadow mat occurring at ~17 ft bgs.

P:\Active Projects\Honeywell_Jersey City\SA-6\SA-6 North Cr DGW\SA-6 N In-Situ Implementation\August 2014 Data Dump\
Treatment Program Summary (SA-6N - Area 7_082214.xlsx
Prepared By: DEN 8/25/14
Checked By:

TABLE 5
SUMMARY OF IN-SITU INJECTION PROGRAM/MONITORING AT TREATMENT AREA 7 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	Type of Monitoring Point	Screened Depth (feet BGS)	Monitoring Date	Time	Water Depth (feet BGS)	Conductivity (uS)	ORP (mV)	pH	TDS (ppm)	H2S Reading (ppm)	H2S Smell	Water Color	Notes
087-TWPI-07001	TMP	14-18	19-Jun-13	10:20 AM	7.41	4229	-144	7.37	3241	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-07001			19-Jun-13	12:00 PM	1.15	2483	-190	7.32	1793	8.0	None	Brown (turbid)	
087-TWPI-07001			19-Jun-13	1:30 PM	0.00	2922	-405	8.58	2121	26.0	Yes	Dark Green	Injections into IP's 17, 18, 20 and 21 were influencing this well.
087-TWPI-07001			19-Jun-13	3:30 PM	5.70	2785	-412	8.45	2034	32.0	Yes	Green	Injections into IP's 17, 18, 20 and 21 were influencing this well.
087-TWPI-07001			20-Jun-13	8:30 AM	7.35	2792	-412	8.64	2048	53.0	Yes	Green	Injections into IP's 17, 18, 20 and 21 were influencing this well.
087-TWPI-07001			20-Jun-13	10:30 AM	1.40	2891	-415	8.58	2103	6.0	Yes	Green	Injections into IP's 17, 18, 20 and 21 were influencing this well.
087-TWPI-07001			20-Jun-13	11:45 AM	5.45	2910	-420	8.41	2107	0.0	Yes	Green	Injections into IP's 17, 18, 20 and 21 were influencing this well.
087-TWPI-07002	TMP	14-17	19-Jun-13	10:20 AM	7.45	3410	-112	6.98	2565	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-07002			19-Jun-13	12:00 PM	7.10	3133	-173	7.31	2310	1.0	None	Brown (turbid)	
087-TWPI-07002			19-Jun-13	1:30 PM	7.15	2817	-174	7.04	2027	1.0	None	Clear	
087-TWPI-07002			19-Jun-13	3:30 PM	7.10	2807	-160	7.31	2053	1.0	None	Clear	
087-TWPI-07002			20-Jun-13	8:30 AM	7.46	2738	-180	7.41	2004	0.0	None	Clear	
087-TWPI-07002			20-Jun-13	10:30 AM	2.77	2768	-164	7.40	2044	0.0	None	Clear	
087-TWPI-07002			20-Jun-13	11:45 AM	6.05	2896	-246	7.78	2101	1.0	Yes (slight odor)	Black	Injections into IP's 13, 14, 15 and 16 were influencing this well.
087-TWPI-07003	TMP	14-17	19-Jun-13	10:20 AM	9.00	2772	-143	7.64	2034	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-07003			19-Jun-13	12:00 PM	2.20	3018	-171	7.69	2212	1.0	None	Clear	
087-TWPI-07003			19-Jun-13	1:30 PM	3.45	2976	-125	7.73	2169	1.0	None	Clear	
087-TWPI-07003			19-Jun-13	3:30 PM	6.00	2907	-132	7.64	2116	0.0	None	Brown (slightly turbid)	
087-TWPI-07003			20-Jun-13	8:30 AM	7.52	2893	-170	7.73	2132	0.0	None	Brown (slightly turbid)	
087-TWPI-07003			20-Jun-13	10:30 AM	0.00	4021	-439	8.46	3016	433.0	Yes	Light Green	Injections into IP's 13, 14, 15 and 16 were influencing this well.
087-TWPI-07003			20-Jun-13	11:45 AM	5.27	3753	-435	8.43	2806	3.0	Yes	Green	Injections into IP's 13, 14, 15 and 16 were influencing this well.
087-TWPI-07004	ULMP	14-17	19-Jun-13	10:20 AM	7.75	3421	-173	7.47	2556	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-07004			19-Jun-13	12:00 PM	2.80	2987	-177	7.30	2193	1.0	None	Brown (turbid)	
087-TWPI-07004			19-Jun-13	1:30 PM	4.15	2980	-164	7.29	2179	0.0	None	Clear	
087-TWPI-07004			19-Jun-13	3:30 PM	5.70	2983	-144	7.24	2163	0.0	None	Clear	
087-TWPI-07004			20-Jun-13	8:30 AM	6.55	2977	-150	7.28	2203	0.0	None	Clear	
087-TWPI-07004			20-Jun-13	10:30 AM	4.95	2986	-141	7.27	2192	0.0	None	Clear	
087-TWPI-07004			20-Jun-13	11:45 AM	5.51	2946	-147	7.31	2146	0.0	None	Clear	
087-TWPI-07005	ULMP	14-17	19-Jun-13	10:20 AM	8.50	2400	-144	7.15	1730	0.0	None	Brown (slightly turbid)	Baseline sample.
087-TWPI-07005			19-Jun-13	12:00 PM	4.30	2701	-171	7.24	1974	0.0	None	Brown (slightly turbid)	
087-TWPI-07005			19-Jun-13	1:30 PM	5.30	2600	-159	7.26	1868	0.0	None	Clear	
087-TWPI-07005			19-Jun-13	3:30 PM	6.30	2835	-167	7.23	2051	0.0	None	Brown/Clear	
087-TWPI-07005			20-Jun-13	8:30 AM	6.90	2618	-135	7.28	1909	0.0	None	Brown/Clear	
087-TWPI-07005			20-Jun-13	10:30 AM	5.95	2758	-144	7.24	2018	0.0	None	Clear	
087-TWPI-07005			20-Jun-13	11:45 AM	6.35	2697	-161	7.25	1943	0.0	None	Clear	

Notes:

TWP =	Temporary Well Point
BGS =	Below Ground Surface
uS =	Micro Siemens
mV =	Milli Volts
PPM =	Parts per Million
NA =	Parameter was not analyzed.
H2S =	Hydrogen Sulfide

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Treatment Program Summary (SA-6N - Area 7_082214.xlsx
Prepared By: DEN 8/22/14
Checked By:

TABLE 6
IN-SITU INJECTION LOG AT TREATMENT AREA 8 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Injection Point ID	Injection Date	Injection Depth (feet BGS)	Injection Start Time	Injection Stop Time	CAPS Injection Concentration	CAPS Injection Time (mins)	CAPS Injection Volume (gallons)	Stock Solution Volume (~29% CAPS) (gallons)	CAPS Injection Flow Rate (gals/min)	IP Pressure Range (psi)	Notes
087-IP8001	29-Jun-13	8.0-14.0	10:55 AM	11:21 AM	~2.5%	26	117.4	10.0	4.52	0-2	No problems noted while injecting.
087-IP8001	29-Jun-13	8.0-14.0	2:28 PM	2:58 PM	~2.5%	30	117.4	10.0	3.91	0-2	No problems noted while injecting.
087-IP8002	29-Jun-13	8.0-14.0	10:55 AM	11:19 AM	~2.5%	24	117.4	10.0	4.89	4-8	No problems noted while injecting.
087-IP8002	29-Jun-13	8.0-14.0	2:28 PM	2:53 PM	~2.5%	25	117.4	10.0	4.70	4-8	No problems noted while injecting.
087-IP8003	29-Jun-13	8.0-14.0	10:55 AM	11:21 AM	~2.5%	26	117.4	10.0	4.52	0-2	No problems noted while injecting.
087-IP8003	29-Jun-13	8.0-14.0	12:48 PM	1:12 PM	~2.5%	24	117.4	10.0	4.89	0-2	No problems noted while injecting.
087-IP8003	29-Jun-13	8.0-14.0	2:28 PM	2:46 PM	~2.5%	18	58.7	5.0	3.26	0-2	No problems noted while injecting.
087-IP8004	29-Jun-13	8.0-14.0	10:55 AM	11:22 AM	~2.5%	27	117.4	10.0	4.35	0-2	No problems noted while injecting.
087-IP8004	29-Jun-13	8.0-14.0	12:48 PM	1:08 PM	~2.5%	20	117.4	10.0	5.87	0-2	No problems noted while injecting.
087-IP8004	29-Jun-13	8.0-14.0	2:46 PM	3:06 PM	~2.5%	20	58.7	5.0	2.94	0-2	No problems noted while injecting.
087-IP8005	29-Jun-13	8.0-14.0	12:48 PM	1:13 PM	~2.5%	25	117.4	10.0	4.70	0-2	No problems noted while injecting.
087-IP8005	29-Jun-13	8.0-14.0	2:28 PM	2:59 PM	~2.5%	31	117.4	10.0	3.79	0-2	No problems noted while injecting.
087-IP8006	29-Jun-13	8.0-14.0	12:48 PM	1:10 PM	~2.5%	22	117.4	10.0	5.34	0-2	No problems noted while injecting.
TOTAL VOLUME (Gallons)/ AVERAGE FLOW RATE (Gals/Min)							**1,408.8**	**120**	**4.44**		

Notes:

BGS =	Below Ground Surface
Gals =	Gallons
Min =	Minutes
Gals/Min =	Gallons per Minute
IP =	Injection Point
psi =	Pounds per Square Inch
CAPS =	Calcium Polysulfide

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Prepared By: DEN 8/25/14
Checked By:

TABLE 7
SUMMARY OF IN-SITU INJECTION PROGRAM/MONITORING AT TREATMENT AREA 8 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	Type of Monitoring Point	Screened Depth (feet BGS)	Monitoring Date	Time	Water Depth (feet BGS)	Conductivity (uS)	ORP (mV)	pH	TDS (ppm)	H2S Reading (ppm)	H2S Smell	Water Color	Notes
087-MW-O29	Existing Shallow Monitoring Well	4.0-14.0	29-Jun-13	10:20 AM	5.35	5684	-119	7.09	4444	0.0	None	Black (turbid)	Baseline sample.
087-MW-O29			29-Jun-13	11:25 AM	4.85	5526	-138	7.07	4439	0.0	None	Clear	
087-MW-O29			29-Jun-13	1:30 PM	4.95	5527	-117	7.11	4288	0.0	None	Clear	
087-MW-O29			29-Jun-13	3:15 PM	4.44	5547	-250	7.29	4560	0.0	Yes (slight odor)	Black (turbid)	Injections into IP's 1, 2, 3 and 5 were influencing this well (slight changes observed).
087-MW-O29			30-Jun-13	7:30 AM	NA	5784	-149	7.33	4530	NA	None	Black (turbid)	
087-TWPI-08001	TMP	8-14	29-Jun-13	10:20 AM	5.68	5486	-132	6.96	4267	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-08001			29-Jun-13	11:25 AM	5.20	5337	-146	7.03	4123	0.0	None	Black (turbid)	
087-TWPI-08001			29-Jun-13	1:03 PM	0.50	13440	-422	9.32	11448	285.0	Yes	Light Green	Injections into IP's 3, 4, 5 and 6 were influencing this well.
087-TWPI-08001			29-Jun-13	1:30 PM	5.60	10650	-490	10.40	8756	0.0	Yes	Brown	Injections into IP's 3, 4, 5 and 6 were influencing this well.
087-TWPI-08001			29-Jun-13	3:15 PM	0.00	7880	-486	10.68	6132	0.0	Yes	Brown/ Orange	Injections into IP's 3, 4, 5 and 6 were influencing this well.
087-TWPI-08001			30-Jun-13	7:30 AM	NA	6685	-470	9.61	5285	NA	Yes	Brown/ Orange	Injections into IP's 3, 4, 5 and 6 were influencing this well.
087-TWPI-08002	TMP	8-14	29-Jun-13	10:20 AM	5.60	5675	-155	7.07	4441	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-08002			29-Jun-13	11:25 AM	4.70	5472	-142	7.08	4243	0.0	None	Clear (turbid)	
087-TWPI-08002			29-Jun-13	1:30 PM	5.05	5243	-138	7.14	4070	0.0	None	Grey/ Clear (turbid)	
087-TWPI-08002			29-Jun-13	3:15 PM	4.42	5291	-180	7.14	4088	0.0	None	Clear (turbid)	
087-TWPI-08002			30-Jun-13	7:30 AM	NA	5333	-87	7.10	4141	NA	None	Clear (turbid)	
087-TWPI-08003	ULMP	8-14	29-Jun-13	10:20 AM	5.45	6205	-142	7.13	4900	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-08003			29-Jun-13	11:25 AM	3.70	6533	-146	7.06	5145	0.0	None	Clear (turbid)	
087-TWPI-08003			29-Jun-13	1:30 PM	4.55	6082	-132	7.17	4750	0.0	None	Clear	
087-TWPI-08003			29-Jun-13	3:15 PM	4.34	6329	-163	7.18	4960	0.0	None	Clear (turbid)	
087-TWPI-08003			30-Jun-13	7:30 AM	NA	6149	-63	7.16	4846	NA	None	Clear (turbid)	

Notes:

TWP =	Temporary Well Point
MW =	Monitoring Well
BGS =	Below Ground Surface
uS =	Micro Siemens
mV =	Milli Volts
PPM =	Parts per Million
NA =	Parameter was not analyzed.
H2S =	Hydrogen Sulfide

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Treatment Program Summary_SA-6N - Area 8_082214.xlsx
Prepared By: DEN 8/22/14
Checked By:

TABLE 8
IN-SITU INJECTION LOG AT TREATMENT AREA 8 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Injection Point ID	Injection Date	Injection Depth (feet BGS)	Injection Start Time	Injection Stop Time	CAPS Injection Concentration*	CAPS Injection Time (mins)	CAPS Injection Volume (gallons)	Stock Solution Volume (~29% CAPS) (gallons)	CAPS Injection Flow Rate (gals/min)	IP Pressure Range (psi)	Notes
087-IP8007	30-Jun-13	15.0-17.5	10:40 AM	11:15 AM	~2.0%	35	117.4	8.0	3.35	18-20	No problems noted while injecting.
087-IP8007	30-Jun-13	15.0-17.5	11:58 AM	12:14 PM	~2.0%	16	58.7	4.0	3.67	25-30	No problems noted while injecting.
087-IP8008	30-Jun-13	15.0-17.5	10:40 AM	11:15 AM	~2.0%	35	117.4	8.0	3.35	10-12	No problems noted while injecting.
087-IP8009	30-Jun-13	15.0-17.5	10:40 AM	11:15 AM	~2.0%	35	117.4	8.0	3.35	0-5	No problems noted while injecting.
087-IP8010	30-Jun-13	15.0-17.5	10:40 AM	11:15 AM	~2.0%	35	117.4	8.0	3.35	5-10	No problems noted while injecting.
087-IP8010	30-Jun-13	15.0-17.5	11:58 AM	12:12 PM	~2.0%	14	58.7	4.0	4.19	5-10	No problems noted while injecting.
087-IP8011	30-Jun-13	15.0-17.5	11:58 AM	12:15 PM	~2.0%	17	58.7	4.0	3.45	0-6	No problems noted while injecting.
087-IP8012	30-Jun-13	15.0-17.5	11:58 AM	12:11 PM	~2.0%	13	58.7	4.0	4.52	0-6	No problems noted while injecting.
TOTAL VOLUME (Gallons)/ AVERAGE FLOW RATE (Gals/Min)							**704**	**48**	**3.66**		

Notes:

BGS = Below Ground Surface
Gals = Gallons
Min = Minutes
Gals/Min = Gallons per Minute
IP = Injection Point
psi = Pounds per Square Inch
CAPS = Calcium Polysulfide

* = The concentration injected into a given location was ~2.0% as opposed to ~1.0% which was the proposed concentration. The concentration was increased because the vertical interval was decreased from 16-22 ft bgs (6 ft thickness) to 15-17.5 ft bgs (2.5 ft thickness) due to the depth of the underlying meadow mat occurring at ~17.0-17.5 ft bgs.

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Treatment Program Summary_SA-6N - Area 8_082214.xlsx
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TABLE 9
SUMMARY OF IN-SITU INJECTION PROGRAM/MONITORING AT TREATMENT AREA 8 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	Type of Monitoring Point	Screened Depth (feet BGS)	Monitoring Date	Time	Water Depth (feet BGS)	Conductivity (uS)	ORP (mV)	pH	TDS (ppm)	H2S Reading (ppm)	H2S Smell	Water Color	Notes
087-MW-O29	Existing Shallow Monitoring Well	4.0-14.0	30-Jun-13	10:30 AM	5.40	5784	-149	7.33	4530	0.0	None	Black (turbid)	Baseline sample.
087-MW-O29			30-Jun-13	11:10 AM	4.10	5602	-155	7.14	4364	0.0	None	Clear (turbid)	
087-MW-O29			30-Jun-13	12:20 PM	4.35	5727	-164	7.19	4427	0.0	None	Clear	
087-TWPI-08001	TMP	15-17.5	30-Jun-13	10:30 AM	16.60	7493	28	7.73	5939	0.0	None	Black (turbid)	Baseline sample.
087-TWPI-08001			30-Jun-13	11:10 AM	16.75	7906	-66	8.04	6282	0.0	None	Black (turbid)	Injections into IP's 7, 8, 9 and 10 were influencing this well (slight changes observed).
087-TWPI-08001			30-Jun-13	12:20 PM	16.68	7747	13	8.22	6114	0.0	None	Brown (turbid)	Injections into IP's 7, 10, 11 and 12 were influencing this well (slight changes observed).
087-TWPI-08002	15-17.5	15-17.5	30-Jun-13	10:30 AM	11.52	6276	38	7.67	4957	0.0	None	Clear (turbid)	Baseline sample.
087-TWPI-08002			30-Jun-13	10:55 AM	1.00	5482	-408	8.30	4276	10.5	Yes	Green (turbid)	Injections into IP's 7, 8, 9 and 10 were influencing this well.
087-TWPI-08002			30-Jun-13	11:10 AM	2.50	5541	-405	8.38	4308	13.0	Yes	Green	Injections into IP's 7, 8, 9 and 10 were influencing this well.
087-TWPI-08002			30-Jun-13	12:20 PM	6.00	5603	-422	8.27	4313	13.0	Yes	Green (turbid)	Injections into IP's 7, 8, 9 and 10 were influencing this well.
087-TWPI-08003	ULMP	15-17.5	30-Jun-13	10:30 AM	14.64	5751	12	7.60	4399	0.0	None	Brown (turbid)	Baseline sample.
087-TWPI-08003			30-Jun-13	11:10 AM	14.10	5500	-106	7.42	4251	0.0	None	Brown (turbid)	
087-TWPI-08003			30-Jun-13	12:20 PM	14.80	5622	64	7.44	4320	0.0	None	Brown (turbid)	

Notes:
TWP = Temporary Well Point
MW = Monitoring Well
BGS = Below Ground Surface
uS = Micro Siemens
mV = Milli Volts
PPM = Parts per Million
NA = Parameter was not analyzed.
H2S = Hydrogen Sulfide

TABLE 10A
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS AT IN-SITU TREATMENT AREA 7 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-H25*	087-SB-454-0203	087-SB-454-0304	087-SB-455-0203	087-SB-455-0304
Sample Depth (ft):			2 - 4	2 - 3	3 - 4	2 - 3	3 - 4
Lab Sample ID:				JB69171-9	JB69171-10	JB69171-14	JB69171-15
Date Sampled:			11/20/1998	6/11/2014	6/11/2014	6/11/2014	6/11/2014
TAL Metals Analysis							
Chromium	mg/kg	NS	307	43.3	15.3	456	883
General Chemistry							
Chromium, Hexavalent	mg/kg	20	**43.6 J**	2.8	2.3	<0.57	<0.56
Sulfide	mg/kg	NS	NT	<5.4	<5.5	<5.5	<5.5
pH	su	NS	NT	7.05	7.29	6.83	6.89

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent NJDEP RDCSRS.

NS = No Standard.

J = Estimated Value

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Table 10 TA 7 6 Mon Data_082514.xlsx

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Checked By:

TABLE 10B
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS AT IN-SITU TREATMENT AREA 7 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-H25*	087-SB-454-1617	087-SB-454-1718	087-SB-455-1617	087-SB-455-1718
Sample Depth (ft):			16 - 18	16 - 17	17 - 18	16 - 17	17 - 18
Lab Sample ID:				JB69171-11	JB69171-12	JB69171-16	JB69171-17
Date Sampled:			11/20/1998	6/11/2014	6/11/2014	6/11/2014	6/11/2014
TAL Metals Analysis							
Chromium	mg/kg	NS	1,400	1,510	101	6,930	530
General Chemistry							
Chromium, Hexavalent	mg/kg	20	**84.4**	<0.79	4.6	<0.86	1.9
Sulfide	mg/kg	NS	NT	30.9	15.7	41.6	16.5
pH	su	NS	NT	8.49	8.24	7.99	8.27

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent NJDEP RDCSRS.

NS = No Standard.

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Table 10 TA 7 6 Mon Data_082514.xlsx

Prepared By: DEN 8/25/14
Checked By:

TABLE 11A
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS AT IN-SITU TREATMENT AREA 8 - SHALLOW

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-O29*	087-SB-452-1011	087-SB-452-1112	087-SB-453-1011	087-SB-453-1112
Sample Depth (ft):			**10 - 12**	**10 - 11**	**11 - 12**	**10 - 11**	**11 - 12**
Lab Sample ID:				**JB69171-1**	**JB69171-2**	**JB69171-5**	**JB69171-6**
Date Sampled:			**6/12/1997**	**6/11/2014**	**6/11/2014**	**6/11/2014**	**6/11/2014**
Metals Analysis							
Chromium	mg/kg	NS	217	34.3	24.8	67	30.9
General Chemistry							
Chromium, Hexavalent	mg/kg	20	**68.8 J**	<0.54	0.73	1.3	<0.49
Sulfide	mg/kg	NS	NtT	<5.1	<5.4	<4.8	<4.9
pH	su	NS	NT	8.57	8.48	8.62	8.19

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent NJDEP RDCSRS.

NS = No Standard.

J = Estimated Value

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Table 11 TA 8 6-Mon Data_082514.xlsx

Prepared By: DEN 8/25/14
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TABLE 11B
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS AT IN-SITU TREATMENT AREA 8 - DEEP

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-O29*	087-SB-452-1718	087-SB-452-1819	087-SB-453-1718	087-SB-453-1819
Sample Depth (ft):			**18 - 20**	**17 - 18**	**18 - 19**	**17 - 18**	**18 - 19**
Lab Sample ID:				**JB69171-3**	**JB69171-4**	**JB69171-7**	**JB69171-8**
Date Sampled:			**6/12/1997**	**6/11/2014**	**6/11/2014**	**6/11/2014**	**6/11/2014**
Metals Analysis							
Chromium	mg/kg	NS	9.4	30.7	9.1	102	4.2
General Chemistry							
Chromium, Hexavalent	mg/kg	20	**<25.4 J**	<0.70	<9.1	0.79	<11
Sulfide	mg/kg	NS	NT	15.2	<17	13.4	<20
pH	su	NS	NT	8.38	7.58	8.35	7.62

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent NJDEP RDCSRS.

NS = No Standard.

J = Estimated Value

P:\Active Projects\Honeywell_Jersey City\SA-6\SA-6 North Cr DGW\SA-6 N In-Situ Implementation\August 2014 Data Dump\
Table 11 TA 8 6-Mon Data_082514.xlsx

Prepared By: DEN 8/25/14
Checked By:

PHOTOS

Photo 1: Geoprobe® direct push drill rig.

Photo 2: Double diaphragm pumps

Photo 3: Injecting Into 4 Injection Points

Photo 4: Groundwater Sample from a TMP

Honeywell
115 Tabor Road
Morris Plains, NJ 07950

August 10, 2016 ***via Electronic Delivery***

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: 3 Year Sampling Results
Treatment Areas 7 and 8
Study Area 6 North (Site 087)
Jersey City, New Jersey

Dear Senator Torricelli:

Honeywell's engineer, Amec Foster Wheeler, has prepared the enclosed memorandum that summarizes the 3-year post-treatment performance assessment for the in-situ Treatment Areas 7 and 8 (TA-7 and TA-8). The locations and depths of the soil sampling program were finalized with Plaintiffs in recent written and email correspondence, as described in the attached Amec Foster Wheeler memo.

The data indicates that fifteen of the sixteen sample results for hexavalent chromium are below 20 milligrams per kilogram (mg/kg) Guideline. Honeywell is evaluating which option, re-treat or excavate, makes the most sense for the one area where there was an exceedence at a concentration of 26.3 mg/kg.

We are prepared to discuss this matter further at the next All Parties meeting. If you have any questions in the meantime, please call me at (973) 455-2175.

Sincerely,

William J. Hague
Global Remediation Director
Design and Construction

WJH:dn/sgf

Encl: 08/08/16 Amec Foster Wheeler Technical Memorandum: Study Area 6 North – 3 Year Sampling At TA-7 & TA-8

cc: (electronic copy only)
Joe Clifford - Amec Foster Wheeler
Michael Daneker - Arnold & Porter LLP
Jeremy Karpatkin - Arnold & Porter LLP
Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
Jason Watson – City Hall
Agnieszka Antonian - Connell Foley LLP
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Kevin Kinsella - DeCotiis, Fitzpatrick & Cole, LLP

Dr. Benjamin Ross - Disposal Safety, Inc.
Tom Byrne - Honeywell
Maria Kaouris - Honeywell
John Morris - Honeywell
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Steve Egnaczyk - The Louis Berger Group, Inc.
Thomas Lewis - The Louis Berger Group, Inc.
Mary Hogan - Walsh Pizzi O'Reilly Falanga LLP
Hector Ruiz - Walsh Pizzi O'Reilly Falanga LLP
Liza Walsh - Walsh Pizzi O'Reilly Falanga LLP

Memo

Date: August 8, 2016

From: Joe Clifford/Dennis Nagg – Amec Foster Wheeler

To: Bill Hague – Honeywell

cc: John Morris, Maria Kaouris, John Mojka – Honeywell

Subject: Study Area 6 North – 3 Year Sampling At TA-7 & TA-8

In accordance with the approved Revised Work Plan for In-Situ Treatment of Chromium Impacted Soil, dated February 2013 (Revised WP) prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), Amec Foster Wheeler implemented the 3-year post-treatment performance assessment soil sampling within in-situ Treatment Areas 7 and 8 (TA-7 and TA-8). The in-situ injections in TA-7 and TA-8 were implemented between June 17, 2013 and June 30, 2013 as summarized in a memo dated September 4, 2014. The 3-Year soil sampling occurred on June 27, 2016. These areas are adjacent to active pipelines at SA-6 North (the Site) as shown on the attached Figure 2 (Revised) borrowed from the Revised Work Plan.

The 3-Year sampling program was implemented in accordance with the following correspondence regarding the 6-month performance assessment sampling between Honeywell and the Parties:

- Plaintiffs' comments, dated December 4, 2014;
- Honeywell response, dated February 4, 2015;
- Plaintiffs' comments, dated March 6, 2015;
- Honeywell response, dated March 30, 2015; and
- Plaintiffs' comments, dated April 16, 2015.

Based upon their comments regarding the 6-month performance assessment sampling, Plaintiffs requested slight adjustments in the 3-Year sampling program soil boring locations and sample depths. The locations of borings and sample depths were finalized in the following recent correspondence regarding the 3-Year sampling program between Honeywell and the Parties:

- Honeywell memo, dated June 16, 2016
- Email correspondence from Ben Ross, dated June 17, 2016

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Upon mobilization, additional minor adjustments were made in the field based upon detection of underground utilities and other subsurface obstructions using geophysical equipment. The "as-built" soil boring locations are shown on the attached Figure 1 for TA-7 and Figure 2 for TA-8.

TA-7

For the shallow sampling interval in TA-7, the Revised WP proposed to collect samples from 2 to 3 ft. below ground surface (bgs) and 3 to 4 ft bgs from two borings each. Thus, four samples were collected as proposed from the shallow sampling interval at shallow soil boring locations 087-SB-659 and 087-SB-660. As agreed to with All Parties in the previous correspondence, borings for the shallow sampling intervals were separated from borings for the deeper sampling intervals.

For the deep sampling interval in TA-7, the Revised WP proposed to collect samples from 16 to 17 ft bgs and 17 to 18 ft bgs from two borings each. Two samples were collected as proposed from 16 to 17 ft bgs and from 17 to 17.5 ft bgs at the deep soil boring locations 087-SB-661 and 087-SB-662. Boring 087-SB-662 was adjusted to the northeast to avoid contact with reinforcing steel in the edge of the concrete pad in this area. The deeper interval was collected from a 6-inch interval from 17 to 17.5 ft bgs rather than the proposed 12-inch interval because meadow mat was found at 17.5 ft bgs. Thus, four samples were collected from the deep sampling interval.

TA-8

For the shallow sampling interval in TA-8, the Revised WP proposed to collect samples from 10 to 11 ft bgs and 11 to 12 ft bgs from two borings each. As agreed to with All Parties in the previous correspondence, shallow and deep samples were to be collected from one of the borings in TA-8 (087-SB-657) while two separate borings were to be drilled to collect the shallow sampling interval (087-SB-658) and the deeper sampling interval (087-SB-663) elsewhere in TA-8. However, because of lack of sample recovery at the 10 to 12 ft depth interval in soil boring 087-SB-657, this boring was also spilt into two separate adjacent borings (087-SB-657A for the shallow sampling and 087-SB-657B for the deep sampling). Soil borings 087-SB-658 was drilled at the proposed location and shallow samples were collected from this boring as proposed. Thus, four samples were collected as proposed from the shallow sampling interval.

For the deep sampling interval in TA-8, the Revised WP proposed to collect samples from 16 to 17 ft bgs and 17 to 18 ft bgs from two borings each. Soil borings 087-SB-657B and 087-SB-663 were drilled to collect samples from the deep intervals. Two samples were collected as proposed from the 16 to 17 ft bgs. The deeper interval was collected from a 6-inch interval from 17 to 17.5 ft bgs rather than the proposed 12-inch interval because meadow mat was found at 17.5 ft bgs. Thus, four samples were collected from the deep sampling interval.

As indicated in the Revised WP, all soil samples from both TA-7 and TA-8 were analyzed for hexavalent chromium, total chromium, and sulfide. The attached Table 1 summarizes the sample results. Fifteen of the sixteen sample results for hexavalent chromium are below 20 milligrams per kilogram (mg/kg). Due to the exceedance of one shallow sample at TA-7 that

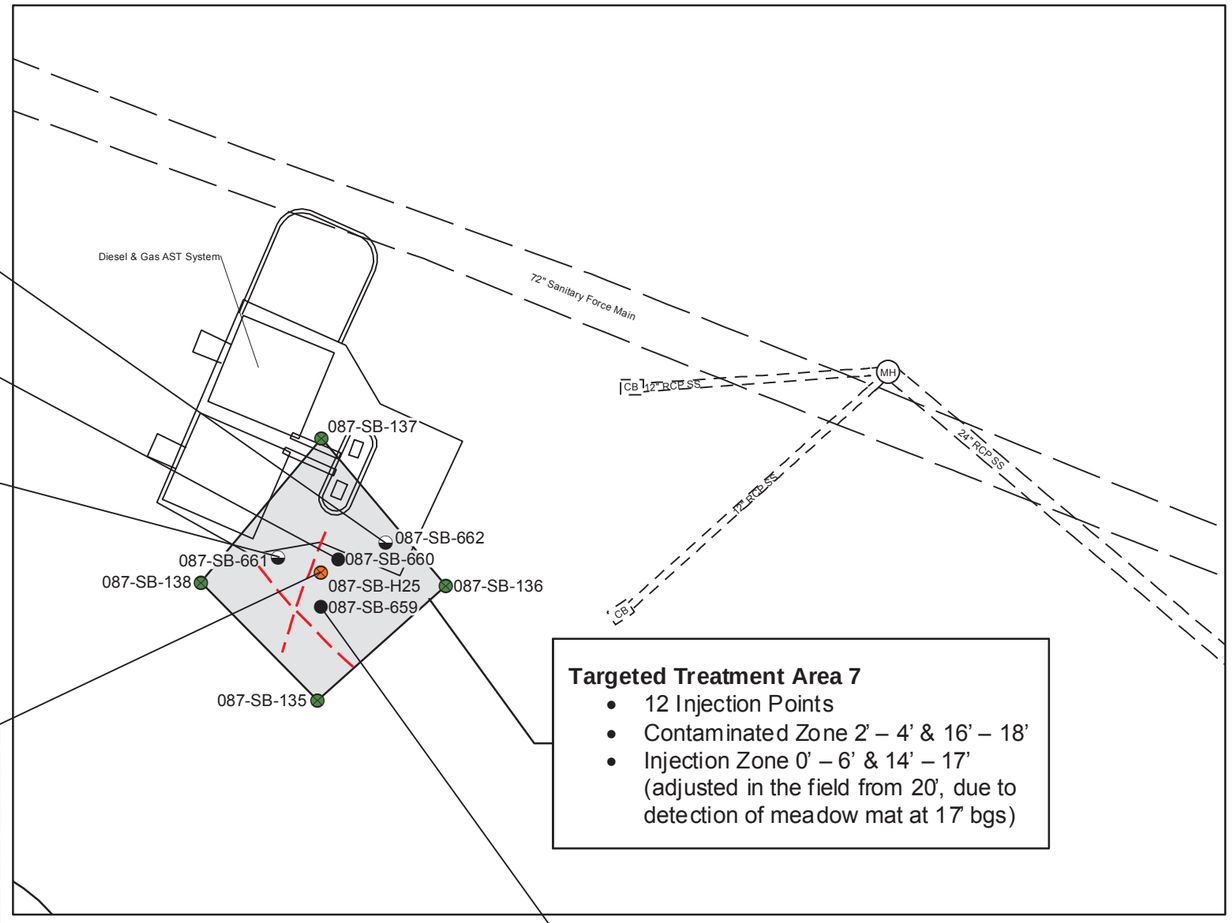
exceeds 20 mg/kg for hexavalent chromium, Honeywell is evaluating options for either re-injecting in this area or excavating the shallow soils.

FIGURE 1
Treatment Area 7
In-situ Chemical Injection Treatment Process

087-SB-662		
Sample Depth	16 - 17	17 - 17.5
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.92 U	1.7

087-SB-660		
Sample Depth	2 - 3	3 - 4
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	**26.3 J**	1.3

087-SB-661		
Sample Depth	16 - 17	17 - 17.5
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.77 U	1.7



087-SB-H25		
02-04	**43.6**	J
04-06	7.6	J
06-08	2	U
08-10	2	U
10-12	2	U
14-16	2	U
16-18	**84.4**	
18-20	2	U

Targeted Treatment Area 7

- 12 Injection Points
- Contaminated Zone 2' – 4' & 16' – 18'
- Injection Zone 0' – 6' & 14' – 17' (adjusted in the field from 20', due to detection of meadow mat at 17' bgs)

087-SB-659		
Sample Depth	2 - 3	3 - 4
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.54 U	0.55 U

Legend

- Shallow Soil Boring
- Deep Soil Boring
- Previous Soil Sample Location (Hexavalent Chromium Result < 20 ppm)
- Previous Soil Sample Location (Hexavalent Chromium Result > 20 ppm)
- SS — Storm Sewer
- CB — Catch Basin
- MH — Manhole
- Buried Electrical Utility
- Treatment Area 7

20 10 0 20

Scale In Feet

Project Number:
3480150488

Prepared/Date:
WSL 06/22/2016

Checked/Date:
DEN 06/22/2016

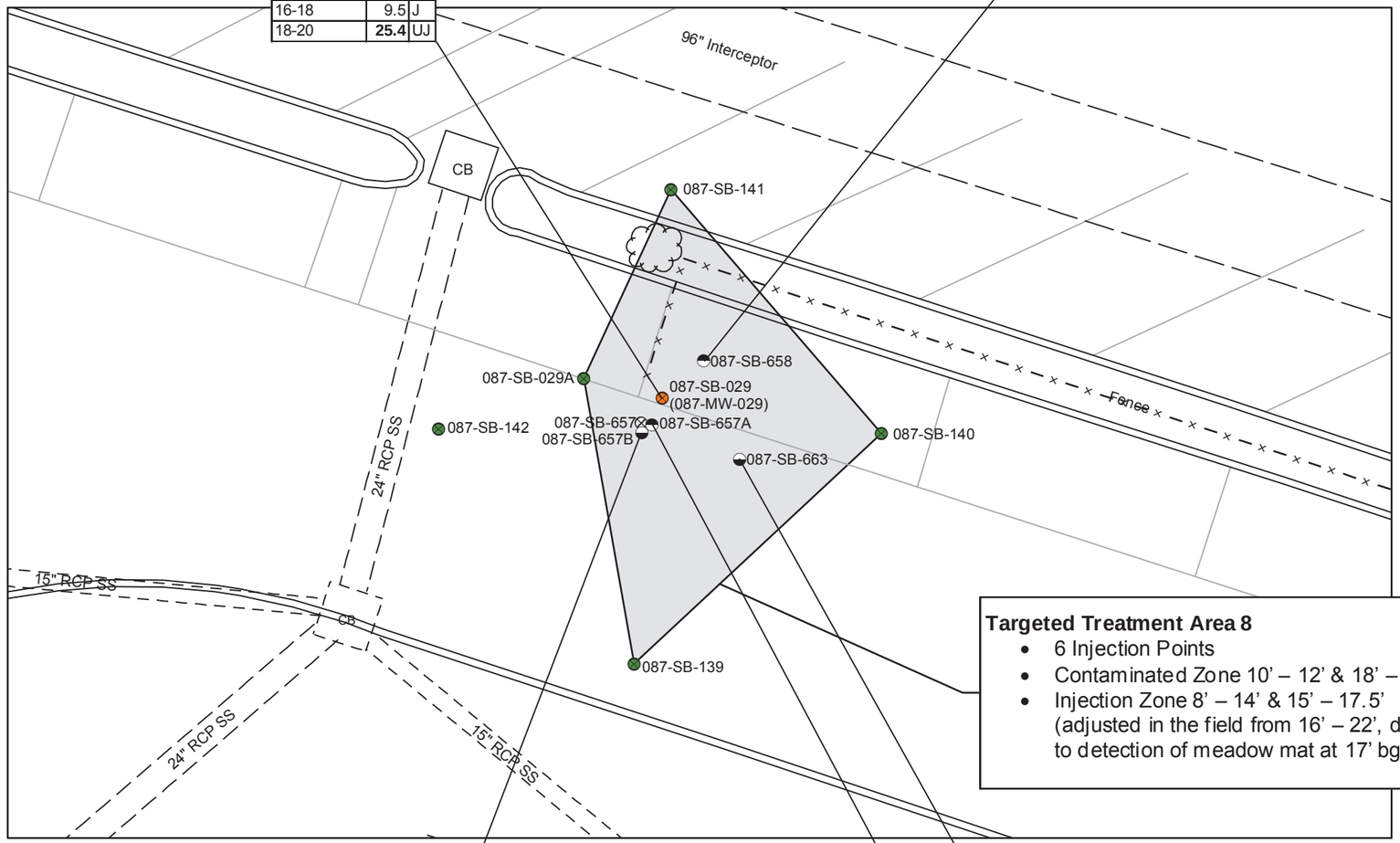
amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

Figure 1
Treatment Area 7
In-situ Chemical Injection Treatment Process
Study Area 6 North
Jersey City, New Jersey

FIGURE 2
Treatment Area 8
In-situ Chemical Injection Treatment Process

087-SB-O29		
00-02	4.5	J
02-04	2.5	UJ
04-06	2.5	UJ
06-08	4.1	J
08-10	5.5	J
10-12	**68.8**	J
12-14	2.5	UJ
14-16	13.7	J
16-18	9.5	J
18-20	**25.4**	UJ

087-SB-658		
Sample Depth	10 - 11	11 - 12
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.74	0.49 U



Targeted Treatment Area 8

- 6 Injection Points
- Contaminated Zone 10' – 12' & 18' – 20'
- Injection Zone 8' – 14' & 15' – 17.5' (adjusted in the field from 16' – 22', due to detection of meadow mat at 17' bgs)

087-SB-657B		
Sample Depth	15.5 - 16.5	16.5 - 17.5
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.81 U	0.82

087-SB-663		
Sample Depth	15.5 - 16.5	16.5 - 17.5
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.92	0.69 U

087-SB-657A		
Sample Depth	10 - 11	11 - 12
Sample Date	6/27/2016	6/27/2016
HEXAVALENT CHROMIUM	0.49 U	0.61

Legend

- ⊗ Soil Boring (Refusal, No Samples Taken)
- ◓ Shallow Soil Boring
- ◒ Deep Soil Boring
- Previous Soil Sample Location (Hexavalent Chromium Result < 20 ppm)
- Previous Soil Sample Location (Hexavalent Chromium Result > 20 ppm)
- SS Storm Sewer
- CB Catch Basin
- MH Manhole
- Treatment Area 8

10 5 0 10

Scale In Feet

Project Number:
3480150488

Prepared/Date:
WSL 06/26/2013

Checked/Date:
DEN 06/14/2016

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Figure 2
Treatment Area 8
In-situ Chemical Injection Treatment Process
Study Area 6 North
Jersey City, New Jersey

TABLE 1
Summary of 3-Year Soil Analytical Results

TABLE 1
SUMMARY OF 3-YEAR SOIL ANALYTICAL RESULTS

IN-SITU TREATMENT AREA 7 & 8

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area/Sample Interval			TA-7/Shallow				TA-7/Deep				TA-8/Shallow				TA-8/Deep			
Client Sample ID:		NJ Residential Soil Criteria	087-SB-659	087-SB-659	087-SB-660	087-SB-660	087-SB-661	087-SB-661	087-SB-662	087-SB-662	087-SB-657A	087-SB-657A	087-SB-658	087-SB-658	087-SB-657B	087-SB-657B	087-SB-663	087-SB-663
Sample Depth (ft):			2-3	3-4	2-3	3-4	16-17	17-17.5	16-17	17-17.5	10-11	11-12	10-11	11-12	15.5-16.5	16.5-17.5	15.5-16.5	16.5-17.5
Lab Sample ID:			JC23027-9	JC23027-10	JC23027-11/11R/11T	JC23027-12	JC23027-13	JC23027-14	JC23027-16/16R	JC23027-17	JC23027-1	JC23027-2	JC23027-5/5R	JC23027-6	JC23027-3/3R	JC23027-4	JC23027-7/7R	JC23027-8
Date Sampled:			6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016
TAL Metals Analysis																		
Chromium	mg/kg	NS	598	196	382	19.4	5,050	168	6,450	142	21.7	11	102	17.8	1,980	64.6	719	63.8
General Chemistry																		
Chromium, Hexavalent	mg/kg	20	<0.54	<0.55	**26.3**	1.3	<0.77	1.7	<0.92	1.7	<0.49	0.61	0.74	<0.49	<0.81	0.82	0.92	<0.69
Sulfide	mg/kg	NS	<5.2	<5.5	<4.9	<5.2	26.2	31.7	26.2	23	4.8	4.8	7.3	<4.9	15.1	6.6	18.5	6.6
pH	su	NS	7.2	6.98	7.52	7.33	8.08	7.78	8.11	7.91	8.04	7.88	8.32	8.11	7.75	7.67	7.61	7.55

Notes:

Bold and highlighted values are above the NJ Residential Soil Criteria

NS = No Standard.

Prepared By: JLD 7/19/16
Checked By: DEN 7/19/16

Honeywell
115 Tabor Road
Morris Plains, NJ 07950

January 12, 2017 ***via Electronic Transmittal***

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: Summary of Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils
Treatment Area 10-1
Study Area 6 (SA-6) North (Site 087)
Jersey City, New Jersey

Dear Senator Torricelli:

Honeywell's engineer, Amec Foster Wheeler, has prepared the enclosed technical memorandum providing a summary of the implementation of the recently completed additional in-situ injection program within the northern section of Area 10 (designated as TA 10-1) using calcium polysulfide (CAPS). This injection event was a follow-up to the initial in-situ event completed in September 2015 which was presented in correspondence entitled, Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils, dated July 11, 2016 (Proposed Implementation Plan) submitted by Honeywell to all Parties.

The Amec Foster Wheeler/ERFS team implemented the prolonged in-situ injection program at the Site in five events separated by at least one week between September 7, 2016 and October 26, 2016. On December 5, 2016, Amec Foster Wheeler implemented an interim soil sampling program using the same protocol as the post-treatment soil samples collected in March 2016.

As is evident in the attached soil sample data, the 2016 re-injection program was very successful in further reducing hexavalent chromium concentrations in soils in this area. Nineteen of the 20 samples are below the 20 mg/kg cleanup criteria and only one sample location is at 33 mg/kg. Amec Foster Wheeler/ERFS will remobilize and perform another treatment injection at this one exceedance location within the next several weeks.

We are prepared to discuss this matter further at the next All Parties call if the parties desire. If you have any questions in the meantime, please call me at (973) 455-2175.

Sincerely,

William J. Hague
Director, Remediation
Engineering and Construction

WJH:dn/sgf

Encl: 01/12/17 Amec Foster Wheeler Technical Memorandum: Summary of Proposed In-Situ Treatment Program for Hexavelent Chromium Impacted Soils – Additional CAPS Injections, SA-6 North, Site 087

cc: (electronic copy only)
Joe Clifford - Amec Foster Wheeler
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Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
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Dr. Benjamin Ross - Disposal Safety, Inc.
Tom Byrne - Honeywell
William Hague - Honeywell
Maria Kaouris - Honeywell
John Morris - Honeywell
Alicia Clark Alcorn - Terris, Pravlik & Millian, LLP
Kathleen Millian - Terris, Pravlik & Millian, LLP
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Hector Ruiz - Walsh Pizzi O'Reilly Falanga LLP
Liza Walsh - Walsh Pizzi O'Reilly Falanga LLP

Memo

Date: January 12, 2017

From: Joe Clifford/Dennis Nagg, Amec Foster Wheeler

To: Bill Hague – Honeywell

cc: John Morris, Maria Kaouris, John Mojka – Honeywell
Jeremy Karpatkin, Michael Daneker – A&P

Subject: Summary of Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils, SA-6 North, Treatment Area-10-1

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), on behalf of Honeywell, has prepared this memorandum to summarize the recently completed additional injection of calcium polysulfide (CAPS) for in-situ treatment of hexavalent chromium (Cr(VI)) impacted soils in the northern section of Treatment Area 10 (TA-10-1) at SA-6 North, Site 087 (the Site, **Figure 2 (Revised)**). As described herein and shown by the attached tables and figures, we successfully implemented the re-injection of the proposed volumes of CAPS in the designated area consistent with the Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils, dated July 11, 2016 (Proposed Implementation Plan) submitted by Honeywell to all Parties. Additionally, Honeywell directed Amec Foster Wheeler to implement interim soil sampling approximately six weeks after the completion of the re-injection program to assess short-term Cr(VI) concentrations in soils in the area. As shown by the soils data, the results of that soil sampling program indicated marked reduction in Cr(VI) concentrations in soils compared to the previous soil sampling.

BACKGROUND

Amec Foster Wheeler retained ERFS of Lakewood, New Jersey to implement an initial in-situ treatment event in the TA-10-1 area between August and September 2015. This initial injection of CAPS was summarized in an October 12, 2015 technical memorandum submitted by Honeywell to all Parties. Following this initial CAPS injection, post-treatment soil samples were collected in March 2016 (approximately six months after the initial injection) to provide an early indication of the efficacy of this treatment. As detailed in a May 6, 2016 technical memorandum, post in-situ analytical results showed that the majority of areas treated were now below the 20 milligram per kilogram (mg/kg) standard for Cr(VI) in soil. However, 5 out of 20 sample points exceeded the

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20 mg/kg Cr(VI) standard. Based on these results and due to the limited timeframe remaining before potential redevelopment, Honeywell proposed a supplemental CAPS injection program to further remediate soils in these areas in the Proposed Implementation Plan. As requested in a May 23, 2016 letter from Plaintiffs, Honeywell agreed to re-inject CAPS within all five original treatment points, not just the remaining areas of soil exceedances. Modifications were made to the initial approach which included a slower and prolonged injection delivery approach over the course of several weeks through injection wells installed in the area. In contrast, the initial injection program utilized a direct-injection approach where the entire volume of CAPS solution was injected over the course of two days.

On July 28, 2016, Honeywell submitted a new NJDEP Permit-by-Rule Discharge to Groundwater (PBR-DGW) Authorization request to NJDEP to implement the proposed re-injection program based on the July 11, 2016 Proposed Implementation Plan. NJDEP issued the requested PBR-DGW on August 4, 2016.

Amec Foster Wheeler again retained ERFS to implement the re-injections. The Amec Foster Wheeler/ERFS team implemented the prolonged injection delivery program at the Site in 5 events separated by at least one week between September 7, 2016 and October 26, 2016. The Amec Foster Wheeler/ERFS team implemented the in-situ program in accordance with the following documents:

- Honeywell's July 11, 2016 Proposed Implementation Plan; and
- NJDEP August 4, 2016 PBR-DGW;

In addition, although not revised specifically for the 2016 re-injection program, the 2016 re-injection program generally followed provisions of the following documents previously prepared for the initial injection program since the means and methods were essentially similar:

- Amec Foster Wheeler's Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan);
- ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013;
- ERFS Health and Safety Plan, dated June 2013 (Revised July 2014)

TREATMENT AREA

As shown on **Figure 2 (Revised)** and **Figure 5A (Revised)**, the TA-10-1 area is the portion of TA-10 that is north of the northern curbline for the future Stegman Boulevard to be constructed during the Bayfront Redevelopment project. TA-10 is located immediately proximate to and

north of the hydraulic barrier wall installed along the northern boundary of the SA-6 North Open Space Area and overlies a portion of the 72-inch sanitary sewer force main (FM) owned by Jersey City Municipal Utilities Authority that traverses this part of the Site. The depth to the chromium impacted material in this area is 12 to 14 feet below existing grade which is approximately at the same elevation as the bottom portion of the FM. Because of the proximity of the FM, excavation of impacted soils in TA-10 could structurally impact the FM during removal of the impacted soils; therefore, in-situ treatment of the chromium impacted material was preferred for this area. To allay concerns about impacts from sulfate on the concrete outer shell of the FM, Honeywell reviewed the proposed CAPS injection program with NJDEP and PVSC. Ultimately, it was agreed by all Parties that only impacted soils within subarea TA-10-1 would be treated with CAPS so that the injections are approximately 20 to 25 feet away from the FM. The remaining portion of TA-10, south of the northern curbline for the future Stegman Boulevard, will be capped by the Stegman Boulevard footprint.

MONITORING WELL AND TEMPORARY WELL POINT INSTALLATION

Three monitoring wells (MWs) and five temporary well points (TWPs) were installed by ERFS' subcontracted New Jersey-licensed driller (Summit Drilling) in August 2015 for the initial injection program. All MWs and TWPs were permitted with NJDEP as permanent wells. The MW identifications (IDs) are 087-MW-132, 087-MW-133, and 087-MW-134 and the TWP IDs are 087-TWP-37 through 087-TWP-41. Details of the installation and construction of the MWs and TWPs was provided in the summary of the implementation of the initial injection program, dated October 12, 2015, submitted by Honeywell to all Parties. Amec Foster Wheeler maintained these MWs and TWPs and used them for monitoring groundwater conditions during the 2016 re-injection program. The locations of the MWs and TWPs are shown on **Figure 5A (Revised)**.

INJECTION POINT INSTALLATION

The Proposed Implementation Plan detailed a delivery approach for the re-injection program where CAPS would be injected in specified dosages through injection points (IPs) in five separate events over a period of time. Thus, the IPs were installed first to facilitate the proposed dosage injections. ERFS retained B&B Drilling of Netcong, New Jersey to install the IPs (see Photo 1). B&B Drilling drilled and installed the IPs on August 25, 2016 and August 26, 2016.

The Proposed Implementation Plan specified the installation of ten IPs, grouped in 5 nested pairs, in the same general location as the previous 5 injection points from the initial injection program. The location of each of the 5 nested pairs is shown on **Figure 5A (Revised)**. Each pair of wells was installed no further than approximately 1 foot apart. Each IP was installed with 2-inch diameter PVC well screen and riser pipe. Both the initial and re-injection programs specified CAPS injections from 10 to 16 feet below ground surface (bgs) which was from 2 feet

above to 2 feet below the contaminated zone. To increase the vertical distribution of CAPS during the re-injection program, the IPs within each nested pair were screened at 3-foot intervals, one from 10 to 13 feet bgs and one from 13 to 16 feet bgs. Each of the 5 nested pair of IPs were given the IDs IP-10-1 through IP-10-5; an "A" suffix at the end of each IP ID denotes that the IP is the shallower screened interval, whereas a "B" suffix denotes that the IP is the deeper screened interval. Following installation, each IP was developed by pumping until the pumped water ran clear.

During drilling operations, the breathing zones at the drilling locations were monitored for volatile organic compounds (VOCs) and hydrogen sulfide (H_2S).All readings were non-detect.

CHEMICAL STORAGE/MIXING AREA MOBILIZATION

Because the re-injection program was designed to inject specified dosages over the course of 5 separate events, ERFS did not mobilize all of the required 29% stock CAPS solution at once. Instead, ERFS brought only the required volume of 29% stock CAPS needed for each of the injection events. The stock CAPS solution was obtained from the supplier and brought to the Site in 55-gallon plastic drums. For each event, ERFS mixed the prescribed volume of 29% stock CAPS solution in potable water to make the prescribed volume of diluted CAPS solution in a plastic mixing tank staged inside a utility van (see Photo 2). Potable water for mixing the diluted solution was obtained from a nearby fire hydrant. The 29% stock CAPS solution was transferred to the mixing tank from the drums using a drum pump. Only enough diluted CAPS solution was mixed for each of the separate injection events; no solution was kept over until the next event. Once the mixture was ready, the diluted CAPS solution was then transferred directly from the mixing tank on the truck to the IPs as described in the following section.

INJECTION PROGRAM

Tables 1 and 2 summarize the re-injection program. The five re-injection events occurred on the following dates:

- September 7, 2016;
- September 14, 2016;
- October 5, 2016;
- October 12, 2016; and
- October 26, 2016

As specified in the Proposed Implementation Plan, a total of 825 gallons of 29% stock CAPS solution was mixed with approximately 2,425 gallons of potable water to produce 3,250 gallons

of CAPS solution. Thus, for each of the five events, ERFS mixed 165 gallons of 29% stock CAPS solution and 485 gallons of potable water to make up 650 gallons of diluted CAPS solution. During each event, the ten IPs received 65 gallons of diluted CAPS solution. The prescribed volume of diluted CAPS solution was gravity fed from the mixing tank on ERFS' truck into the IPs utilizing hosing, valves, and associated fittings (see Photo 3). Occasionally, a transfer pump located between the tank on the truck and the IP was operated for a minute or two to start the flow, but was then shut off allowing the flow to continue by gravity. Ten gallons of clean potable water was flushed through the transfer hoses after each 65 gallons of diluted CAPS solution was injected into each IP to rinse the hoses and flush any solution remaining in the IP into the surrounding soil.

The area surrounding the injection locations was monitored for daylighting throughout the re-injection program. No daylighting occurred. During mixing operations and injections, the breathing zone in the work area and at the perimeter was monitored for odors and H_2S using a 4-gas meter and VOCs using a photoionization device. No elevated readings were measured.

Table 1 summarizes the operational parameters of the injection program as proposed in the Proposed Implementation Plan as well as those for the completed injection program to compare one to the other. Table 2 summarizes the volume of stock CAPs, diluted CAPs solution, and concentration of CAPs injected into each IP. In addition, the injection time and average flow rates for each area are presented on Table1.

GROUNDWATER MONITORING

Prior to the installation of the IPs, samples from each of the three MWs and five TWPs were collected for analysis of sulfide and sulfate to assess baseline groundwater conditions in subarea TA-10-1 on August 23, 2016. Following the first injection event, the sampling of the three MWs and five TWPs and analysis of sulfide and sulfate was repeated each week until November 8, 2016 (nine weekly post-injection sampling events) and again on December 7, 2016. The baseline and post-injection groundwater sample results are summarized on Table 3.

Of particular interest with respect to maintaining the integrity of the FM was sulfate concentrations in either one or both of 087-MW-133 and 087-MW-134 installed between subarea TA-10-1 and the FM. In the event that sulfate concentrations in these two sentinel MWs increased to a limit of 150 milligrams per liter (mg/L), a contingency plan would be implemented that called for clean potable water to be injected into both wells to dilute the sulfate concentrations in the shallow groundwater adjacent to the FM. As seen on Table 3, sulfate concentrations in these 2 sentinel MWs remained well below the limit of 150 mg/L. However, because of the elevated sulfate concentrations in 087-MW-132 and 087-TWP-41 during the

December 7, 2016 sampling, as a precautionary measure, samples from 087-MW-133 and 087-MW-134 were again collected on December 21, 2016 to confirm that sulfate concentrations in the two sentinel MWs remained below the limit of 150 mg/L.

Prior to the start of injections (baseline), during injections, and following injections Amec Foster Wheeler and/or ERFS measured groundwater conditions in the MWs and TWPs in subarea TA-10-1. The following measurements were taken and recorded:

- Depth to groundwater;
- Groundwater quality parameters, including pH, oxidation/reduction potential (ORP), specific conductivity (SC), and total dissolved solids (TDS);
- Hydrogen sulfide (H_2S) and volatile organic compounds (VOCs) in the headspace of the PVC riser pipe; and
- Groundwater color and/or odor.

These results are summarized on Table 4. For brevity, only measurements of depth to groundwater, pH, ORP, and SC are included. By comparing the baseline monitoring data to measurements collected during or following injections distribution of the CAPS could be monitored. Following each injection event Amec Foster Wheeler and Mutch Associates reviewed the sulfide and sulfate and groundwater parameter data to assess the shallow groundwater conditions.

SOIL SAMPLING

In accordance with the Proposed Implementation Plan, Honeywell directed Amec Foster Wheeler to conduct an interim soil sampling program in the TA-10-1. The soil sampling program was implemented on December 5, 2016 using the same protocol as the post-treatment soil samples collected in March 2016 following the initial CAPS injection program. Ten borings (087-SB-710 through 087-SB-719) were drilled no more than 15 feet apart (shown on Figure 5A Revised), as close as possible to the March 2016 borings, and straddling the locations of the previous Remedial and/or Pre-Design Investigation borings where Cr(VI) was previously detected in concentrations above 20 mg/kg in soils. All soil borings were drilled with a Geoprobe® drill rig. Samples were extracted from the soil boring location in 4-foot long acetate sleeves fitted in the steel Geoprobe® tooling. Samples were collected at 1 foot intervals (12 to 13 and 13 to 14 feet bgs). All soil samples were analyzed for the following:

- Hexavalent chromium;
- Total chromium;

- Sulfide; and
- pH

On December 7, 2016, Amec Foster Wheeler also collected post injection groundwater samples from the 3 monitoring wells and 5 temporary well points that were installed in the TA-10-1 area during the injection program. A total of 8 groundwater samples were collected and analyzed for sulfide and sulfate.

The groundwater sample results are summarized on Table 4 and the soil sample results are summarized on Table 5. As seen from the soil data, all locations, but one, were reduced to below 20 mg/kg for Cr(VI). This sample is 087-SB-712 (13-14).

CONCLUSIONS

Key observations of the injection program are summarized below:

- The overall average injection flow rate for the Site was 3.33 gallons per minute.
- Propagation of injectant fluids was evidenced by one or more of the following:
    - Decrease in the depth to groundwater table in shallow MW and TWPs;
    - Marked increase in pH;
    - Marked decrease in ORP; and
    - Increases in SC or TDS.
- Sulfide concentrations in 087-MW-132, the MW in the center of the TA-10-1 subarea were much higher during the re-injection program as compared to the initial injection program. This suggests that groundwater conditions inside the boundary of the TA-10-1 area were more conducive to treatment of the remaining chromium-impacted soils. For comparison, Table 1 from the October 12, 2015 technical memorandum summarizing the initial injection of CAPS is included in Attachment 1.
- Elevated sulfide and sulfate concentrations were measured in TWP 087-TWP-41, which is east of the boundary of TA-10-1, indicating a preferential pathway in this direction. Since this direction is upgradient of the TA-10-1 area, groundwater is expected to flow back into the TA-10-1 area after the injections were completed. While slightly elevated sulfide and sulfate concentrations were detected in the TWPs and MWs located north, west, and south of the TA-10-1 area, they were not as high as those in TWP 087-TWP-41.

Based on the above summary, Amec Foster Wheeler concludes that the reinjection program was successfully implemented in accordance with the Proposed Implementation Plan. The interim soils data indicates successful reduction of Cr(VI) concentrations in soils to below 20 mg/kg in all

but one recalcitrant location. Consequently, an additional limited re-injection program in this one location is recommended below.

RECOMMENDATIONS

Amec Foster Wheeler recommends an additional limited re-injection of CAPS in the one recalcitrant location. This additional re-injection program is summarized as follows:

- The same volume of CAPS as that injected during the re-injection program described above will be injected into the closest IP to the 087-SB-712 soil boring location, 087-IP-10-1, which is 5 feet from the 087-SB-712 soil boring.
- A total volume of 650 gallons of an approximate 7% CAPS solution will be injected by diluting 165 gallons of 29% CAPS in 485 gallons of potable water.
- The injection will be divided into 2 equal injection events (325 gallons each) separated by no more than a week.
- Since the IP consists of a nested well pair screened at 10 to 13 feet bgs and 13 to 16 feet bgs, each 325 gallon injection will be divided equally amongst the two nested pairs.
- All other procedures activities will be generally identical to those indicated above for the re-injection program.
- Post-treatment groundwater samples will be collected from two TWPs (087-TWP-38 and 087-TWP-39) and all three MWs (087-MW-132, 087-MW-133, and 087-MW-134) for several weeks following completion of the additional limited re-injection program. Depending on the results, the post-treatment groundwater sampling may be terminated after 2 or 3 weeks.

To provide an early indication of the efficacy of the additional limited re-injection program, Honeywell will implement post-treatment re-sampling of the recalcitrant sample location 087-SB-712 (13-14) as early as February or March 2017. Subsequent post-treatment soil sampling may be implemented 6 months after the completion of the additional limited re-injection program in the third quarter 2017. Results of all soil sampling will be shared with the Parties upon receipt and validation/evaluation of the data.

FIGURES

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN–SITU TREATMENT AREAS–03

PREPARED/DATE: STR 06/09/15

CHECKED/DATE: DN 06/09/15

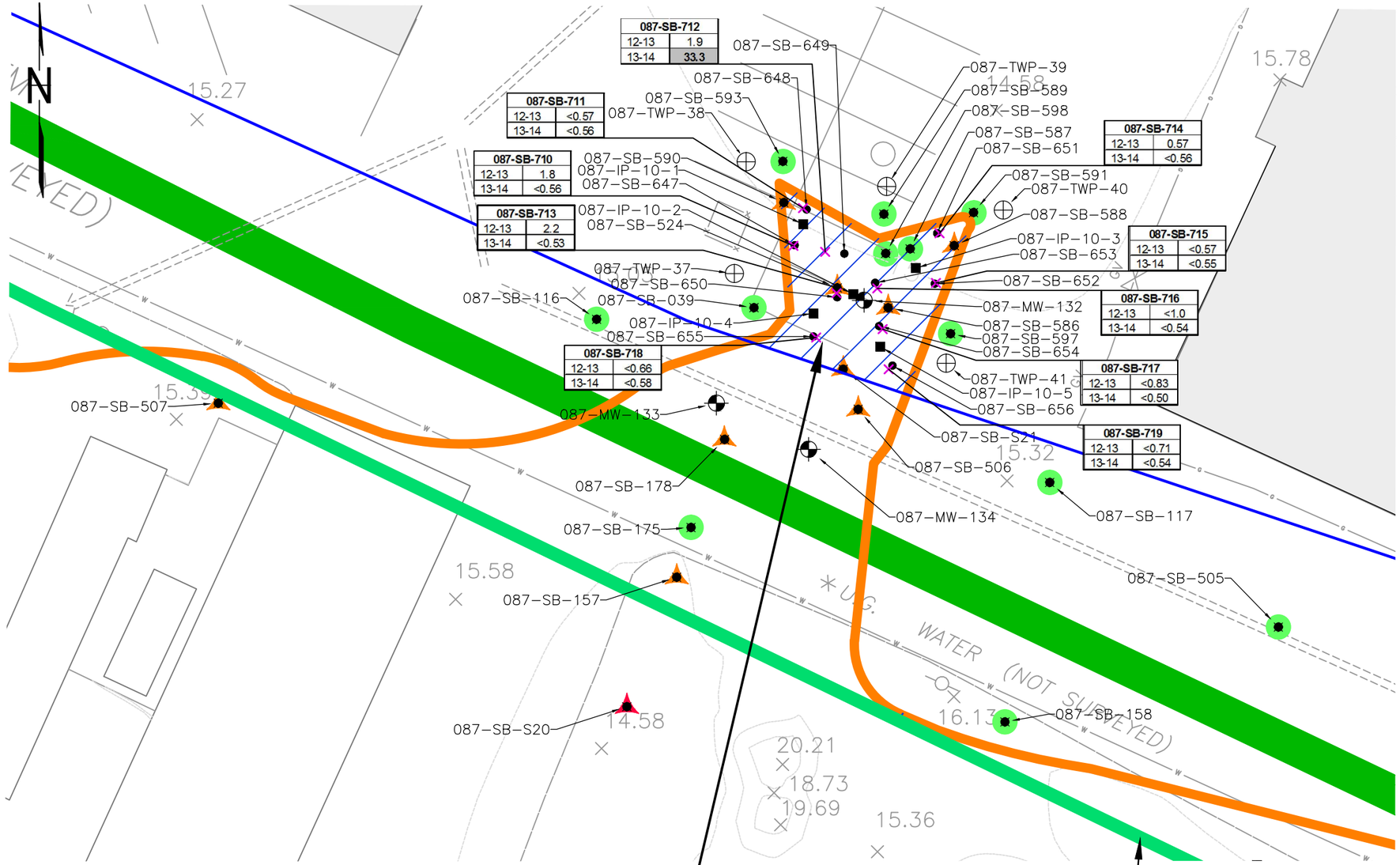
amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FI□□RE □□RE□I□ED□
TARGETED IN-SITU
TREATMENT AREAS
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (i) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

P:\CADD\MONTWELL\JERSEY CITY\SA 6 NORTH\REPORTS\3480150438\SA7\01\CURRENT DRAWINGS\TARGETED IN-SITU TREATMENT NORTHERN PORTION 01.dwg Thu, 12 Jan 2017 - 8:03am scott.radke Layout: FIG 5A



LEGEND

- DECEMBER 2016 SOIL BORING
- MARCH 2016 (6-MONTH) SOIL BORING
- PREVIOUS SOIL BORINGS
- EXISTING NEW PERMANENT MONITORING WELL LOCATION
- INJECTION POINT LOCATION
- EXISTING OBSERVATION TEMPORARY WELL POINT (TWP)
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20-240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 72" FORCEMAIN SANITARY SEWER
- 54" OUTFALL (ABANDONED)
- NORTHERN EDGE OF BAYFRONT REDEVELOPMENT CURBLINE OF NEW STEGMAN BOULEVARD
- LIMITS OF TARGETED IN-SITU TREATMENT
- RELOCATED HYDRAULIC BARRIER
- APPROXIMATE LIMITS OF AREA WHERE DETECTED HEXAVALENT CHROMIUM CONCENTRATION VALUES >20 mg/kg
- EXISTING BUILDINGS
- IN-SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

TARGETED TREATMENT AREA 10-1
- 5 INJECTION POINTS – SPACED @ 15' O.C.
- CONTAMINATED ZONE 12'-14'
- INJECTION ZONE 10'-16'
- NUMBER OF INJECTION POINTS MAY BE ADJUSTED IN THE FIELD

AREA = APPROX. 800 SF

PROPOSED HYDRAULIC BARRIER WALL.

0 10 20 40
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
1	07/28/16	REVISED TO ADJUST INJECTION POINTS (INCLUDED IN 07/28/16 DGW-PBR APPLICATION)	STR	DEN

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN-SITU TREATMENT NORTHERN PORTION 01

PREPARED/DATE: STR 06/05/15

CHECKED/DATE: DN 06/05/15

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FI□□RE □A □RE□I□ED□
PROPOSED TAR□ETED IN-SIT□
INJECTION NORTHERN PORTION O□
TREATMENT AREA 10-1
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

TABLES

TABLE 1
SUMMARY OF IN-SITU INJECTION AREAS: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area	Injection Date(s)	PROPOSED PER ERFS WORK PLAN						COMPLETED						Injection Time (mins)	Avg. Injection Flow Rate (gpm)	Minimum Radius of Influence (ft)	Notes
		Injection Depth (ft bgs)	No. of IPs	No. of TWPs	Stock Solution Volume (~29% CAPS) (gals)	Diluted CAPS Sol'n Injection Volume (gals)	Approx. CAPS Injection Conc (%)	Injection Depth (feet bgs)	No. of IPs	No. of TWPs	Stock Solution Volume (~29% CAPS) (gals)	Diluted CAPS Sol'n Injection Volume (gals)	Approx. CAPS Injection Conc (%)				
TA-10-1	9/7/2016, 9/14/2016, 10/5/2016, 10/12/2016, and 10/26/2016	10-16	10	5	825	3,250	7.36%	10-16	10	5	825	3,250	7.36%	1,307	3.33	10	No problems noted while injecting.

Notes:

ft =	Feet
bgs =	Below Ground Surface
TWPs =	Temporary Well Points
gals =	Gallons
mins =	Minutes
gpm =	Gallons per Minute
psi =	Pounds per Square Inch
CAPS =	Calcium Polysulfide
IP =	Injection Point

TABLE 2
INJECTION LOG DURING IN-SITU INJECTION PROGRAM: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area	Injection Point (IP) ID	Injection Date	Injection Start Depth (ft bgs)	Injection End Depth (ft bgs)	CAPs Sol'n Injected Volume (Gals)	Diluted CAPs Sol'n Injected Volume (Gals)	Injected CAPs Conc (%)	Injection Time (Mins)	Injection Flow Rate (gpm)
TA-10	IP-10-1A	9/7/2016	16	10	16.5	65	7.36%	8	8.13
	IP-10-1B	9/7/2016			16.5	65	7.36%	30	2.17
	IP-10-2A	9/7/2016			16.5	65	7.36%	7	9.29
	IP-10-2B	9/7/2016			16.5	65	7.36%	18	3.61
	IP-10-3A	9/7/2016			16.5	65	7.36%	6	10.83
	IP-10-3B	9/7/2016			16.5	65	7.36%	23	2.83
	IP-10-4A	9/7/2016			16.5	65	7.36%	5	13.00
	IP-10-4B	9/7/2016			16.5	65	7.36%	42	1.55
	IP-10-5A	9/7/2016			16.5	65	7.36%	8	8.13
	IP-10-5B	9/7/2016			16.5	65	7.36%	20	3.25
TA-10	IP-10-1A	9/14/2016	16	10	16.5	65	7.36%	44	1.48
	IP-10-1B	9/14/2016			16.5	65	7.36%	31	2.10
	IP-10-2A	9/14/2016			16.5	65	7.36%	33	1.97
	IP-10-2B	9/14/2016			16.5	65	7.36%	31	2.10
	IP-10-3A	9/14/2016			16.5	65	7.36%	50	1.30
	IP-10-3B	9/14/2016			16.5	65	7.36%	20	3.25
	IP-10-4A	9/14/2016			16.5	65	7.36%	15	4.33
	IP-10-4B	9/14/2016			16.5	65	7.36%	24	2.71
	IP-10-5A	9/14/2016			16.5	65	7.36%	18	3.61
	IP-10-5B	9/14/2016			16.5	65	7.36%	14	4.64
TA-10	IP-10-1A	10/5/2016	16	10	16.5	65	7.36%	30	2.17
	IP-10-1B	10/5/2016			16.5	65	7.36%	38	1.71
	IP-10-2A	10/5/2016			16.5	65	7.36%	15	4.33
	IP-10-2B	10/5/2016			16.5	65	7.36%	24	2.71
	IP-10-3A	10/5/2016			16.5	65	7.36%	34	1.91
	IP-10-3B	10/5/2016			16.5	65	7.36%	17	3.82
	IP-10-4A	10/5/2016			16.5	65	7.36%	16	4.06
	IP-10-4B	10/5/2016			16.5	65	7.36%	16	4.06
	IP-10-5A	10/5/2016			16.5	65	7.36%	34	1.91
	IP-10-5B	10/5/2016			16.5	65	7.36%	36	1.81
TA-10	IP-10-1A	10/12/2016	16	10	16.5	65	7.36%	26	2.50
	IP-10-1B	10/12/2016			16.5	65	7.36%	33	1.97
	IP-10-2A	10/12/2016			16.5	65	7.36%	24	2.71
	IP-10-2B	10/12/2016			16.5	65	7.36%	22	2.95
	IP-10-3A	10/12/2016			16.5	65	7.36%	33	1.97
	IP-10-3B	10/12/2016			16.5	65	7.36%	19	3.42
	IP-10-4A	10/12/2016			16.5	65	7.36%	23	2.83
	IP-10-4B	10/12/2016			16.5	65	7.36%	15	4.33
	IP-10-5A	10/12/2016			16.5	65	7.36%	21	3.10
	IP-10-5B	10/12/2016			16.5	65	7.36%	19	3.42
TA-10	IP-10-1A	10/26/2016	16	10	16.5	65	7.36%	23	2.83
	IP-10-1B	10/26/2016			16.5	65	7.36%	40	1.63
	IP-10-2A	10/26/2016			16.5	65	7.36%	46	1.41
	IP-10-2B	10/26/2016			16.5	65	7.36%	35	1.86
	IP-10-3A	10/26/2016			16.5	65	7.36%	42	1.55
	IP-10-3B	10/26/2016			16.5	65	7.36%	40	1.63
	IP-10-4A	10/26/2016			16.5	65	7.36%	26	2.50
	IP-10-4B	10/26/2016			16.5	65	7.36%	39	1.67
	IP-10-5A	10/26/2016			16.5	65	7.36%	34	1.91
	IP-10-5B	10/26/2016			16.5	65	7.36%	40	1.63
Totals	**10 Injection points**	**9/7/2016, 9/14/2016, 10/5/2016, 10/12/2016, 10/26/2016**			**825.00**	**3,250**		**1,307**	

Notes:

ft =	Feet
bgs =	Below Ground Surface
TWPs =	Temporary Well Points
gals =	Gallons
mins =	Minutes
gpm =	Gallons per Minute
psi =	Pounds per Square Inch
CAPS =	Calcium Polysulfide
IP =	Injection Point

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 North
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	AmecFW/ ERFS	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
087-TWP-37	AmecFW	Baseline	8/23/2016	8:54 AM	10.66	-157	7.27	0.99	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:00 AM	10.74	-25	6.93	1.28	Pre-injections
	ERFS	During Injections	9/7/2016	10:45 AM	10.29	-203	7.62	1.44	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	10.15	-197	7.41	1.72	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	9:13 AM	10.88	-89	7.18	1.40	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	10.33	-54	9.74	1.94	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:25 AM	10.81	-109	8.19	1.57	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:15 AM	10.85	-151	7.28	1.68	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:00 AM	10.85	-217	7.24	1.69	Sampling Event
	AmecFW	Between Injections	9/29/2016	11:50 AM	10.93	-150	7.51	1.44	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	8:40 AM	10.78	-124	7.44	1.85	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	10.24	-243	7.90	2.45	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:25 PM	10.81	-155	7.35	1.95	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	10:35 AM	10.85	-185	7.54	2.03	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	10.81	-139	8.11	1.92	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	10.44	-139	8.91	2.57	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	9.79	-133	9.38	2.97	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:00 AM	10.73	-154	7.46	1.95	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:30 AM	10.84	-131	7.34	1.62	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:15 AM	10.91	-167	7.45	1.17	Pre-injections
	AmecFW	During Injections	10/26/2016	2:23 PM	10.46	-183	8.19	2.26	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	9:49 AM	10.69	-145	7.06	2.03	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:30 AM	10.40	-143	7.06	1.31	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:40 AM	9.66	-319	7.70	2.12	6 Month Sampling Event
087-TWP-38	AmecFW	Baseline	8/23/2016	9:03 AM	10.64	-150	7.33	0.86	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:00 AM	10.66	-106	7.37	1.15	Pre-injections
	ERFS	During Injections	9/7/2016	10:45 AM	10.30	-167	7.63	1.19	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	10.14	-162	7.58	1.27	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	9:35 AM	10.81	-108	7.65	1.07	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	10.28	-117	9.36	1.23	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:15 AM	10.73	-97	8.09	1.17	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:20 AM	10.77	-145	7.42	1.02	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:10 AM	10.78	-211	7.39	1.04	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:00 PM	10.85	-148	7.48	1.00	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:00 AM	10.71	-160	7.25	1.28	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	10.31	-234	8.17	1.23	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:30 PM	10.73	-166	7.53	1.26	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	10:40 AM	10.77	-167	7.58	1.16	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	10.74	-133	8.47	1.16	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	10.42	-230	9.74	1.27	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	9.82	-367	10.12	1.99	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:05 AM	10.66	-156	7.51	1.37	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:35 AM	11.76	-123	7.55	0.94	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	9:00 AM	10.84	-175	7.44	1.01	Pre-injections
	AmecFW	During Injections	10/26/2016	2:47 PM	10.45	-436	8.82	2.95	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	9:53 AM	10.63	-323	7.88	2.19	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:39 AM	10.32	-448	8.12	1.64	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:25 AM	9.65	-330	7.30	2.23	6 Month Sampling Event

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 North
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	AmecFW/ ERFS	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
087-TWP-39	AmecFW	Baseline	8/23/2016	9:07 AM	10.24	-157	7.31	0.92	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:15 AM	10.30	-126	7.32	1.27	Pre-injections
	ERFS	During Injections	9/7/2016	10:45 AM	9.99	-158	7.42	1.37	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	9.51	-157	7.59	1.64	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	9:40 AM	10.46	-108	7.60	1.82	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	10.13	-78	7.87	2.19	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:35 AM	10.36	-103	8.25	1.89	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:25 AM	10.41	-144	7.69	1.95	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:15 AM	10.43	-182	7.50	1.78	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:05 PM	10.56	-148	7.51	1.51	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:00 AM	10.35	-153	7.53	1.93	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	10.05	-173	7.92	1.72	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:32 PM	10.35	-163	7.59	1.94	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	10:45 AM	10.42	-164	7.55	1.96	Reading Event (No Sample Taken)
	ERFS	Pre-Injection	10/12/2016	7:50 AM	10.41	-125	8.22	1.72	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	10.11	-183	9.28	2.11	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	9.73	-220	9.26	2.03	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:10 AM	10.28	-156	7.61	2.08	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:40 AM	10.40	-119	7.76	1.67	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:15 AM	10.49	-107	7.43	1.30	Pre-injections
	AmecFW	During Injections	10/26/2016	2:31 PM	10.16	-254	8.21	2.07	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	9:57 AM	10.29	-216	7.64	2.30	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:40 AM	9.95	-124	7.70	1.34	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:35 AM	9.25	-252	7.55	2.09	6 Month Sampling Event
087-TWP-40	AmecFW	Baseline	8/23/2016	9:14 AM	10.20	-150	7.23	1.78	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:15 AM	10.26	-102	7.19	1.84	Pre-Injections
	ERFS	During Injections	9/7/2016	10:45 AM	10.03	-150	7.21	1.85	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	9.85	-140	7.22	1.83	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	9:45 AM	10.48	-98	7.37	1.85	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	10.02	-58	7.34	1.90	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:40 AM	10.31	-104	8.06	1.84	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:30 AM	10.36	-146	7.38	1.96	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:20 AM	10.36	-166	7.20	1.95	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:15 PM	10.43	-145	7.23	1.92	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:10 AM	10.31	-135	7.21	2.03	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:26 PM	10.11	-147	7.44	1.85	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:40 PM	10.31	-161	7.18	1.94	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	10:50 AM	10.39	-156	7.16	1.99	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	10.32	-124	8.00	1.71	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	10.22	-148	8.70	1.72	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	9.95	-168	8.44	1.74	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:15 AM	10.24	-137	7.21	1.86	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:50 AM	10.37	-109	7.34	1.57	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:30 AM	10.45	-171	7.29	1.55	Pre-injections
	AmecFW	During Injections	10/26/2016	2:35 PM	10.18	-198	7.57	1.51	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	10:01 AM	10.28	-191	7.22	2.03	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:50 AM	9.88	-127	7.24	1.25	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:45 AM	9.17	-235	7.38	1.85	6 Month Sampling Event

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 North
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	AmecFW/ ERFS	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
087-TWP-41	AmecFW	Baseline	8/23/2016	9:34 AM	10.54	-99	6.93	1.47	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:15 AM	10.60	-55	6.78	1.71	Pre-Injections
	ERFS	During Injections	9/7/2016	10:45 AM	8.39	-391	8.77	6.14	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	10.11	-470	9.42	21.5	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	9:55 AM	10.79	-424	8.85	6.78	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	10.03	-460	9.09	29.20	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:50 AM	10.65	-428	10.79	8.48	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:30 AM	10.70	-463	9.14	9.51	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:30 AM	10.71	-462	8.56	6.52	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:20 PM	10.81	-381	8.42	5.71	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:18 AM	10.66	-424	8.59	6.74	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	10.65	-508	10.65	28.20	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:40 PM	10.71	-493	9.07	12.00	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	11:00 AM	10.73	-482	8.71	8.18	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	10.68	-430	9.67	6.19	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	10.08	-511	8.13	24.90	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	10.01	-499	12.61	18.60	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:20 AM	10.61	-471	8.57	7.19	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:52 AM	10.73	-427	8.69	6.16	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:30 AM	11.76	-467	8.46	5.84	Pre-injections
	AmecFW	During Injections	10/26/2016	2:45 PM	NR	-518	9.44	21.90	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	10:05 AM	10.56	-448	8.75	8.91	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:50 AM	10.19	-449	7.78	4.68	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:50 AM	9.49	-419	7.52	6.08	6 Month Sampling Event
087-MWP-132	AmecFW	Baseline	8/23/2016	9:38 AM	9.11	-134	7.24	1.400	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:15 AM	9.20	-98	7.07	1.19	Pre-Injections
	ERFS	During Injections	9/7/2016	10:45 AM	8.40	-269	8.20	1.61	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	8.56	-304	8.69	2.18	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	10:00 AM	9.34	-381	8.88	2.35	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	9.01	-391	9.40	4.42	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	11:50 AM	9.25	-371	10.17	5.36	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:35 AM	9.32	-451	8.98	6.66	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:30 AM	9.31	-461	8.57	6.38	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:30 PM	9.40	-420	8.51	5.18	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:22 AM	9.23	-454	8.86	9.04	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	8.57	-479	9.51	9.51	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:41 PM	9.24	-486	8.87	10.80	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	11:00 AM	9.32	-489	8.84	10.10	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	9.30	-444	10.14	9.72	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	8.41	-467	11.56	9.03	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	8.16	-484	12.05	13.90	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:20 AM	9.21	-489	9.01	13.00	Sampling Event
	AmecFW	Between Injections	10/24/2016	11:55 AM	9.31	-449	9.12	8.94	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:30 AM	9.40	-509	9.15	11.50	Pre-injections
	AmecFW	During Injections	10/26/2016	2:45 PM	8.37	-527	9.55	25.10	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	10:09 AM	9.15	-485	9.24	13.10	Sampling Event
	AmecFW	Between Injections	11/8/2016	11:55 AM	8.85	-495	8.75	12.20	Sampling Event
	AmecFW	Post-Injections	12/7/2016	11:55 AM	8.10	-476	8.45	6.98	6 Month Sampling Event

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 North
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	AmecFW/ ERFS	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
087-MWP-133	AmecFW	Baseline	8/23/2016	9:47 AM	9.07	-125	7.39	0.65	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:30 AM	9.17	-105	7.17	0.88	Pre-Injections
	ERFS	During Injections	9/7/2016	10:45 AM	9.01	-111	7.21	0.87	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	8.95	-124	7.27	0.89	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	10:05 AM	9.38	-153	7.80	0.85	Sampling Event
	AmecFW	Between Injections	9/19/2016	12:00 PM	9.21	-237	9.60	0.71	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:40 AM	9.27	-209	7.72	0.80	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:35 AM	9.27	-226	7.54	0.72	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:32 PM	9.35	-261	7.32	0.78	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:28 AM	9.21	-243	7.41	0.83	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	9.07	-144	7.57	0.83	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:43 PM	9.27	-250	7.32	0.87	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	11:05 AM	9.25	-245	7.28	0.84	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	9.24	-121	8.12	0.85	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	9.21	-266	9.94	0.88	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	8.96	-232	10.65	0.87	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:30 AM	9.20	-216	7.58	0.83	Sampling Event
	AmecFW	Between Injections	10/24/2016	12:00 PM	9.25	-200	7.80	0.59	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:30 AM	9.35	-161	7.06	0.68	Pre-injections
	AmecFW	During Injections	10/26/2016	2:40 PM	9.15	-199	7.51	0.65	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	10:12 AM	9.00	-228	7.56	0.70	Sampling Event
	AmecFW	Between Injections	11/8/2016	12:00 PM	8.81	-150	8.27	0.83	Sampling Event
	AmecFW	Post-Injections	12/7/2016	12:00 PM	7.97	-261	7.64	0.70	6 Month Sampling Event
	AmecFW	Post-Injections	12/21/2016	1:50 PM	8.03	29	6.57	0.86	6 Month Sampling Event
087-MWP-134	AmecFW	Baseline	8/23/2016	9:43 AM	9.17	-152	7.50	1.98	Baseline Readings
	ERFS	Pre-Injection	9/7/2016	8:30 AM	9.25	-112	7.17	1.14	Pre-Injections
	ERFS	During Injections	9/7/2016	10:45 AM	8.64	-129	7.25	1.19	Injection of CAPS
	ERFS	During Injections	9/7/2016	2:10 PM	8.75	-62	7.22	1.12	Post-Injections (All Injection Points)
	AmecFW	Between Injections	9/12/2016	10:10 AM	9.87	-135	7.48	1.14	Sampling Event
	ERFS	During Injections	9/14/2016	1:20 PM	8.99	-49	6.90	1.21	Injection of CAPS
	AmecFW	Between Injections	9/19/2016	12:05 PM	9.31	-215	9.09	0.94	Sampling Event
	AmecFW	Between Injections	9/21/2016	9:50 AM	9.38	-212	8.05	0.98	Reading Event (No Sample Taken)
	AmecFW	Between Injections	9/26/2016	11:40 AM	9.38	-219	7.37	0.91	Sampling Event
	AmecFW	Between Injections	9/29/2016	12:35 PM	9.45	-233	7.39	0.91	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/3/2016	9:30 AM	9.30	-223	7.39	0.97	Sampling Event
	ERFS/AmecFW	During Injections	10/5/2016	2:30 PM	8.80	-143	7.62	0.76	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/7/2016	12:45 PM	9.32	-233	7.35	1.02	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/10/2016	11:05 AM	9.36	-227	7.13	0.81	Sampling Event
	ERFS	Pre-Injection	10/12/2016	7:50 AM	9.32	-116	7.85	0.94	Pre-injections
	ERFS	During Injections	10/12/2016	11:05 AM	8.96	-221	9.48	0.96	Injection of CAPS
	ERFS	Post-Injections	10/12/2016	2:00 PM	8.65	-206	10.65	1.03	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/17/2016	10:31 AM	9.27	-210	7.58	0.98	Sampling Event
	AmecFW	Between Injections	10/24/2016	12:02 PM	9.35	-190	7.79	0.79	Sampling Event
	AmecFW	Pre-Injection	10/26/2016	8:30 AM	9.45	-159	7.12	0.88	Pre-injections
	AmecFW	During Injections	10/26/2016	2:40 PM	8.88	-193	7.55	0.89	Post-Injections (All Injection Points)
	AmecFW	Between Injections	10/31/2016	10:19 AM	9.22	-210	7.58	1.40	Sampling Event
	AmecFW	Between Injections	11/8/2016	12:03 PM	8.91	-140	7.68	1.42	Sampling Event
	AmecFW	Post-Injections	12/7/2016	12:05 PM	8.11	-253	7.26	1.50	6 Month Sampling Event
	AmecFW	Post-Injections	12/21/2016	2:05 PM	8.17	-114	7.01	1.44	6 Month Sampling Event

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 North
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Monitoring Point ID	AmecFW/ ERFS	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
087-IP-10-1A	AmecFW	Between Injections	9/21/2016	10:10 AM	11.92	-504	10.41	14.30	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	12:48 PM	11.92	-523	10.24	26.40	Reading Event (No Sample Taken)
087-IP-10-1B	AmecFW	Between Injections	9/21/2016	1:15 PM	12.05	-492	10.55	5.38	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	12:51 PM	12.09	-524	11.10	25.00	Reading Event (No Sample Taken)
087-IP-10-2A	AmecFW	Between Injections	9/21/2016	9:55 AM	11.90	-493	10.32	10.10	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	12:54 PM	11.92	-519	10.20	22.80	Reading Event (No Sample Taken)
087-IP-10-2B	AmecFW	Between Injections	9/21/2016	10:00 AM	11.74	-492	10.89	3.96	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	12:55 PM	11.67	-500	10.21	4.78	Reading Event (No Sample Taken)
087-IP-10-3A	AmecFW	Between Injections	9/21/2016	1:20 PM	11.69	-504	10.13	17.20	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	12:57 PM	11.65	-520	10.22	23.20	Reading Event (No Sample Taken)
087-IP-10-3B	AmecFW	Between Injections	9/21/2016	1:25 PM	11.93	-430	10.06	0.74	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	1:00 PM	11.90	-501	10.26	4.70	Reading Event (No Sample Taken)
087-IP-10-4A	AmecFW	Between Injections	9/21/2016	10:05 AM	11.70	-502	10.48	12.60	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	1:03 PM	11.65	-516	10.03	21.20	Reading Event (No Sample Taken)
087-IP-10-4B	AmecFW	Between Injections	9/21/2016	10:05 AM	11.96	-454	10.04	1.68	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	1:06 PM	11.90	-484	9.91	3.12	Reading Event (No Sample Taken)
087-IP-10-5A	AmecFW	Between Injections	9/21/2016	9:45 AM	11.97	-496	10.14	13.90	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	1:09 PM	11.99	-523	10.15	27.20	Reading Event (No Sample Taken)
087-IP-10-5B	AmecFW	Between Injections	9/21/2016	9:52 AM	12.02	-493	10.30	9.48	Reading Event (No Sample Taken)
	AmecFW	Between Injections	10/7/2016	1:12 PM	11.98	-514	10.41	11.60	Reading Event (No Sample Taken)

Notes:

ft =	Feet
bgs =	Below Ground Surface
mV =	Millivolts
uS =	MicroSiemens
TWP =	Temporary Well Point
IP =	Injection Point
mins =	Minutes
hrs =	Hours
NR=	No Result

TABLE 4
SULFIDE/ SULFATE ANALYTICAL DATA: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Sampling Date	087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8/23/2016	5.6	<10	6.3	<10	5.2	<10	4.4	<10	18.9	81.7	2.3	<10	<2.0	<10	<2.0	<10
9/12/2016	154	28.8	<2.0	<10	<2.0	<10	23.1	<10	2.7	<10	2.4	<10	3.6	<10	800	115
9/19/2016	1,140	239	<2.0	12.4	<2.0	<20	4.1	57.4	3.1	<10	3	53.4	3.9	<10	2,560	295
9/26/2016	1,140	459	<2.0	<10	12.1	<10	114	74.4	73.6	<10	<6.0	34.9	12.4	<10	1,160	437
10/3/2016	680	359	<2.0	10.3	<4.0	<10	<8.0	92.8	<4.0	<10	<4.0	36	<4.0	<10	1,080	372
10/10/2016	2,000	368	<2.0	18.8	3.9	<10	186	100	26.8	31	<2.0	50.3	18.8	<10	1,590	469
10/17/2016	2,680	429	<20	29.3	3.1	<10	37.6	280	17.6	79.6	9.6	100	10	10.4	1,320	529
10/24/2016	2,700	1,090	<2.0	<10	<2.0	<10	12.4	120	3.1	157	<2.0	86.3	<2.0	<10	832	607
10/31/2016	3,210	766	<2.0	20.2	<2.0	23.5	6.5	196	150	247	<2.0	111	16.5	<10	1,380	739
11/8/2016	1,700	413	<2.0	10	<2.0	23.4	15.4	214	256	176	2.3	110	7.1	<10	574	978
12/7/2016	760	1340	<2.0	54.1	<2.0	19.7	<4.0	185	72.6	324	<2.0	278	<4.0	<10	282	1120
12/21/2016	NS	NS	<2.0	56.6	<2.0	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

Baseline Readings

mg/L = milligrams/liter

NS= Not Sampled

.

TABLE 5
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-590*	087-SB-647		087-SB-647		087-SB-648		087-SB-648		087-SB-710		087-SB-710		087-SB-711		087-SB-711		087-SB-524*		087-SB-649		087-SB-649		087-SB-650		087-SB-650		087-SB-712		087-SB-712		087-SB-713		087-SB-713	
Sample Depth (ft):			12-14	12-13		13-14		12-13		13-14		12-13		13-14		12-13		13-14		12-14		12-13		13-14		12-13		13-14		12-13		13-14		12-13		13-14	
Lab Sample ID:			JB6885-1/1R	JC16343-1		JC16343-2		JC16343-3		JC16343-4		JC32905-1/1R		JC32905-2		JC32905-3R		JC32905-4		JA17466-14/14R/14RT		JC16343-5		JC16343-6		JC16343-7		JC16343-8/8R		JC32905-5		JC32905-6/6TA		JC32905-7/7TA		JC32905-8/8R	
Date Sampled:			5/17/2012	3/15/2016		3/15/2016		3/15/2016		3/15/2016		12/5/2016		12/5/2016		12/5/2016		12/5/2016		4/28/2009		3/15/2016		3/15/2016		3/15/2016		3/15/2016		12/5/2016		12/5/2016		12/5/2016		12/5/2016	
TAL Metals Analysis																																					
Chromium	mg/kg	NS	NT	1,340	J	204	J	2,080	J	309	J	582	J	5,120	J	9,150	J	1,660	J	4,640		3,250	J	73.5	J	776	J	1,980	J	1,930	J	1,030	J	6,180	J	1,460	J
General Chemistry																																					
Chromium, Hexavalent	mg/kg	20	**34.5**	4.0	J	1.1	J	1.3	J	**128**		1.8**		<0.56	UJ	<0.57	U	<0.56	U	**27.6**	**J**	2.3	J	1.5	J	**42.2**	**J**	**87.7**		1.9		**33.3****	J	2.2**	J	<0.53	U
Sulfide	mg/kg	NS	NT	<6.1	U	<5.1	U	<5.2	U	<5.2	U	<5.3	U	684		<5.6	U	662		NT		<5.1	U	<5.4	U	5		5		<5.7	U	161		279		558	

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) and Cr(VI) stability fields. Statistical examination of the laboratory Eh QC data indicates these samples are not oxidizing with the preferred level of certainty of p = 0.95 or greater (0.85 for these samples). This result coupled with the extremely low recovery of the soluble (-0.3%) and insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the appearance of a reducing character. Additional spikes as high as 3500 mg/kg for this sample failed to recover more than 10% of the Cr(VI) spike

Remedial Investigation Analytical Data
6-Month Post Injection (March 2016) Analytical Data
Most Recent (December 2016) Analytical Data
Bold and shaded concentrations exceed the Most Stringent NJ Residential Direct Contact Soil Remediation Standard
NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 1/04/17
Checked By: DEN 1/04/17

.

TABLE 5
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-588-DP*		087-SB-651		087-SB-651		087-SB-652		087-SB-652		087-SB-714		087-SB-714		087-SB-715		087-SB-715		087-SB-586*	087-SB-653		087-SB-653		087-SB-654		087-SB-654		087-SB-716		087-SB-716		087-SB-717		087-SB-717	
Sample Depth (ft):			12-14		12-13		13-14		12-13		13-14		12-13		13-14		12-13		13-14		12-14	12-13		13-14		12-13		13-14		12-13		13-14		12-13		13-14	
Lab Sample ID:			JB6885-4/4R		JC16343-9		JC16343-10/10R		JC16343-11/11R		JC16343-12		JC32905-9		JC32905-10		JC32905-11		JC32905-12		JB6885-6/6R	JC16343-13/13R		JC16343-14		JC16343-15		JC16343-16		JC32905-13		JC32905-14		JC32905-15		JC32905-16	
Date Sampled:			5/17/2012		3/15/2016		3/15/2016		3/15/2016		3/15/2016		12/5/2016		12/5/2016		12/5/2016		12/6/2016		5/17/2012	3/15/2016		3/15/2016		3/15/2016		3/15/2016		12/5/2016		12/5/2016		12/5/2016		12/6/2016	
TAL Metals Analysis																																				
Chromium	mg/kg	NS	NT		159	J	72.9	J	160	J	66	J	137	J	288	J	321	J	701	J	NT	412	J	143	J	674	J	174	J	75.9	J	1,020	J	168	J	772	J
General Chemistry																																				
Chromium, Hexavalent	mg/kg	20	**26.7**	**J**	0.63	J	1.7		1.8		<0.55	UJ	0.57		<0.56	U	<0.57	U	<0.55	U	**25.1**	1.6		6.2	J	1.7	J	1.1	J	<1.0	U	<0.54	U	<0.83	U	<0.50	U
Sulfide	mg/kg	NS	NT		<5.3	U	<5.2	U	<4.9	U	<5.3	U	<5.3	U	284		<5.5	U	439		NT	<5.0	U	<4.9	U	<5.4	U	<4.7	U	359		897		<8.0	U	77	

Notes:

*The original sample ID for the remedial investigation sample tha

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) a
the laboratory Eh QC data indicates these samples are not oxidizin
greater (0.85 for these samples). This result coupled with the extre
insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the ap
spikes as high as 3500 mg/kg for this sample failed to recover mor

Remedial Investigation Analytical Data

6-Month Post Injection (March 2016) Analytical Data

Most Recent (December 2016) Analytical Data

Bold and shaded concentrations exceed the Most Stringent NJ Residential Direct Contact Soil Remediation Standard

NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 1/04/17
Checked By: DEN 1/04/17

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TABLE 5
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-S21*		087-SB-655		087-SB-655		087-SB-656		087-SB-656		087-SB-718		087-SB-718		087-SB-719		087-SB-719	
Sample Depth (ft):			**12-14**		**12-13**		**13-14**		**12-13**		**13-14**		**12-13**		**13-14**		**12-13**		**13-14**	
Lab Sample ID:			**NA**		**JC16343-17**		**JC16343-18**		**JC16343-19**		**JC16343-20/20R**		**JC32905-17**		**JC32905-18**		**JC32905-19**		**JC32905-20**	
Date Sampled:			**5/20/1997**		**3/16/2016**		**3/16/2016**		**3/16/2016**		**3/16/2016**		**12/5/2016**		**12/5/2016**		**12/5/2016**		**12/5/2016**	
TAL Metals Analysis																				
Chromium	mg/kg	NS	405	J	580	J	1,930	J	7,310	J	113	J	820	J	3,130	J	104	J	3,470	J
General Chemistry																				
Chromium, Hexavalent	mg/kg	20	**39.0**	**J**	2.7	J	**21.5**	J	10.9	J	**90.9**		<0.66	U	<0.58	U	<0.71	U	<0.54	U
Sulfide	mg/kg	NS	NT		<4.5	U	<5.3	U	<7.5	U	<4.0	U	67.2		287		318		419	

Notes:

*The original sample ID for the remedial investigation sample tha

**JC32905-1, 6 and 7 plotted on the line that separates the Cr(III) a
the laboratory Eh QC data indicates these samples are not oxidizin
greater (0.85 for these samples). This result coupled with the extre
insoluble (9.4%) Cr(VI) spike for QC sample JC3205-1gives the ap
spikes as high as 3500 mg/kg for this sample failed to recover mor

Remedial Investigation Analytical Data

6-Month Post Injection (March 2016) Analytical Data

Most Recent (December 2016) Analytical Data

Bold and shaded concentrations exceed the Most Stringent NJ Residential Direct Contact Soil Remediation Standard

NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 1/04/17
Checked By: DEN 1/04/17

ATTACHMENT 1

TABLE 1 FROM OCTOBER 12, 2015 TECHNICAL MEMORANDUM SUMMARIZING IMPLEMENTATION OF THE INITIAL INJECTION PROGRAM

TABLE 1
SULFIDE/ SULFATE ANALYTICAL DATA: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Sampling Date	087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8/14/2015	<2.0	<10	<2.0	16	<2.0	<10	204	<10	54	15.2	12	<10	<2.0	<10	4.3	<10
8/19/2015	20	<10	2.6	10	16	<10	524	10.1	98	<10	90	<10	44	<10	23.3	<10
9/11/2015	30	22.4	<10	<10	10	26.5	123	35.5	70	31.6	180	48.3	75	<10	681	81.4
9/18/2015	56	85.3	32	<10	28	<10	690	55	190	164	76	144	84	82.7	452	21.9
9/25/2015	22.9	82.1	3	<10	11	<10	101	103	39.8	114	45.8	52.2	30.9	61.6	158	21.6

Notes:

Baseline Readings

Preliminary Results

C:\Users\dennis.nagg\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\21G8CGI7\
Table 1 Sulifde Sulfate Data_10 1 15

Prepared By: JLD 10/01/15
Checked By: DEN 10/01/15

PHOTOS

PHOTOS

Photo 1: Treatment Area 10-1 Injection Point

Photo 2: CAPS Mixing Apparatus in Utility Van

Photo 3: Hoses & Fittings at Injection Point

Honeywell
115 Tabor Road
Morris Plains, NJ 07950

May 5, 2016

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: Summary of 6-Month Performance Assessment Sampling Post In-Situ Treatment of Hexavalent Chromium Impacted Soils
Treatment Area 10-1 Only
Study Area 6 (SA-6) North (Site 087)
Jersey City, New Jersey

Dear Senator Torricelli:

Honeywell's engineering consultant, Amec Foster Wheeler, completed the 6-month performance assessment of soil sampling associated with the treatability injection of reductants at SA-6 North, specifically Treatment Area 10-1, which is north of the 72-inch forcemain. This work was conducted in accordance with the Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (updated Work Plan) and the NJDEP Permit-by-Rule Discharge to Groundwater Authorization, dated July 14, 2015.

The attached technical memorandum prepared by Amec Foster Wheeler provides a summary of the analytical sampling activities. The results essentially demonstrate that 15 of the 20 sample points are now compliant with the 20 mg/Kg hexavalent chromium criteria. Honeywell is currently evaluating if additional injections will be performed at the 5 locations exceeding the 20 mg/Kg hexavalent chromium criteria.

Honeywell also notes that a second round of soil sampling will be conducted 3 years after completion of the field program. In a July 21, 2015 letter from Arnold and Porter to the Special Master, Honeywell indicated that it may seek to conduct the second sampling event sooner than the 3 year timeframe after the completion of the TA-10-1 injection program. In the event Honeywell seeks to advance the second sampling event, Honeywell will provide a proposal to the Parties for their review and comment.

Should you have any questions regarding this submittal or require additional information, please contact me at (973) 455-2175.

Sincerely,

William J. Hague
Global Remediation Director
Design and Construction

WJH:dn/sgf

Encl: 5/5/16 Amec Foster Wheeler Technical Memorandum: Summary of 6-Month Post In-Situ Analytical Sampling, SA-6 North, Treatment Area 10-1

cc: (electronic copy only)
Joe Clifford – Amec Foster Wheeler
Michael Daneker – Arnold & Porter LLP
Jeremy Karpatkin – Arnold & Porter LLP
Kim Hosea – Carpenter Environmental Associates, Inc.
Jeremy Farrell – City Hall
Jason Watson – City Hall
Agnieszka Antonian – Connell Foley LLP
Kevin Coakley, Esq. – Connell Foley LLP
Liza Walsh – Connell Foley LLP
Frank Borin – DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella – DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross – Disposal Safety, Inc.
David Isabel – Golub & Isabel PC
Tom Byrne – Honeywell
Maria Kaouris – Honeywell
John Morris – Honeywell
Alicia Clark Alcorn – Terris, Pravlik & Millian, LLP
Kathleen Millian – Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik – Terris, Pravlik & Millian, LLP
Steve Egnaczyk – The Louis Berger Group, Inc.
Thomas Lewis – The Louis Berger Group, Inc.

Memo

Date: May 5, 2016

From: Joe Clifford, Dennis Nagg – Amec Foster Wheeler

To: Bill Hague – Honeywell

cc: John Morris, Maria Kaouris, John Mojka – Honeywell
Jeremy Karpatkin, Michael Daneker – A&P

Subject: Summary of 6 Month Post In-Situ Analytical Sampling
SA-6 North, Treatment Area 10-1

This memorandum presents a summary of the analytical results from the six month post in-situ treatment sampling event at SA-6 North at Treatment Area 10-1 (TA-10-1). As shown by the attached tables and figures, Amec Foster Wheeler collected and analyzed 20 soil samples from 10 soil borings and 8 groundwater samples within the designated area consistent with the proposed plan. A detailed description of the treatment areas, well installation, mobilization, implementation, and the overall treatment program has been previously outlined and discussed in a memo dated October 12, 2015.

BACKGROUND

Amec Foster Wheeler retained ERFS of Lakewood, New Jersey to implement the in-situ injection of CAPS on behalf of Honeywell. The Amec Foster Wheeler/ERFS team implemented the in-situ program at the Site in three non-consecutive days beginning on August 17, 2015. The Amec Foster Wheeler/ERFS team paused the in-situ program on August 18, 2015 after one injection point (IP-1) was completed. On September 9, 2015 the Amec Foster Wheeler/ERFS team remobilized and implemented the in-situ program through September 10, 2015. The in-situ program was implemented in accordance with the following documents:

- NJDEP Permit-by-Rule Discharge to Groundwater Authorization, dated July 14, 2015;
- Amec Foster Wheeler's Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan); and
- ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013.

6-Month Performance Assessment Soil Sampling Implementation

In accordance with the Updated Work Plan, the first round of soil sampling was conducted approximately 6 months after completing the in-situ injection program to evaluate the effectiveness of the in-situ treatment. Between March 15, 2016 and March 16, 2016, 20 soil samples were collected from 10 borings drilled no more than 15 feet apart **(see Figure 5A Revised)**, straddling

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Suite 113
Hamilton, NJ 08619
609-689-2829
amecfw.com

the locations of the Remedial and/or Pre-Design Investigation borings. All soil borings were drilled with a Geoprobe® drill rig. Samples were extracted from the soil boring location in 4-foot long acetate sleeves fitted in the steel Geoprobe® tooling. Samples were collected from the intervals where hexavalent chromium was previously detected in concentrations above 20 mg/kg. Samples were collected at 1 foot intervals and the entire 1 foot interval was homogenized and sampled. This is a deviation from the NJDEP requirement that samples be collected from discreet 6-inch intervals. However, this procedure ensured that the sampling results are not biased by hand-specimen-scale inhomogeneities and variability in contaminant distribution and reagent propagation.

In accordance with the Updated Work Plan, on March 16, 2016, Amec Foster Wheeler also collected 6 month post injection groundwater samples from the 3 monitoring wells and 5 temporary well points that had been installed at TA-10-1 during the injection program. A total of 8 groundwater samples were collected and analyzed.

6-Month Performance Assessment Soil Sampling Analytical Results
All of the 6-month performance assessment soil samples were analyzed for the following:

- Hexavalent chromium;
- Total chromium;
- Sulfide; and
- pH

The analytical results are summarized on the attached **Table 1**. For comparison, the table also indicates the previous PDI soil sample data which exceeded 20 mg/kg and indicated the need for treatment in this area. The soil laboratory data packages were validated by a third party validator in accordance with Section 3.4.2 of the Updated Work Plan. This 6-month performance assessment soil sample data indicates the following:

- 15 of the 20 soil samples are <20 mg/kg for hexavalent chromium;
- 5 of the 20 soil samples are >20 mg/kg for hexavalent chromium.

All of the 6-month performance assessment groundwater samples were analyzed for the following:

- Sulfide; and
- Sulfate.

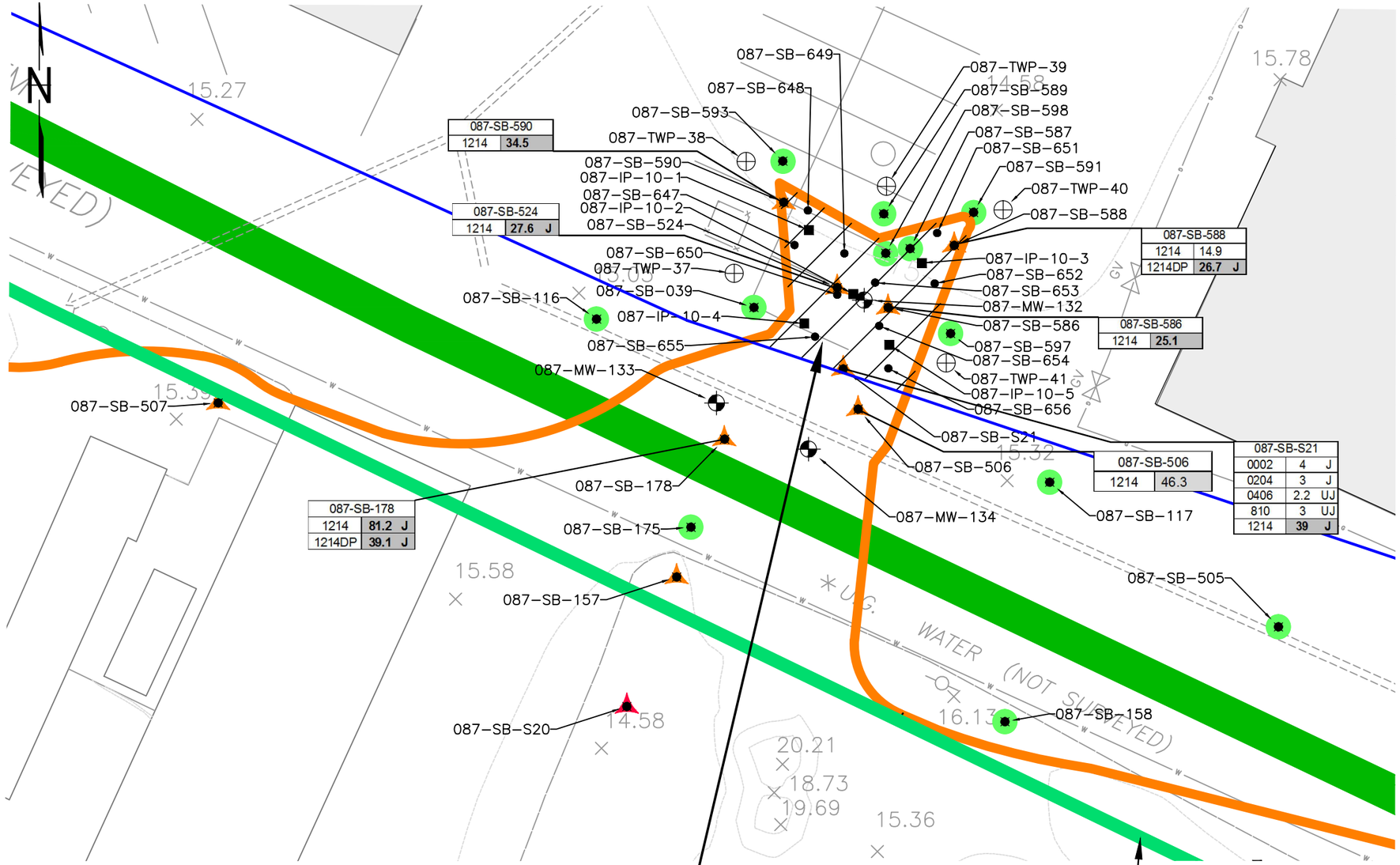
This groundwater data along with baseline and post-treatment samples are summarized in **Table 2**. The groundwater laboratory data packages were validated by a third party validator in accordance with Section 3.4.2 of the Updated Work Plan. This new data affirms the original analytical conclusions that sulfate concentrations in the monitoring wells between the injection area and the 72-inch FM (087-MW-133 and 087-MW-134) have not risen above 150 mg/L and therefore, do not pose a concern to the concrete pipe.

Recommendation
Amec Foster Wheeler recommends re-injection of CAPS at the isolated locations that remain >20 mg/kg for hexavalent chromium.

FIGURE

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED, AND (i) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED, ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY

P:\CADD\MONITWELL\JERSEY CITY\SA 6 NORTH\REPORT\3480150438\SA7\CURRENT DRAWINGS\TARGETED IN-SITU TREATMENT NORTHERN PORTION 01.dwg Tue, 12 Apr 2016 - 10:05am construction Layout: FIG 5A



LEGEND

- PROPOSED 6-MONTH SOIL BORING
- PREVIOUS SOIL BORINGS
- EXISTING NEW PERMANENT MONITORING WELL LOCATION
- INJECTION POINT LOCATION
- EXISTING OBSERVATION TEMPORARY WELL POINT (TWP)
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20-240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 72" FORCEMAIN SANITARY SEWER
- 54" OUTFALL (ABANDONED)
- NORTHERN EDGE OF BAYFRONT REDEVELOPMENT CURBLINE OF NEW STEGMAN BOULEVARD
- LIMITS OF TARGETED IN-SITU TREATMENT
- RELOCATED HYDRAULIC BARRIER
- APPROXIMATE LIMITS OF AREA WHERE DETECTED HEXAVALENT CHROMIUM CONCENTRATION VALUES >20 mg/kg
- EXISTING BUILDINGS
- IN-SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

TARGETED TREATMENT AREA 10-1
- 5 INJECTION POINTS – SPACED @ 15' O.C.
- CONTAMINATED ZONE 12'-14'
- INJECTION ZONE 10'-16'
- NUMBER OF INJECTION POINTS MAY BE ADJUSTED IN THE FIELD

AREA = APPROX. 800 SF

PROPOSED HYDRAULIC BARRIER WALL.

0 10 20 40
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
	12/05/11			

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN-SITU TREATMENT NORTHERN PORTION 01

PREPARED/DATE: STR 06/05/15

CHECKED/DATE: DN 06/05/15

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE 5A (REVISED)
PROPOSED TARGETED IN-SITU INJECTION NORTHERN PORTION OF TREATMENT AREA 10-1
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

TABLES

.

TABLE 1
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-590*	087-SB-647		087-SB-647		087-SB-648		087-SB-648		087-SB-524*		087-SB-649		087-SB-649		087-SB-650		087-SB-650	
Sample Depth (ft):			12-14	12-13		13-14		12-13		13-14		12-14		12-13		13-14		12-13		13-14	
Lab Sample ID:			JB6885-1/1R	JC16343-1		JC16343-2		JC16343-3		JC16343-4		JA17466-14/14R/14RT		JC16343-5		JC16343-6		JC16343-7		JC16343-8/8R	
Date Sampled:			5/17/2012	3/15/2016		3/15/2016		3/15/2016		3/15/2016		4/28/2009		3/15/2016		3/15/2016		3/15/2016		3/15/2016	
TAL Metals Analysis																					
Chromium	mg/kg	NS	NT	1,340.0	J	204.0	J	2,080.0	J	309.0	J	4,640.0		3,250.0	J	73.5	J	776.0	J	1,980.0	J
General Chemistry																					
Chromium, Hexavalent	mg/kg	20	**34.5**	4.0	J	1.1	J	1.3	J	**128**		**27.6**	**J**	2.3	J	1.5	J	**42.2**	**J**	**87.7**	
Sulfide	mg/kg	NS	NT	<6.1	U	<5.1	U	<5.2	U	<5.2	U	NT		<5.1	U	<5.4	U	5		5	
pH	su	NS	8.78	8.29		9.47		8.38		8.81		9.09		8.21		9.24		7.83		7.89	

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent

NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 4/22/16
Checked By: DEN 4/22/16

.

TABLE 1
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		Most Stringent NJ Residential Direct Contact Soil Remediation Standard	087-SB-588-DP*		087-SB-651		087-SB-651		087-SB-652		087-SB-652		087-SB-586*	087-SB-653		087-SB-653		087-SB-654		087-SB-654		087-SB-S21*		087-SB-655	
Sample Depth (ft):			12-14		12-13		13-14		12-13		13-14		12-14	12-13		13-14		12-13		13-14		12-14		12-13	
Lab Sample ID:			JB6885-4/4R		JC16343-9		JC16343-10/10R		JC16343-11/11R		JC16343-12		JB6885-6/6R	JC16343-13/13R		JC16343-14		JC16343-15		JC16343-16		NA		JC16343-17	
Date Sampled:			5/17/2012		3/15/2016		3/15/2016		3/15/2016		3/15/2016		5/17/2012	3/15/2016		3/15/2016		3/15/2016		3/15/2016		5/20/1997		3/16/2016	
TAL Metals Analysis																										
Chromium	mg/kg	NS	NT		159.0	J	72.9	J	160.0	J	66.0	J	NT	412.0	J	143.0	J	674.0	J	174.0	J	405.0	J	580.0	J
General Chemistry																										
Chromium, Hexavalent	mg/kg	20	**26.7**	**J**	0.63	J	1.7		1.8		<0.55	J	**25.1**	1.6		6.2	J	1.7	J	1.1	J	**39.0**	**J**	2.7	J
Sulfide	mg/kg	NS	NT		<5.3	U	<5.2	U	<4.9	U	<5.3	U	NT	<5.0	U	<4.9	U	<5.4	U	<4.7	U	NT		<4.5	U
pH	su	NS	8.65		7.34		8.9		7.85		8.61		8.54	8.14		8.65		7.59		9.54		NT		7.92	

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent

NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 4/22/16
Checked By: DEN 4/22/16

.

TABLE 1
SUMMARY OF 6-MONTH SOIL ANALYTICAL RESULTS
IN-SITU TREATMENT AREA 10

SA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Client Sample ID:		**Most Stringent NJ Residential Direct Contact Soil Remediation Standard**	**087-SB-655**		**087-SB-656**		**087-SB-656**	
Sample Depth (ft):			**13-14**		**12-13**		**13-14**	
Lab Sample ID:			**JC16343-18**		**JC16343-19**		**JC16343-20/20R**	
Date Sampled:			**3/16/2016**		**3/16/2016**		**3/16/2016**	
TAL Metals Analysis								
Chromium	mg/kg	NS	1,930.0	J	7,310.0	J	113	J
General Chemistry								
Chromium, Hexavalent	mg/kg	20	**21.5**	J	10.9	J	**90.9**	
Sulfide	mg/kg	NS	<5.3	U	<7.5	U	<4.0	U
pH	su	NS	8.78		8.00		8.67	

Notes:

*The original sample ID for the remedial investigation sample that exceeded 20 mg/kg for hexavalent chromium.

Bold and highlighted values are above the most stringent

NS = No Standard.
J = Estimated Value
NT= Not Tested
NA= Not Applicable
U= Not Detected Above Method Detection Limit

Prepared By: JLD 4/22/16
Checked By: DEN 4/22/16

TABLE 2
SULFIDE/ SULFATE ANALYTICAL DATA: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Sampling Date	087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8/14/2015	<2.0	<10	<2.0	16	<2.0	<10	204	<10	54	15.2	12	<10	<2.0	<10	4.3	<10
8/19/2015	20	<10	2.6	10	16	<10	524	10.1	98	<10	90	<10	44	<10	23.3	<10
9/11/2015	30	22.4	<10	<10	10	26.5	123	35.5	70	31.6	180	48.3	75	<10	681	81.4
9/18/2015	56	85.3	32	<10	28	<10	690	55	190	164	76	144	84	82.7	452	21.9
9/25/2015	22.9	82.1	3	<10	11	<10	101	103	39.8	114	45.8	52.2	30.9	61.6	158	21.6
10/1/2015	25.2	120	4.5	<10	11.3	<10	77.7	169	47.8	175	32.9	47	24.6	92.7	101	33.4
10/9/2015	27.9	129	7.3	<10	49.8	<10	41.6	218	40.4	145	29.9	81.1	57.8	89.9	124	85.8
10/16/2015	16.9	120	5	<10	6.6	<10	131	226	23.9	175	13.3	41.3	42.5	69.7	70.7	201
10/23/2015	16.6	127	10	<10	2	<10	43.3	227	39.8	231	21.9	55.1	39.8	29.8	45.8	335
10/30/2015	22.4	133	2.5	10.5	<2.0	<10	44.5	213	37.2	271	21.2	58.3	42.5	37	26.9	439
11/6/2015	3	118	<2.0	<10	2	<10	2	174	<2.0	206	<2.0	61.3	<2.0	25.2	4.5	483
11/13/2015	19.3	143	<2.0	<10	3.3	<10	39.3	167	28.7	226	15.3	47.2	55.3	22.5	44	561
3/16/2016	<2.0	13	<2.0	10.7	<2.0	46.6	4.9	<10	5.4	13.2	4.1	16.7	5.4	<10	6.3	386

Notes:

Baseline Readings
6 Months Post-Insitu

Prepared By: JLD 4/22/16
Checked By: DEN 4/22/16

Honeywell
115 Tabor Road
Morris Plains, NJ 07950

July 11, 2016

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: Proposed Additional In-Situ Injection of Calcium Polysulfide for Treatment of Hexavalent Chromium Impacted Soils
Treatment Area 10-1
Study Area 6 (SA-6) North (Site 087)
Jersey City, New Jersey

Dear Senator Torricelli:

Honeywell's engineer, Amec Foster Wheeler, has prepared the enclosed technical memorandum providing a scope of work for a supplemental in-situ treatment event within the northern section of Area 10 (designated as TA 10-1) using calcium polysulfide (CAPS). This supplemental injection event is proposed as a follow-up to the initial in-situ event completed in September 2015.

As described in our May 6, 2016 technical memorandum, the six-month post in-situ analytical soil sample results indicated that 5 out of 20 sample points contain soil which still exceeds the 20 mg/kg cleanup criteria for hexavalent chromium. Honeywell proposes this supplemental treatment event to further remediate soils in these areas.

In response to the Plaintiffs' comments in their May 23, 2016 correspondence, this event will include the injection of CAPS within all original treatment points, not just the remaining areas of soil exceedances. The attached technical memorandum provides further details on this proposed re-injection program.

This proposed work will be conducted in general accordance with the Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan) and a new NJDEP Permit-by-Rule Discharge to Groundwater Authorization (DGW Permit) which is being obtained as the previous permit has expired. Honeywell and Amec Foster Wheeler anticipate receipt of this new DGW Permt such that implementation of the supplemental injection event can be completed in the third quarter 2016 utilizing ERFS as our subcontractor.

We are prepared to discuss this matter further at the next All Parties call if the parties desire. If you have any questions in the meantime, please call me at (973) 455-2175.

Sincerely,

William J. Hague
Global Director, Remediation
Design and Construction

WJH:dn/sgf

Encl: 7/8/16 Amec Foster Wheeler Technical Memorandum: Summary of Proposed In-Situ Treatment Program for Hexavelent Chromium Impacted Soils – Additional CAPS Injections, SA-6 North, Site 087

cc: (electronic copy only)
Joe Clifford - Amec Foster Wheeler
Michael Daneker - Arnold & Porter LLP
Jeremy Karpatkin - Arnold & Porter LLP
Kim Hosea - Carpenter Environmental Associates, Inc.
Jeremy Farrell - City Hall
Jason Watson – City Hall
Agnieszka Antonian - Connell Foley LLP
Kevin Coakley, Esq. - Connell Foley LLP
Frank Borin - DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella - DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross - Disposal Safety, Inc.
Tom Byrne - Honeywell
Maria Kaouris - Honeywell
John Morris - Honeywell
Alicia Clark Alcorn - Terris, Pravlik & Millian, LLP
Kathleen Millian - Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik - Terris, Pravlik & Millian, LLP
Steve Egnaczyk - The Louis Berger Group, Inc.
Thomas Lewis - The Louis Berger Group, Inc.
Mary Hogan - Walsh Pizzi O'Reilly Falanga LLP
Hector Ruiz - Walsh Pizzi O'Reilly Falanga LLP
Liza Walsh - Walsh Pizzi O'Reilly Falanga LLP

Memo

Date: July 8, 2016

From: Joe Clifford/Dennis Nagg – Amec Foster Wheeler

To: Bill Hague – Honeywell

cc: John Morris, Maria Kaouris, John Mojka – Honeywell
Jeremy Karpatkin, Michael Daneker – Arnold & Porter

Subject: Proposed In-Situ Treatment Event for Remaining Hexavalent Chromium Impacted Soils – Treatment Area 10-1 SA-6 North, Site 087

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), on behalf of Honeywell, has prepared this memorandum to summarize the proposed supplemental injection event of calcium polysulfide (CAPS) for in-situ treatment of hexavalent chromium (Cr(VI)) impacted soils in the northern section of Treatment Area 10 (TA-10-1) at SA-6 North at Site 087 (the Site, **Figure 2 (Revised)**). The initial in-situ treatment event occurred between August and September 2015 and was summarized in an October 12, 2015 technical memorandum. Subsequent to this initial CAPS injection, post-treatment soil samples were collected approximately six months later to provide an early indication of the efficacy of this treatment.

As detailed in a May 6, 2016 technical memorandum, post in-situ analytical results showed that the majority of areas treated were now below the 20 mg/kg clean up criteria. However, 5 out of 20 sample points contained soil which will require additional treatment. Based on these results and due to the limited timeframes remaining before potential redevelopment, Amec Foster Wheeler proposes a supplemental CAPS injection event to further remediate soils in these areas. Although we do not feel it is necessary for the efficacy of the treatment program, as requested in the Plaintiffs' May 23, 2016 letter, CAPS will be re-injected within all five original treatment points, not just the remaining areas of soil exceedances.

Amec Foster Wheeler, Mutch Associates, and our injection subcontractor (ERFS) reviewed the initial treatment event and have made some modifications to the approach as detailed within this memo. The modifications include a requirement for a slower and prolonged injection delivery approach. Nevertheless, the proposed additional CAPS injections will be conducted in general

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accordance with Amec Foster Wheeler's Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils (August 2015) and ERFS' In-Situ Chemical Reduction Implementation Work Plan (September 2013). Injections will be implemented under a pending NJDEP Permit-by-Rule Discharge to Groundwater (PBR DGW) Authorization.

Scope of Supplemental In-Situ Injection Event

The attached **Table 1** indicates the injection volume estimates for the in-situ injection program for the northern portion of TA-10-1 and **Figure 5A (Revised)** shows this treatment area. The calculated theoretical volume of required CAPS in **Table 1** has been increased by a factor of five. Additionally, this volume has been increased per the available volume increments for which CAPS can be purchased (i.e. 55 gallon drums). The amount of potable water needed to maintain solution has also been adjusted to the estimated volume.

Other than the delivery approach outlined below, means and methods will generally follow the February 2013 Revised WP; ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013; and ERFS Health and Safety Plan, dated June 2013 (Revised July 2014).

The in-situ injection event will be implemented as follows:

- Injections in subarea TA-10-1 will occur from 10 to 16 feet below grade.
- Injections will occur over a 6-foot vertical profile.
- Ten (10) 1-inch diameter PVC injection wells (IWs) will be drilled and installed within subarea TA-10-1, grouped in 5 nested pairs, in the same general location as the previous 5 injection points (**Figure 5A (Revised)**). Wells within each pair will be screened at 3-foot intervals, one from 10 to 13 feet bgs and one from 13 to 16 feet bgs, to increase the vertical distribution of CAPS.
- A total of 825 gallons of 29% CAPS will be mixed with approximately 2,425 gallons of potable water to produce 3,250 gallons of CAPS solution.
- The 3,250 gallons of CAPS solution will be gravity fed from tanker trucks into the 10 IWs utilizing hosing, valves, and associated fittings. Injections will occur over an estimated 5 weekly dosages of 650 gallons each. Each IW will receive 65 gallons of solution during each event.
- Areas surrounding injection locations will be monitored for evidence of daylighting.

- If daylighting occurs, the liquid will be contained at the daylighting site and be allowed to seep back into the ground.
- Injection activities will be adjusted as necessary to eliminate excessive daylighting.
- Groundwater monitoring wells 087-MW-132, 087-MW-133, and 087-MW-134 installed between subarea TA-10-1 and the adjacent force main (FM) for the 2015 injection event have been maintained in the area. Each of these monitoring wells will be monitored for sulfate and sulfide in the shallow groundwater. As a contingency measure, if the sulfate concentrations in either one or both of 087-MW-133 and 087-MW-134 reach 150 milligrams per liter (mg/L), clean potable water will be injected into both wells to dilute the sulfate concentrations in the shallow groundwater adjacent to the FM. These proposed response measures were accepted by NJDEP and PVSC to allay concerns about the sulfate in shallow groundwater in the vicinity of the FM. Additionally, the five temporary well points (TWPs) 087-TWP-37 through 087-TWP-41 installed for the 2015 injection event have been maintained in the area and will also be monitored for sulfate and sulfide, but will not be subject to the limitations and contingency measured noted above as they are not proximate to the FM.
- Groundwater samples will be collected from the TWPs and MWs within the vicinity of the treatment area (see **Figure 5A (Revised)**) for analysis of sulfate and sulfide prior to the start of injections (baseline) and each week between dosages and for several weeks after the last dosage. Additional sampling may be implemented if conditions warrant.
- The following measurements will be taken and recorded in TWPs and MWs prior to the start of injections (baseline), during injections, and following completion of injections as required:
    - Depth to groundwater;
    - Groundwater quality parameters, including pH, oxidation/reduction potential (ORP), specific conductivity (SC), and total dissolved solids (TDS);
    - Hydrogen sulfide (H2S) and volatile organic compounds (VOCs) in the headspace of the PVC riser pipe; and
    - Groundwater color and/or odor.
- The breathing zones at storage, mixing, and injection areas will be monitored for hydrogen sulfide (H_2S).
- The breathing zones at drilling locations will be monitored for volatile organic compounds (VOCs) and H_2S.

- Honeywell will obtain a new Discharge to Groundwater – Permit By Rule from NJDEP for the injection activities.
- All as-built nested IW locations will be surveyed to determine their position.

Performance Assessment Soil Sampling and Reporting

Approximately six months after the final (fifth) weekly injection dosage in subarea TA-10-1 (weather permitting), we will collect and analyze soil samples in accordance with the February 2013 Revised WP. Additionally, Honeywell may seek to conduct the final sampling event sooner than 3 years after the completion of the TA-10-1 injection program. In the event Honeywell seeks to advance the final sampling event, Honeywell will provide notice to the parties.

Upon receipt of final validated analytical results, the performance assessment soil sampling will be summarized in a memorandum and on tables and “chem-box” figures and will be transmitted to All Parties in a timely manner.

FIGURES

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN–SITU TREATMENT AREAS–03

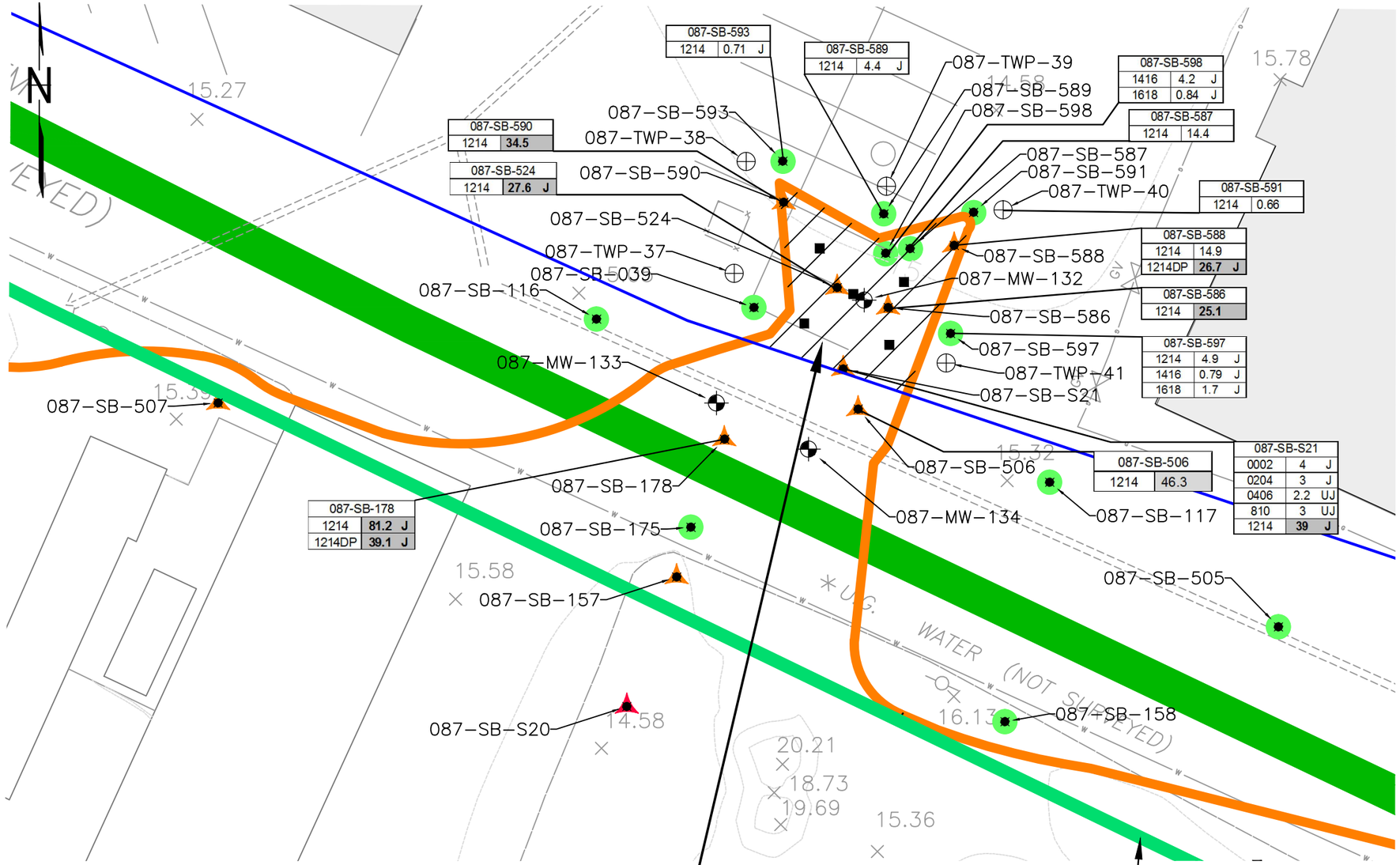
PREPARED/DATE: STR 06/09/15

CHECKED/DATE: DN 06/09/15

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FI□□RE □□RE□I□ED□
TARGETED IN-SITU
TREATMENT AREAS
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY



LEGEND

- PREVIOUS SOIL BORINGS
- PROPOSED NEW PERMANENT MONITORING WELL LOCATION
- INJECTION POINT LOCATION
- PROPOSED OBSERVATION TEMPORARY WELL POINT (TWP)
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20–240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 72" FORCEMAIN SANITARY SEWER
- 54" OUTFALL (ABANDONED)
- NORTHERN EDGE OF BAYFRONT REDEVELOPMENT CURBLINE OF NEW STEGMAN BOULEVARD
- LIMITS OF TARGETED IN-SITU TREATMENT
- RELOCATED HYDRAULIC BARRIER
- APPROXIMATE LIMITS OF AREA WHERE DETECTED HEXAVALENT CHROMIUM CONCENTRATION VALUES >20 mg/kg
- EXISTING BUILDINGS
- IN-SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

TARGETED TREATMENT AREA 10-1

- 5 INJECTION POINTS – SPACED @ 15' O.C.
- CONTAMINATED ZONE 12'-14'
- INJECTION ZONE 10'-16'
- NUMBER OF INJECTION POINTS MAY BE ADJUSTED IN THE FIELD

AREA = 697 SF

PROPOSED HYDRAULIC BARRIER WALL.

0 10 20 40

SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
	12/05/11			

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN-SITU TREATMENT NORTHERN PORTION

PREPARED/DATE: STR 06/05/15

CHECKED/DATE: DN 06/05/15

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FI□□RE □A □RE□I□ED□
PROPOSED TARGETED IN-SITU INJECTION NORTHERN PORTION OF TREATMENT AREA 10-1
STUDY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

TABLE 1

TABLE 1
INJECTION ESTIMATES
TREATMENT AREA 10, SA-6 NORTH, SITE 087

Honeywell Inc.
Jersey City, New Jersey

Treatment Area	Totals	10-1
Depth Interval (ft bgs)		12-14
Thickness (ft)		2
Area (ft^2)		800
Area of injection, SF	800	800
Zone of Injection (feet below grade)		12-14
Height of Injection (feet)		2
Soil Volume for reagent addition (bcy)		59
Soil Pore Volume (gallons at 30%)	3,591	3591
Hex Cr Concentration, ppm		39.0
Assumed Soil Density (tons/cy)		1.6
Weight of soil in treatment zone (lbs)		189,630
Total mass load exceeding 20 ppm Hex Cr		4
CaSx Dose at 1X ==> 25.3 lbs of CsSx 29% solution per 1 lb of Cr (VI) **[x=5]**		25.3
CaSx Stoichiometric Dosage @29% Solution		5.00
CaSx Dose at 2.5X [at 1X ==> 25.3 lbs of CsSx 29% solution per 1 lb of Cr (VI)]		126.5
CaSx (lbs) @29% Solution for total Hex Cr Mass at 2.5X		456
CaSx 29% solution Density, lbs/gal		10.6
CaSx (Gallons) @29% Solution for total Hex Cr Mass at 5X		43
CaSx solution application volume (gallons at 25% volume exchange)		898
Additional CaSx (Gallons) @29% Solution for 2-ft interval above and below		86
Additional CaSx solution application volume (gallons at 25% volume exchange) for 2-ft interval above and below		1,795
Total CaSx (Gallons) @29% Solution (from 2-ft above to 2-ft below zone)		129
Total CaSx solution application volume (gallons at 25% volume exchange) from 2-ft above to 2-ft below zone		2,693
Additional 10% CaSx (Gallons) @29% Solution safety factor		13
Additional 10% CaSx solution application volume (gallons at 25% volume exchange) from 2-ft above to 2-ft below zone		269
TOTAL CaSx (Gallons) @29% Solution	142	142
TOTAL CaSx (Gallons) @29% Solution (5X and rounded up)[1]	715	**715**
TOTAL CaSx solution application volume (gallons at 25% volume exchange)	2,962	**2,962**
CaSx Solution Injected Concentration		7.0%
Max # DP Injectors (depth = midpoint of treatment interval, 150 sf coverage/pt)	5	5

Prepared By: JAB 6/21/16
Checked By: DN 6/23/16

Honeywell
115 Tabor Road
Morris Plains, NJ 07950

October 12, 2015 ***Via Electronic Delivery***

The Honorable Robert G. Torricelli
Office of the Special Master
RGTSpecialMaster@aol.com

Re: Summary of In-Situ Treatment of Hexavalent Chromium Impacted Soils
Treatment Area 10-1 Only
Study Area 6 North (Site 087)
Jersey City, New Jersey

Dear Senator Torricelli:

As discussed at the All Parties meeting on September 15, 2015, Honeywell's engineering consultant, Amec Foster Wheeler, completed field activities associated with the treatability injection of reductants at SA-6 North, specifically Treatment Area 10-1 which is north of the 72-inch forcemain. This work was conducted in accordance with the Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan) and the NJDEP Permit-by-Rule Discharge to Groundwater Authorization, dated July 14, 2015.

The attached technical memorandum prepared by Amec Foster Wheeler provides a summary of the field activities. If necessary, we are prepared to walk the Parties through the enclosed information at the next All Parties call scheduled for October 20, 2015. In the meantime, should you have any questions regarding this submittal or require additional information, please contact me at (973) 455-2175.

Sincerely,

William J. Hague
Director, Remediation
Engineering and Construction

WJH:dn/sgf

Encl: 10/12/15 Amec Foster Wheeler Technical Memorandum: Summary of In-Situ Treatment of Hexavalent Chromium Impacted Soils, SA-6 North, Treatment Area 10-1

cc: (electronic copy only)
Joe Clifford – Amec Foster Wheeler
Michael Daneker – Arnold & Porter LLP
Jeremy Karpatkin – Arnold & Porter LLP
Kim Hosea – Carpenter Environmental Associates, Inc.
Jeremy Farrell – City Hall
Jason Watson – City Hall
Agnieszka Antonian – Connell Foley LLP
Kevin Coakley, Esq. – Connell Foley LLP
Liza Walsh – Connell Foley LLP
Frank Borin – DeCotiis, Fitzpatrick & Cole, LLP
Kevin Kinsella – DeCotiis, Fitzpatrick & Cole, LLP
Dr. Benjamin Ross – Disposal Safety, Inc.
David Isabel – Golub & Isabel PC
Tom Byrne – Honeywell
Maria Kaouris – Honeywell
John Morris – Honeywell
Alicia Clark Alcorn – Terris, Pravlik & Millian, LLP
Kathleen Millian – Terris, Pravlik & Millian, LLP
Carolyn Smith-Pravlik – Terris, Pravlik & Millian, LLP
Steve Egnaczyk – The Louis Berger Group, Inc.
Thomas Lewis – The Louis Berger Group, Inc.

Memo

Date: October 12, 2015

From: Joe Clifford/Dennis Nagg, Amec Foster Wheeler

To: Bill Hague – Honeywell

cc: John Morris, Maria Kaouris, John Mojka – Honeywell
Jeremy Karpatkin, Michael Daneker – A&P

Subject: Summary of In-Situ Treatment of Hexavalent Chromium Impacted Soils, SA-6 North, Treatment Area 10-1

This memorandum presents a summary of the field activities recently completed for the in-situ treatment of hexavalent chromium (Cr(VI)) impacted soils at SA-6 North at TA-10-1. As shown by the attached tables and figures, we successfully injected the proposed volumes of calcium polysulfide (CAPS) in the designated area consistent with the proposed plan.

BACKGROUND

Amec Foster Wheeler retained ERFS of Lakewood, New Jersey to implement the in-situ injection of CAPS on behalf of Honeywell. The Amec Foster Wheeler/ERFS team implemented the in-situ program at the Site in three non-consecutive days beginning on August 17, 2015. The Amec Foster Wheeler/ERFS team paused the in-situ program on August 18, 2015 after one injection point (IP-1). On September 9, 2015 the Amec Foster Wheeler/ERFS team remobilized and implemented the in-situ program through September 10, 2015 in accordance with the following documents:

- NJDEP Permit-by-Rule Discharge to Groundwater Authorization, dated July 14, 2015;
- Amec Foster Wheeler's Updated Work Plan for In-Situ Treatment of Chromium Impacted Soils, dated August 2015 (Updated Work Plan); and
- ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013.

TREATMENT AREAS

The area of impacted soils is located immediately proximate to the 72 inch force main (FM) (see **Figure 2 (Revised)**). The 72 inch FM is installed at an approximate invert elevation of 3.0 feet msl or approximately 12 feet below grade (source: Record Drawings No. 7 Plan, Existing Outfall and No. 8 Profiles, Emergency Overflow Structures prepared by LMS, Inc.) The depth to the chromium impacted material is 12 to 14 feet below existing grade. Therefore, excavation of impacted soils in TA-10 would potentially result in undermining of the FM during removal of the

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impacted soils. Although the 72 inch FM is supported by a pile foundation system, there is still a risk of joint separation during soil excavation activities due to the fact that one or more unrestrained pipe joints may exist along this straight run portion of piping.

Honeywell has implemented CAPS injections in subarea TA-10-1 (See **Figure 5A (Revised)**), north of the northern curbline for the future Stegman Boulevard to be constructed during the Bayfront Redevelopment project (see **Photo 1**). This subarea is approximately 800 square feet. Honeywell reviewed this proposed CAPS injection program with NJDEP and PVSC to allay concerns about impacts to the FM from sulfate. To monitor sulfate conditions in shallow groundwater, one permanent MW (087-MW-132) was installed in the center of the injection area and two permanent MWs (087-MW-133 and 087-MW-134) were installed between subarea TA-10-1 and the FM. As a contingency, Honeywell further proposed that if the sulfate concentrations in either one or both of 087-MW-133 and 087-MW-134 reach 150 milligrams per liter (mg/L), that clean potable water would be injected into both wells to dilute the sulfate concentrations in the shallow groundwater adjacent to the FM. Both agencies agreed that these proposed measures addressed their concerns about the sulfate in shallow groundwater in the vicinity of the FM. In accordance with the Updated Work Plan, Amec Foster Wheeler has, to date, collected baseline and four weekly post-injection groundwater samples from the MWs and TWPs for sulfide and sulfate analysis to monitor groundwater conditions in the area. This groundwater data is summarized in **Table 1**. The data indicates that sulfate concentrations in the MWs between the injection area and the 72-inch FM (087-MW-133 and 087-MW-134) are not above 150 mg/L and therefore, do not pose a concern to the concrete pipe. Depending on results, groundwater sampling of the TWPs and MWs will continue for several more weeks.

TEMPORARY MONITORING WELL INSTALLATION

ERFS subcontracted Summit Drilling (Summit) of Bridgewater, New Jersey to install MWs and TWPs prior to the implementation of the in-situ injection program. Summit obtained well permits from NJDEP prior to mobilizing to the Site. MWs were installed on August 10, 2015 and TWPs on August 11, 2015. Summit's New Jersey-licensed well driller utilized a Geoprobe® rig outfitted with hollow stem augers to drill and install the MWs and TWPs at the locations shown on **Figure 5A (Revised)** in accordance with NJDEP well drilling and construction standards in N.J.A.C. 7:9D and as described below:

- One (1) permanent 2-inch diameter MW was installed in the center of subarea TA-10-1 and two permanent MWs were installed between subarea TA-10-1 and the FM to monitor sulfate in the shallow groundwater.
- Five (5) 1-inch diameter TWPs were installed adjacent to (around the perimeter of) subarea TA-10-1.

The MWs and TWPs were constructed as follows:

- MWs were constructed of 10 feet of 2-inch diameter polyvinyl chloride (PVC) 0.010-inch slotted well screen/riser pipe with screens set from 6 to 16 feet below ground surface (bgs). The annular space around the screen was filled with No. 1 graded sand to 12 inches above the top of the screen. At least 12 inches of hydrated bentonite seal was

placed above the sand pack, and the remaining annular space was filled with a neat bentonite/cement grout.

- An 8-inch diameter, steel, flush-mounted traffic-rated protective well cap was installed at the top of each MW well borehole.
- TWP boreholes were drilled with a combination of the hollow stem augers for the first 5 feet below ground surface (ft bgs) and 2-inch diameter direct push hollow casing sleeves fitted with an expendable drive point for the remainder of the borehole. All TWP boreholes were drilled to 16 feet bgs.
- The TWPs were constructed from 1-inch diameter PVC 0.010-inch slotted well screen/riser pipe with screens set from 9 to 16 feet. Once the TWP boreholes were drilled, the PVC well screens/risers were installed within the casing sleeves/hollow stem augers. A sand pack was installed around the well screens to approximately 12 inches above the screen and a combination of hydrated bentonite chips and bentonite/cement grout was placed within the remaining annular space to grade to mitigate any short-circuiting of injection fluids. The tops of the PVC riser pipes protrude above the ground surface and are affixed with threaded caps.

Following the installation of the MWs and the TWPs all of the wells were developed by pumping until the pumped water ran clear. On August 14, 2015, groundwater samples from each MW and TWP were collected for analysis of sulfide and sulfate to assess baseline groundwater conditions in subarea TA-10-1. Additionally, the horizontal positions and the elevations of the tops of the riser pipes on each MW and TWP were surveyed by a New Jersey-licensed surveyor from Maser Consulting, P.A. of Red Bank, New Jersey.

The following measurements were taken and recorded in the MWs and TWPs prior to the start of injections (baseline) as follows:

- Depth to groundwater;
- Groundwater quality parameters, including pH, oxidation/reduction potential (ORP), specific conductivity (SC), and total dissolved solids (TDS);
- Hydrogen sulfide (H_2S) and volatile organic compounds (VOCs) in the headspace of the PVC riser pipe; and
- Groundwater color and/or odor.

CHEMICAL STORAGE/MIXING AREA MOBILIZATION

On August 18, 2015, prior to the initiation of the injection program, ERFS set up chemical storage/mixing stations (see **Photo 2**). Portable pop-up secondary containment berms were deployed and all CAPS containers, mixing tanks, and pumps were located within the berms. ERFS took delivery of the 29% stock CAPS solution in 55-gallon plastic drums. Potable water for mixing the diluted solution was obtained from a nearby fire hydrant maintained and operated by Jersey City Municipal Utility Authority (JCMUA) at the SA-6 North Site.

ERFS conducted all mixing operations in plastic 500-gallon mixing tanks within the secondary containment berms at the mixing stations. 29% stock CAPS solution was transferred to the mixing tanks from the totes or drums using a drum pump. ERFS mixed enough solution for one IP at a time. Only enough diluted CAPS solution was mixed for the day's injection events; no solution was kept overnight.

INJECTION PROGRAM

The selection of the reductant and the delivery methods are based on full scale work conducted by Honeywell at SA-6 North and SA-6 South. Direct injection of a diluted calcium polysulfide (CAPS) aqueous solution was used for this treatment program (see **Photo 3**). A Geoprobe® drill-rig was utilized to advance the injection tooling to the desired treatment depth. The reductant was injected into the formation directly from the drill tool string, without the need to construct injection wells. Portable pumps were utilized for reagent transfer and injection. Connections were made using chemical-grade hoses with quick disconnect couplers. Pumping rates and pressures were controlled manually by the chemical feed operators. The contaminated interval targeted by the treatment program is approximately 2 feet thick. To ensure adequate coverage and good permeation of the targeted interval by the reductant, the injection spanned a zone from 2 feet above to 2 feet below the contaminated zone. Injections did not continue below the meadow mat.

Based on our experience from the previously completed in-situ treatment programs at TA-7, TA-8, Site 079, Site 163, and the pilot program at Site 124, the injection program is designed based on 30 percent porosity and 25 percent volume exchange. A 10 percent excess was included in the final injectant volume estimate. Because CAPS contains a mixture of polysulfides with x ranging from 2 to 5, we have used x=5 (the least favorable formulation) as the basis for estimating stoichiometric demand. Additionally, Amec Foster Wheeler increased the stoichiometric ratio of the CAPS solution to approximately 5X to account for potential ambient soil reductant demand.

The locations of the five (5) injection points in subarea TA-10-1 are shown on **Figure 5A (Revised)**. Injections were carried out as follows:

- Means and methods generally followed ERFS' In-Situ Chemical Reduction Implementation Work Plan, dated September 2013; and ERFS' Health and Safety Plan, dated June 2013 (Revised July 2014).
- Injections in subarea TA-10-1 occurred from 10 to 16 feet below grade.
- Injections occurred over a 6-foot vertical profile.
- A total of 165 gallons of 29% CAPS were mixed with approximately 3,085 gallons of potable water to produce the CAPS 3,250 gallon solution.
- The 3,250 gallons of CAPS solution was injected into 5 IPs; 650 gallons of CAPS solution per IP.
- The breathing zones at storage, mixing, and injection areas were monitored for hydrogen sulfide (H_2S).

- The breathing zones at drilling locations were monitored for volatile organic compounds (VOCs) and H2S.

Boreholes for the IPs were drilled with a Geoprobe® direct push drill rig (See **Photo 3**). Injection intervals were 6 feet from top to bottom. Injections were conducted by driving a pressure-activated injection probe (see **Attachment 1**) to 16 ft bgs, attaching an injection well head to the drive pipe (see **Photo 4**), and applying 50 gallons of 1.47% CAPS solution to that depth interval. Since ERFS purchased and used three 55-gallon drums of 29% CAPS for this injection program, this concentration of CAPS solution was slightly higher than proposed in the Updated Work Plan. Once the specified volume had been injected, the rods were pulled up 6 inches and another 50 gallons of 1.47% CAPS solution was injected. That process was repeated over a total of thirteen 6-inch intervals from top to bottom at each IP location, for a total vertical injection interval of 6 feet at each location.

Table 2 summarizes the operational parameters of the injection program as proposed in the Updated Work Plan as well as those for the completed injection program to compare one to the other. The proposed and completed information on **Table 2** includes the number of IPs, the number of TWPs, and the volume of CAPs, CAPs solution, and concentration of CAPs injected for each area. In addition, the injection time and average flow rates for each area are presented on **Table 2**. By comparing the baseline monitoring data to measurements collected during or slightly following injections and knowing the distance from the injection point to the TWP at which the data was collected, ERFS determined the minimum and average ROI for the treatment area. A summary of the injection logs is presented on **Table 4** and a summary of the monitoring data collected in the TWPs prior (see **Photo 5**), during (for brevity, one representative measurement), and after the injections is shown on **Table 3**. For brevity, only measurements of depth to groundwater, pH, ORP, and SC are shown on **Table 3**. During mixing operations and injections, the breathing zone in the work area and at the perimeter was monitored for odors and H_2S using a 4-gas meter and VOCs using a photoionization device.

Key observations of the injection program are summarized below:

- During mixing operations, there was a slight occasional H_2S odor within the work zone, but no readings were exhibited above background levels in the work zone or at the perimeter.
- The overall average injection flow rate for the Site was 11 gallons per minute, which was about what ERFS expected.
- Propagation of injectant fluids was evidenced by one or more of the following:
    - Decrease in the depth to groundwater table;
    - Marked increase in pH;
    - Marked decrease in ORP; and
    - Changes in SC or TDS.

- The minimum ROI was approximately 10 feet, but average ROIs were as high as 15 feet based upon responses in multiple TWPs during injections.

Based on the above summary, Amec Foster Wheeler is confident that the field implementation phase was successful.

FIGURES

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN–SITU TREATMENT AREAS–03

PREPARED/DATE: STR 06/09/15

CHECKED/DATE: DN 06/09/15

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FI□□RE □□RE□I□ED□
TAR□ETED IN-SIT□
TREATMENT AREAS
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

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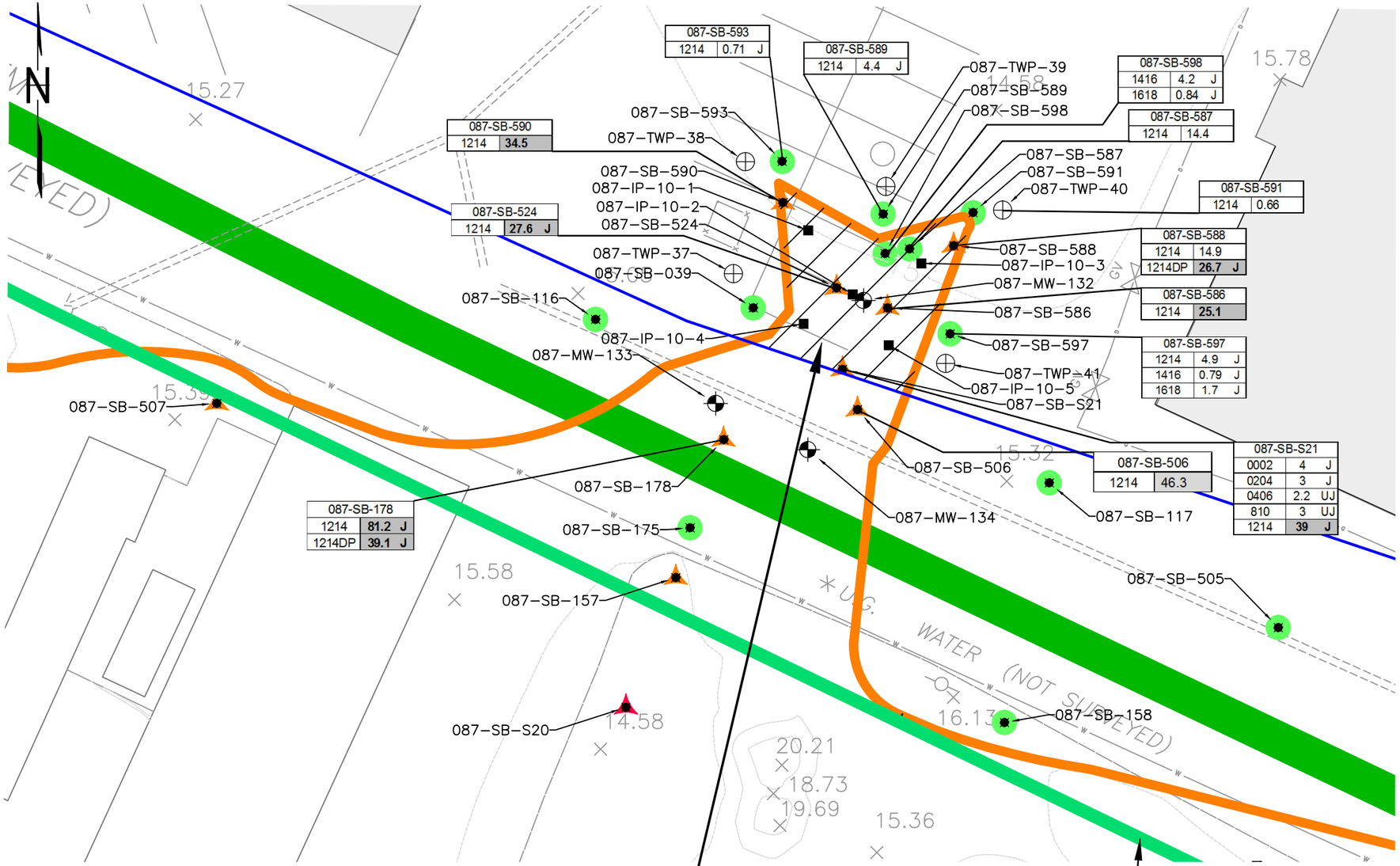
P:\GDEN\HONEYWELL\JERSEY CITY\SA 6 NORTH\REPORTS\3480150438\SHTS\CURRENT DRAWINGS\TARGETED IN-SITU TREATMENT NORTHERN PORTION.dwg Fri, 21 Aug 2015 - 8:10am scott.rudisill Layout: FIG 5A



TARGETED TREATMENT AREA 10-1
- 5 INJECTION POINTS – SPACED @ 15' O.C.
- CONTAMINATED ZONE 12'-14'
- INJECTION ZONE 10'-16'
- NUMBER OF INJECTION POINTS MAY BE ADJUSTED IN THE FIELD

AREA = APPROX. 800 SF

PROPOSED HYDRAULIC BARRIER WALL.

LEGEND

- PREVIOUS SOIL BORINGS
- PROPOSED NEW PERMANENT MONITORING WELL LOCATION
- INJECTION POINT LOCATION
- PROPOSED OBSERVATION TEMPORARY WELL POINT (TWP)
- <20 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- 20-240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- >240 ppm HEXAVALENT CHROMIUM SAMPLE LOCATION
- BLOCK/LOT LINE (APPROXIMATE LOCATION)
- STORM SEWER
- 72" FORCEMAIN SANITARY SEWER
- 54" OUTFALL (ABANDONED)
- NORTHERN EDGE OF BAYFRONT REDEVELOPMENT CURBLINE OF NEW STEGMAN BOULEVARD
- LIMITS OF TARGETED IN-SITU TREATMENT
- RELOCATED HYDRAULIC BARRIER
- APPROXIMATE LIMITS OF AREA WHERE DETECTED HEXAVALENT CHROMIUM CONCENTRATION VALUES >20 mg/kg
- EXISTING BUILDINGS
- IN-SITU TREATMENT AREA
- U NOT DETECTED
- J ESTIMATED CONCENTRATION

UTILITY LOCATIONS BASED ON ALTA/ASCM LAND TITLE SURVEY FOR BLOCK 1290.1 – LOTS 2D,2E,15D, 15B & 16A, DATED 5/23/08

NOTE:

SEE FIGURE 2 FOR LOCATION OF DETAIL MAP.

0 10 20 40
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY
	12/05/11			

Amec Foster Wheeler PROJECT No. 3480150438
DRAWING: TARGETED IN-SITU TREATMENT NORTHERN PORTION

PREPARED/DATE: STR 06/05/15

CHECKED/DATE: DN 06/05/15

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FI□□RE □A □RE□I□ED□
PROPOSED TAR□ETED IN-SIT□
INJECTION NORTHERN PORTION O□
TREATMENT AREA 10-1
ST□DY AREA 6 NORTH
JERSEY CITY, NEW JERSEY

TABLES

TABLE 1
SULFIDE/ SULFATE ANALYTICAL DATA: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Sampling Date	087-MW-132		087-MW-133		087-MW-134		087-TWP-37		087-TWP-38		087-TWP-39		087-TWP-40		087-TWP-41	
	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate	Sulfide	Sulfate
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8/14/2015	<2.0	<10	<2.0	16	<2.0	<10	204	<10	54	15.2	12	<10	<2.0	<10	4.3	<10
8/19/2015	20	<10	2.6	10	16	<10	524	10.1	98	<10	90	<10	44	<10	23.3	<10
9/11/2015	30	22.4	<10	<10	10	26.5	123	35.5	70	31.6	180	48.3	75	<10	681	81.4
9/18/2015	56	85.3	32	<10	28	<10	690	55	190	164	76	144	84	82.7	452	21.9
9/25/2015	22.9	82.1	3	<10	11	<10	101	103	39.8	114	45.8	52.2	30.9	61.6	158	21.6

Notes:

Baseline Readings

Preliminary Results

C:\Users\dennis.nagg\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\21G8CGI7\
Table 1 Sulifde Sulfate Data_10 1 15

Prepared By: JLD 10/01/15
Checked By: DEN 10/01/15

TABLE 2
SUMMARY OF IN-SITU INJECTION AREAS: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area	Injection Date(s)	PROPOSED PER ERFS WORK PLAN						COMPLETED						Injection Time (mins)	Avg. Injection Flow Rate (gpm)	Minimum Radius of Influence (ft)	Notes
		Injection Depth (ft bgs)	No. of IPs	No. of TWPs	Stock Solution Volume (~29% CAPS) (gals)	Diluted CAPS Sol'n Injection Volume (gals)	Approx. CAPS Injection Conc (%)	Injection Depth (feet bgs)	No. of IPs	No. of TWPs	Stock Solution Volume (~29% CAPS) (gals)	Diluted CAPS Sol'n Injection Volume (gals)	Approx. CAPS Injection Conc (%)				
TA-10-1	8/18/15, 9/9/15-9/10/15	10-16	5	5	150	3,150	1.38%	10-16	5	5	165	3,250	1.47%	460	8	10	No problems noted while injecting.

Notes:

ft = Feet
bgs = Below Ground Surface
TWPs = Temporary Well Points
gals = Gallons
mins = Minutes
gpm = Gallons per Minute
psi = Pounds per Square Inch
CAPS = Calcium Polysulfide
IP = Injection Point

TABLE 3
SUMMARY OF IN-SITU INJECTION GW MONITORING DATA: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area	Monitoring Point ID	Baseline, During Injections, or Final	Monitoring Date	Time	Water Depth (ft bgs)	ORP (mV)	pH	Conductivity (uS)	Notes
TA-10	087-TWP-37	Baseline	8/17/2015	9:30 AM	10.65	-30	7.59	1.68	Pre-Injections
		During Injections	8/18/2015	1:00 PM	10.09	-228	8.54	2.27	During the injection of IP-1
		During Injections	9/9/2015	8:00 AM	10.91	-129	7.74	1.59	Pre-injection of IP-2
		During Injections	9/9/2015	12:15 PM	9.80	-325	9.56	3.37	Post injection of IP-2 and IP-3
		During Injections	9/9/2015	1:50 PM	9.73	-377	10.67	2.67	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	10.42	-267	10.51	2.29	During the injection of IP-5
		Final	9/10/2015	12:40 PM	10.58	-390	10.58	2.65	Post-Injections
	087-TWP-38	Baseline	8/17/2015	9:30 AM	10.58	-55	7.49	1.19	Pre-Injections
		During Injections	8/18/2015	1:00 PM	9.61	-108	8.18	1.20	During the injection of IP-1
		During Injections	9/9/2015	8:00 AM	10.84	-171	7.64	1.28	Pre-injection of IP-2
		During Injections	9/9/2015	10:40 AM	10.26	-192	8.37	1.98	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	9.82	-309	9.11	2.31	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	10.43	-256	9.20	1.720	During the injection of IP-5
		Final	9/10/2015	12:40 PM	10.50	-328	9.59	1.83	Post-Injections
	087-TWP-39	Baseline	8/17/2015	9:30 AM	10.24	-50	7.20	0.97	Pre-Injections
		During Injections	8/17/2015	1:00 PM	9.81	-341	8.55	2.40	Post injection of IP-1
		During Injections	9/9/2015	8:00 AM	10.50	-117	8.02	1.08	Pre-injection of IP-2
		During Injections	9/9/2015	10:40 AM	9.98	-174	8.12	2.14	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	9.23	-230	10.20	2.69	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	9.98	-177	9.50	2.61	During the injection of IP-5
		Final	9/10/2015	12:40 PM	10.15	-228	9.34	2.57	Post-Injections
	087-TWP-40	Baseline	8/17/2015	9:30 AM	10.16	-48	7.24	1.76	Pre-Injections
		During Injections	8/18/2015	1:00 PM	9.40	-48	7.31	1.70	During the injection of IP-1
		During Injections	9/9/2015	8:00 AM	10.44	-172	7.80	1.81	Pre-injection of IP-2
		During Injections	9/9/2015	10:40 AM	10.07	-159	8.01	1.78	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	8.19	-466	11.71	8.49	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	9.80	-313	11.72	3.83	During the injection of IP-5
		Final	9/10/2015	12:40 PM	10.02	-349	12.03	3.29	Post-Injections
	087-TWP-41	Baseline	8/17/2015	9:30 AM	10.56	-31	7.19	1.27	Pre-Injections
		During Injections	8/18/2015	1:00 PM	10.11	-85	7.23	1.12	Post injection of IP-1
		During Injections	9/9/2015	8:00 AM	10.83	-176	7.89	1.94	Pre-injection of IP-2
		During Injections	9/9/2015	10:40 AM	10.38	-185	8.18	1.62	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	9.64	-343	10.75	2.14	Post injection of IP-4
		During Injections	9/10/2015	10:40 AM	5.42	-434	11.02	5.71	During the injection of IP-5
		Final	9/10/2015	12:35 PM	10.41	-452	11.22	5.99	Post-Injections
	087-MWP-132	Baseline	8/17/2015	9:30 AM	9.11	-2	7.35	0.987	Pre-Injections
		During Injections	8/18/2015	1:00 PM	8.70	-296	7.96	1.00	Post injection of IP-1
		During Injections	9/9/2015	8:00 AM	9.37	-107	7.87	0.95	Pre-injection of IP-2
		During Injections	9/9/2015	12:15 PM	8.08	-253	8.80	1.31	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	7.94	-223	9.32	1.39	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	8.45	-266	10.33	8.71	During the injection of IP-5
		Final	9/10/2015	12:40 PM	9.01	-380	10.24	2.43	Post-Injections
	087-MWP-133	Baseline	8/17/2015	9:30 AM	9.13	-37	7.12	1.21	Pre-Injections
		During Injections	8/18/2015	1:00 PM	8.81	-35	7.32	1.18	Post injection of IP-1
		During Injections	9/9/2015	8:00 AM	9.35	-129	7.78	1.35	Pre-injection of IP-2
		During Injections	9/9/2015	12:15 PM	9.03	-154	7.85	1.27	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	8.86	-177	7.88	1.17	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	9.09	-179	7.87	1.34	During the injection of IP-5
		Final	9/10/2015	12:40 PM	7.90	-261	7.90	1.21	Post-Injections
	087-MWP-134	Baseline	8/17/2015	9:30 AM	9.17	-46	7.22	1.38	Pre-Injections
		During Injections	8/18/2015	1:00 PM	9.69	-118	7.28	1.24	Post injection of IP-1
		During Injections	9/9/2015	8:00 AM	9.41	-131	7.45	1.10	Pre-injection of IP-2
		During Injections	9/9/2015	12:15 PM	8.70	-151	7.85	1.09	Post injection of IP-2 and During the injection of IP-3
		During Injections	9/9/2015	1:50 PM	8.44	-155	7.87	1.07	Post injection of IP-4
		During Injections	9/10/2015	10:30 AM	8.83	-190	7.91	1.04	During the injection of IP-5
		Final	9/10/2015	12:40 PM	9.09	-199	7.28	1.07	Post-Injections

Notes:
* Interior MWs are shaded gray.
ft = Feet
bgs = Below Ground Surface
mV = Millivolts
uS = MicroSiemens
TWP = Temporary Well Point
IP = Injection Point
mins = Minutes
hrs = Hours

P:\Active Projects\Honeywell_Jersey City\SA-6\SA-6 North Cr DGW\Injections in 10-1 Only\Summary Memo\
Table 3_GW Monitoring Data_092915
Prepared By: JLD 9/28/15
Checked By: DEN 9/29/15

TABLE 4
INJECTION LOG DURING IN-SITU INJECTION PROGRAM: TA-10-1

STUDY AREA 6 NORTH
SA-6 CHROMIUM REMEDY
JERSEY CITY, NEW JERSEY

Area	Injection Point (IP) ID	Injection Date	Injection Start Depth (ft bgs)	Injection End Depth (ft bgs)	CAPs Sol'n Injected Volume (Gals)	Diluted CAPs Sol'n Injected Volume (Gals)	Injected CAPs Conc (%)	Injection Time (Mins)	Injection Flow Rate (gpm)
TA-10	IP-10-1	8/18/2015	16	10	33	650	1.47%	175	3.71
	IP-10-2	9/9/2015			33	650	1.47%	69	9.42
	IP-10-3	9/9/2015			33	650	1.47%	68	9.56
	IP-10-4	9/9/2015			33	650	1.47%	71	9.15
	IP-10-5	9/10/2015			33	650	1.47%	77	8.44
Totals	**5 Injection points**	**8/18/15, 9/9/15-9/10/15**			**165.00**	**3,250**		**460**	

Notes:

ft = Feet
bgs = Below Ground Surface
TWPs = Temporary Well Points
gals = Gallons
mins = Minutes
gpm = Gallons per Minute
psi = Pounds per Square Inch
CAPS = Calcium Polysulfide
IP = Injection Point

Prepared By: JLD 9/28/15
Checked By: DEN 9/29/15

ATTACHMENT 1

GEOPROBE® INJECTION PROBE TOOL

Geoprobe Systems®

ENVIRONMENTAL • GEOTECHNICAL • GEOTHERMAL • MINING EXPLORATION

Product Sheet

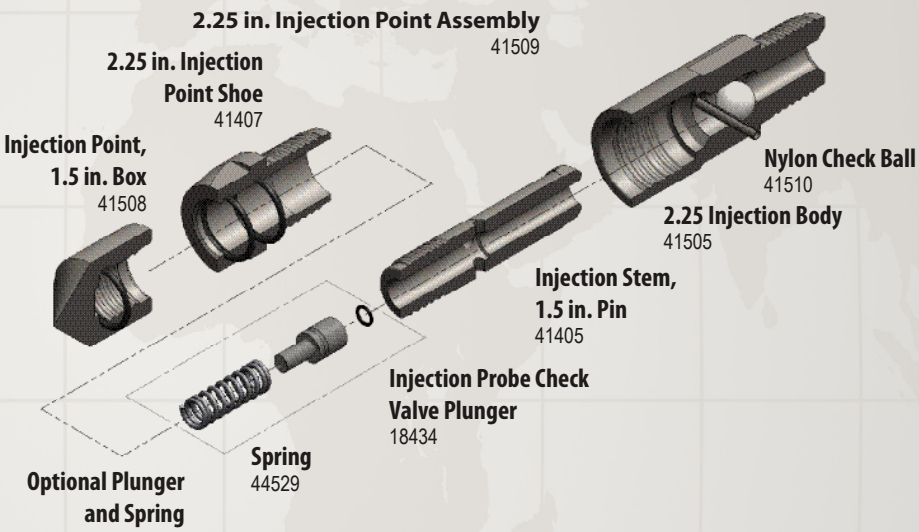
Geoprobe® 2.25 in. Injection Probe

Accurate Injection Materials Placement

• The Geoprobe® 2.25 in. Injection Probe allows for "Top Down" or "Bottom Up" injection methods. Use with the Geoprobe 2.25 Injection Pull Cap (P/N 37275).

• The four horizontal injection ports provide 360 degrees influence of remediation materials.

• During advancement & retraction of the probe, the check valve system keeps subsurface materials out of the injection tool string and helps prevent injection material back flow.



Cost Effective Injection

• No need for expendable points thus giving you a cost savings per hole.

• Compatible with all Geoprobe Systems® pump configurations.

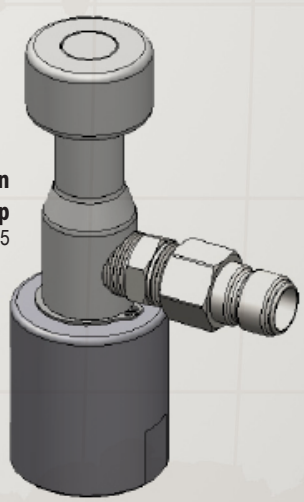
• Fast & Simple cleaning with few replaceable parts needed.

Productive Injection

• The Geoprobe® 2.25 in. Injection Probe is manufactured with Stainless Steel components and is compatible with many remediation products.

• "High Solids" materials such as cement or iron based materials are easily injected with the 2.25 in. Injection Probe.

• Quick & Easy assembly and disassembly of the probe for cleaning and simple maintenance.



1835 Wall Street • Salina, KS 67401 | 1-800-436-7762 | geoprobe.com

This document is not a final purchasing quotation. Tooling specifications are subject to change without notice.

PHOTOS

PHOTOS

Photo 1: Treatment Area 10-1 Area

Photo 2: CAPS Storage and Mixing Area with Secondary Containment

Photo 3: Summit Drilling Injection Point

Photo 4: ERFS' Well Head Injection Hose Assembly

Photo 5: Monitoring Temporary Well Points

DRAFT DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Bayfront Redevelopment LLC]

Recorded by:

_____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE CONCERNING CONTROLS INSTALLED TO CONTAIN CHROMIUM AND HISTORIC FILL CONTAMINATION UNDERLYING THE CENTRAL PARK

This Deed Notice is made as of the __ day of _____, 2017, by ***Bayfront Redevelopment LLC, whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950***. Owner shall mean Bayfront Redevelopment LLC together with its successors and assigns, including all successors in interest in the Open Space Area Property which is the subject of this Deed Notice as described fully below.

1. THE PROPERTY. Bayfront Redevelopment LLC is the current owner in fee simple of certain real property designated as portions of ***Block 22901, Lots 5 through 10 on the tax map of the City of Jersey City, Hudson County, New Jersey***[1]; the New Jersey Department of Environmental Protection ("the Department") Program Interest Numbers for the contaminated site which includes this property are ***Hudson County Chromate Site No. 087 Program Interest (PI) No. G000008710 and Hudson County Chromate Site No. 088 PI No. G000008711*** [NJDEP PI# for non-chromium-related contaminants at the Property is #745719] and known as the Open Space Area pursuant to

[1] All references to Block 22901 Lots 5 through 10 in this Deed Notice shall mean those portions of Block 22901 Lots 5 through 10 regardless of whether the word "portion(s)" is specifically called out or not.

the First Amended Consent Decree Regarding the Remediation and Redevelopment of Study Area 6 North ("Consent Decree") which is attached hereto and is entered as an order of the Court in the following consolidated actions *JCMUA v. Honeywell International, Inc.,* D.N.J., Civ. No. 05-05955; *JCIA v. Honeywell International, Inc.,* D.N.J., Civ. No. 05-5993; and *Hackensack Riverkeeper, Inc. v. Honeywell International, Inc.,* D.N.J., Civ. No. 06-22. The approximate location of the Open Space Area is also referred to as Central Park in the Bayfront I Redevelopment Plan adopted by Jersey City on March 12, 2008 and is referred to as the Open Space Area Property herein. The Open Space Area is more particularly described in Exhibit A, which is attached hereto and made a part hereof (the "Open Space Area Property"). The Consent Decree restricts transfer, use and development of the Open Space Area Property. To the extent that there is any conflict or inconsistency between the terms of this Deed Notice and the terms of the Consent Decree, the Consent Decree shall govern.

2. REMEDIATION.

i. The Department's Bureau of State Case Management (BCM) is the entity within the Department that is responsible for the oversight of the chromium remediation of the Open Space Area Property. The matter was Case No. Hudson County Chromate Site No. 087 PI# G000008710 and Hudson County Chromate Site No. 088 PI# G000008711. The Department has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26-C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL AND GROUNDWATER CONTAMINATION. Honeywell International Inc. ("Honeywell") a corporation of the State of Delaware, licensed to do business in the State of New Jersey whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950, has remediated the Open Space Area Property to address chromium-related soil and non-chromium related soil and shallow groundwater contamination. The Remedial Action Work Plan (RAWP) for chromium remedial actions was approved by the Department on February 19, 2009 for Hudson County Chromate Site Nos. 087 and 088 which included the Open Space Area Property. The RAWP for non-chromium remedial actions was approved by the Department on November 10, 2009. Remedial actions for chromium were further approved pursuant to the Consent Decree. Under both the Consent Decree and the RAWP soil contamination remains in the Open Space Area Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Open Space Area Property.

Deed Notice #5 encompasses the Open Space Area in SA-6 North which encompass approximately 11 acres. This deed notice area includes chromium and historic fill. The horizontal extents of the SA-6 North Open Space Area are defined by an existing soil-cement-bentonite (SCB) wall along the northern boundary with SA-7 and the hydraulic barrier walls installed on the other three sides as part of the Chromium Remedy. The engineering barrier in the SA-6 North Open Space Area consists of an engineered Resource Conservation Recovery Act (RCRA) cap that includes a gas collection system, base protective layer, geomembrane liner, geocomposite drainage layer, filter fabric, warning layer and cover soils. Deed Notice #5 also includes the northern hydraulic barrier

of SA-7. This area will be impacted by Open Space Development, therefore, the provisions of the LTMP apply and on-site oversight may be appropriate.

The soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result of the contamination, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13. Under the terms of the Consent Decree and this Deed Notice, Honeywell is responsible for monitoring and maintaining the soil remediation for the Open Space Area Property in perpetuity.

4. CONSIDERATION. In accordance with the Department's approval of the chromium and non-chromium RAWPs for the remediation for the Hudson County Chromate Site Nos. 087 and 088 which includes the Open Space Area Property, and in consideration of the terms and conditions of that remedial action, and in accordance with the Consent Decree, and other good and valuable considerations, Owner has agreed to subject the Open Space Area Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Open Space Area Property, to restrict certain uses of the Open Space Area Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of these contaminants, Owner has agreed, as part of the remedial action for the Open Space Area Property, to restrict the use of the Open Space Area Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Open Space Area Property, to the placement of certain engineering controls on the Open Space Area Property. A narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C. Honeywell shall be responsible

for monitoring and maintenance of engineering controls and biennial certification requirements as specified in Paragraphs 8A and 8B.

5D. LONG TERM MONITORING PLAN. Honeywell has prepared a Long Term Monitoring Plan which sets forth requirements for monitoring of the chromium remedial measures including engineering controls within the Open Space Area Property and shallow groundwater, and requirements for notification and reporting pursuant to the Consent Decree, Deed Notice and Soil Remedial Action Permit. A copy of the Long-Term Monitoring Plan is maintained by Honeywell at 115 Mount Tabor Road, Morris Plains, NJ 07950. This Deed Notice is appended to the LTMP.

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person of whom it has knowledge, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of known contamination in the Restricted Areas, and, of the precautions necessary to protect the engineering controls and minimize potential human exposure to contaminants.

ii. Except as provided in the Consent Decree and Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Open Space Area Property which disturbs any engineering control at the Open Space Area Property except as (a) permitted in the Consent Decree and (b) without first obtaining the express written consent of the Department. Nothing herein shall constitute a waiver of the obligation of any person to comply

with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

iii. Notwithstanding subparagraph 7A.ii., above, a Soil Remedial Action Permit modification is not required for any alteration, improvement, or disturbance provided that:

(A) Takes such action in conformance with the Consent Decree; and

(B) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance; and

(C) Notifies Honeywell of the activity by calling 855-727-2658; and

(D) Honeywell and/or the owner, lessee or operator restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance; and

(E) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration; and

(F) Ensures that human exposure to contamination in excess of the applicable remediation standards does not occur; and

(G) The next biennial certification includes a description of the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Immediately notifies Honeywell of the emergency by calling 855-727-2658;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

vi. Notifies Honeywell when the emergency has ended by calling 855-727-2658; and

vii. Honeywell restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within sixty (60) calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent recurrence of such conditions in the future. Honeywell shall submit the report to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

8A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Open Space Area Property, the persons responsible for conducting the remediation, Honeywell, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. Honeywell shall certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Open Space Area Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

8B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. Honeywell shall maintain all engineering controls at the Open Space Area Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Open Space Area Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

9. ACCESS. The Owner agrees to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the persons responsible for monitoring the protectiveness of the remedial action, as described in Paragraph 8, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an

interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. NOTICES.

i. Owner shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Open Space Area Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner shall notify any person intending to conduct invasive work or excavate within the Open Space Area Property on its behalf of the nature and location of contamination and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. Owner shall provide written notice to the Department of Environmental Protection at least thirty (30) calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area. Any such conveyance, grant or gift must be consistent with the terms of the Consent Decree.

iv. Owner shall provide written notice to the Department within thirty (30) calendar days following the Owner's receiving notice of any petition for a rezoning of the Open Space Area Property. Any such rezoning must be consistent with the terms of the Consent Decree. The Owner shall submit the written notice to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413.

11. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Open Space Area Property, but merely is intended to provide notice of certain conditions and restrictions on the Open Space Area Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this Open Space Area Property.

ii. The restrictions provided herein may be enforceable by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C,

and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

12. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as if the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Open Space Area Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. Any person seeking a modification or termination of this Deed Notice must also have such modification approved by the United States District Court for the District of New Jersey pursuant to the Consent Decree until such time as the Consent Decree terminates with regard to the Open Space Area Property pursuant to the Consent Decree.

iv. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the Hudson County Register, New Jersey, expressly modifying or terminating this Deed Notice.

v. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

14A. EXHIBIT A. Exhibit A includes the following maps of the Open Space Area Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Open Space Area Property;

ii. Exhibit A-2: Metes and Bounds Description of Open Space Area Property- A metes and bounds description of the Open Space Area Property, including reference to tax lot and block numbers for the Open Space Area Property and a Tax Map;

iii. Exhibit A-3: Open Space Area Property Map - A scaled map of the Open Space Area Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; the map(s) shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1 and B-2 (Exhibits B-1A, B-1B, B-2A, and B-2B): Restricted Area Maps - Maps for the Open Space Area that include, as applicable:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, ground water monitoring wells, and ground water pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and/or sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described below.

ii. Exhibit B-3 (Table B-3): Restricted Area Data Tables - Table for the Open Space Area that includes:

(A) Sample location designation from Restricted Area maps (Exhibit B-1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E-4.6, Table 4-2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1A through D. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control (attached); Exhibit C-1C: Zoning as Intuitional Control; Exhibit C-1D: Conservation Restriction as Institutional Control (attached): Exhibit C-1 (A through D) includes a narrative description of the restrictions and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;
(2) Description of the restrictions on the Open Space Area Property by operation of this Deed Notice and the other Institutional Controls; and
(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;
(2) There have been any land use changes subsequent to the filing of this Deed Notice and the other Institutional Controls or the most recent biennial certification, whichever is more recent;
(3) The current land use on the Open Space Area Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls;
(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the Open Space Area Property; and
(5) Any new standards, regulations, or laws apply to the Open Space Area Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice and the other Institutional Controls, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice and the other Institutional Controls;
(2) Land use at the Open Space Area Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls; and
(3) The remedial action that includes this Deed Notice and the other Institutional Controls continues to be protective of the public health and safety and of the environment.

ii. Exhibit C-2A through C. Exhibit C-2A: Engineering Controls: Clean Fill and Soil Capping System; Exhibit C-2B: Engineering Controls: Underground Containment Walls; Exhibit C-2C: Engineering Controls: Shallow Groundwater Collection and Treatment System.

Exhibit C-2 includes a narrative description of the engineering controls as follows:

(A) General Description of the engineering control:

(1) Description of the engineering control;
(2) The objective of the engineering control; and
(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
(4) The engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering control; and
(6) Any new standards, regulations, or laws apply to the Open Space Area Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;
(2) The engineering control continues to operate as designed; and
(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

16. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

EXHIBIT A
Deed Notice #5 SA-6 North Open Space Area

A-1 Vicinity Map

A-2 Metes and Bounds Description of Open Space Area Property and Tax Map

A-3 Open Space Area Property Maps Portions of Block 21901, Lots 5 through 10, City of Jersey City, New Jersey

Exhibit A-1 Vicinity Map consists of a road map for the vicinity of the Open Space Area Property.

Exhibit A-2 consists of the metes and bounds and a tax map for the Open Space Area.

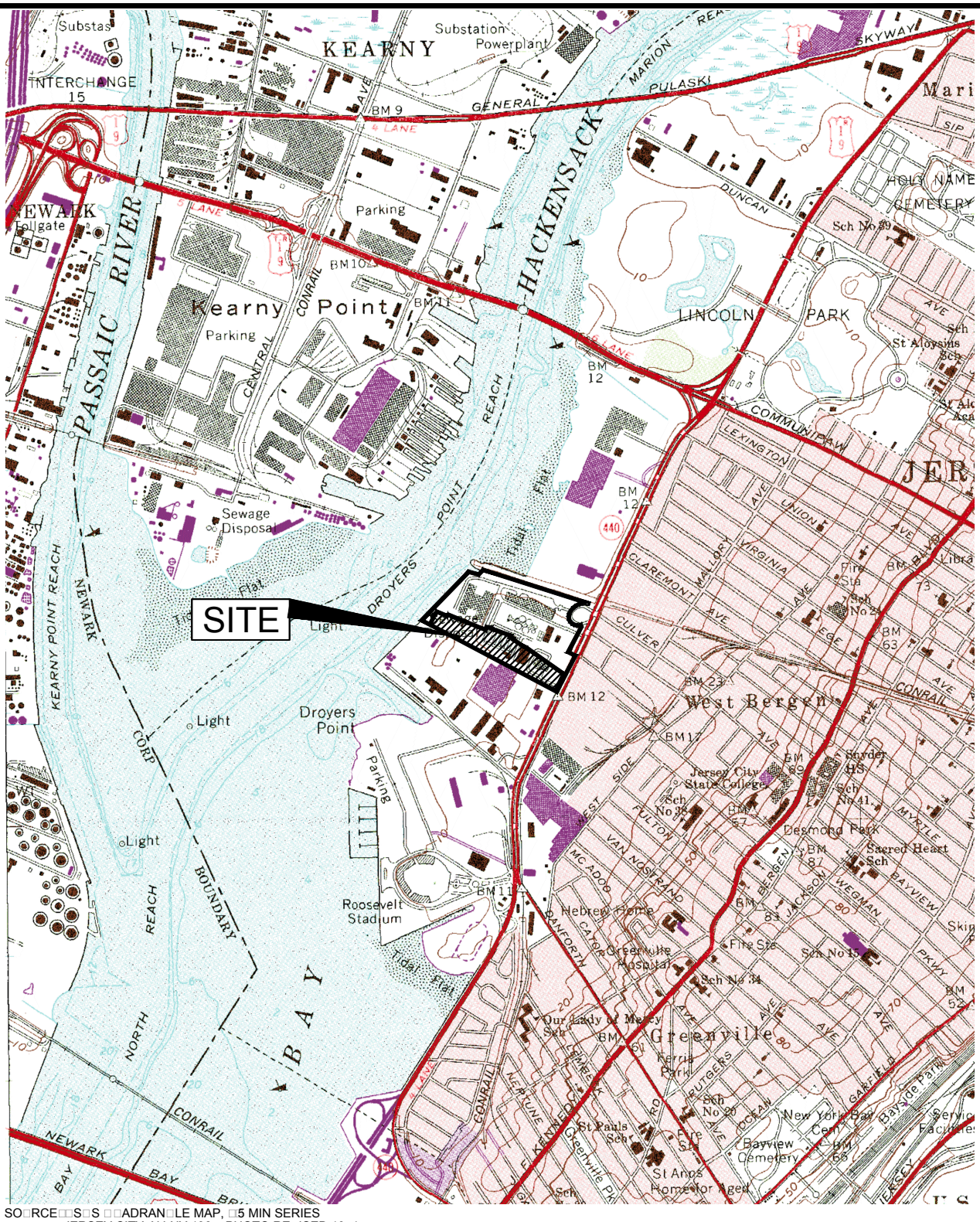
Exhibit A-3A and 3B Open Space Area Property Maps consist of figures indicating major surface features and engineering control for the Open Space Area Property.

Exhibit A-1
Site Vicinity Map

EXHIBIT A-1
SITE VICINITY MAP
STUDY AREA 6 NORTH SITES 087 and 088
JERSEY CITY, NEW JERSEY

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\6100011\DEED NOTICE\DN 5\3480150487-6100-A105-0000.dwg Tue, 07 Feb 2017 - 10:19am scott.rudkin



SOURCE: USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP, 1:5 MIN SERIES
JERSEY CITY, NJ-NY 196□, PHOTO REVISED 19□1

OPEN SPACE AOC
RESTRICTED AREA

0 1000 2000 4000
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A105-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-1
VICINITY MAP
BLOCK 21901 LOTS 5-10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE 5

Exhibit A-2
Deed Notice #5 SA-6 North Open Space Area

Metes and Bounds Description of Open Space Area Property and Tax Map

A-2 Metes and Bounds Description of Open Space Area Property Portions of Block 21901, Lots 5 through 10 City of Jersey City, New Jersey (see attached)

If there is any discrepancy between the Metes and Bounds and the tax map; the Metes and Bounds prevails.

The Open Space Area Property is identified as portions of Block 22901, Lots 5 through 10 on the City of Jersey City tax maps, the Open Space Area Property being presently owned by Bayfront. A copy of the current tax map showing the general location of the Open Space Area Property is included as Exhibit A-2 (see attached).

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners ▪ Surveyors ▪ Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 ▪ Fax: 732.383.1984

DESCRIPTION OF PROPERTY
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY
PROJECT NO. 10000292C

DEED NOTICE AREA 5
BLOCK 21901 LOTS 5 THRU 10
MAY 18, 2016
REVISED: DECEMBER 7, 2016

All that certain lot, tract or parcel of land situate lying and being in the City of Jersey, in the County of Hudson and State of New Jersey, and being a portion of Lots 5 thru 10, in Block 21901, designated as Deed Notice Area 5 as shown on an exhibit entitled, "Deed Notice Area 5, SA6 North, Block 21901, Lots 5 Thru 10, City of Jersey City, Hudson County, New Jersey," prepared by Maser Consulting P.A., dated May 12, 2016, revised December 7, 2016 and being more particularly bounded and described as follows, to wit:

BEGINNING at a point in the westerly sideline of New Jersey State Highway Route 440 (112 foot wide right of way), said sideline being distant 61 feet westward at right angles to the centerline thereof, said beginning point being distant **S24° 46' 55"W, 4.16 feet** along said sideline, from its intersection with the division line between Lots 5 and 6 in Block 21901, and running; thence-

1. **N49° 06' 51"W, 488.50 feet,** running through Lot 6 and beyond, to a point in Lot 7; thence-
2. **N59° 38' 29"W, 1,519.31 feet,** running through said Lot 7 and beyond, to a point in Lot 8; thence-
3. **N45° 51' 07"E, 4.13 feet,** still running through said Lot 8, to a point in the common division line between Lot 8 and Lot 10 in Block 21901; thence-
4. **S59° 39' 05"E, 111.22 feet,** along said common division line; thence-

Running through said Lot 10, the following seven (7) courses:

5. **N28° 37' 00"E, 19.46 feet,** through the same and beyond, to a point in Lot 10; thence-
6. **N30° 01' 01"E, 48.06 feet**; thence -
7. **N19° 17' 57"W, 17.97 feet**; thence –
8. **N31° 55' 37"E, 23.15 feet**; thence –
9. **N76° 06' 19"E, 18.87 feet**; thence –
10. **N29° 16' 27"E, 36.41 feet**; thence –

11. **S65° 27' 42"E, 153.93 feet**, through said Lot 10 and beyond, to a point in Lot 9; thence –

Running through said Lot 9 the following five (5) courses:

12. **N24° 46' 55"E, 9.39 feet**; thence -

13. **S63° 20' 43"E, 154.05 feet**; thence –

14. **S64° 10' 53"E, 135.75 feet**; **thence** –

15. **S64° 26' 24"E, 187.04 feet**; **thence** –

16. **S63° 47' 42"E, 79.47 feet**, through the same and beyond, to a point in Lot 10; thence –

Running through said Lot 10 the following fourteen (14) courses:

17. **N17° 56' 34"E, 11.36 feet**; thence-

18. **N21° 49' 22"E, 38.16 feet**; thence-

19. **S64° 01' 16"E, 27.11 feet**; thence-

20. **S71° 46' 41"E, 7.00 feet**; thence -

21. **S64° 53' 57"E, 170.96 feet**; thence –

22. **S64° 26' 41"E, 145.28 feet**; thence –

23. **S21° 49' 39"W, 13.27 feet**; thence –

24. **S30° 55' 57"W, 14.90 feet**; thence –

25. **S63° 05' 16"E, 40.95 feet**; thence –

26. **S23° 59' 21"E, 5.01 feet**; thence -

27. **S09° 06' 51"W, 5.08 feet**; thence –

28. **S62° 39' 21"E, 11.92 feet**; thence –

29. **S52° 51' 45"E, 21.10 feet**; thence-

30. **S53° 17' 55"E, 88.34 feet**, through the same and beyond, to a point in Lot 5; thence -

Running through said Lot 5 the following ten (10) courses:

31. **S52° 44' 24"E, 69.21 feet**; thence –

32. **S51° 37' 08"E, 58.38 feet**; thence –

33. **S51° 38' 54"E, 66.12 feet**; thence –

34. **S50° 49' 27"E, 106.68 feet**; thence –

35. **S48° 28' 21"E, 88.28 feet**; thence –

36. **S47° 08' 10"E, 8.77 feet**; thence -

37. **S27° 42' 13"E, 2.67 feet**; thence –

38. **S51° 51' 37"E, 32.05 feet**; thence –

39. **S49° 13' 40"E, 214.67 feet**; thence -

40. **S49° 22' 28"E, 10.39 feet**, to the aforesaid westerly sideline of Route 440; thence –

41. **S24° 46' 55"W, 241.26 feet**, along said westerly sideline to the point and place of BEGINNING.

CONTAINING: 438,399 S.F. of land more or less or 10.064 acres of land more or less.

12/07/16

GLEN J. LLOYD, P.L.S. — DATE SIGNED
NEW JERSEY PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS037598

\\HQFAS1\General\Projects\2010\10000292R\Survey\Description\Metes & Bounds-Deed Notice 5_REV.docx

DEED NOTICE #5 LINE TABLE

SEGMENT	DIRECTION	LENGTH
L1	N 45°51'07" E	4.13'
L2	S 59°39'05" E	111.22'
L3	N 28°37'00" E	19.46'
L4	N 30°01'01" E	48.06'
L5	N 19°17'57" W	17.97'
L6	N 31°55'37" E	23.15'
L7	N 76°06'19" E	18.87'
L8	N 29°16'27" E	36.41'
L9	S 65°27'42" E	153.93'
L10	N 24°46'55" E	9.39'
L11	S 63°20'43" E	154.05'
L12	S 64°10'53" E	135.75'
L13	S 64°26'24" E	187.04'
L14	S 63°47'42" E	79.47'
L15	N 17°56'34" E	11.36'
L16	N 21°49'22" E	38.16'
L17	S 64°01'16" E	27.11'
L18	S 71°46'41" E	7.00'
L19	S 64°53'57" E	170.96'
L20	S 64°26'41" E	145.28'
L21	S 21°49'39" W	13.27'
L22	S 30°55'57" W	14.90'
L23	S 63°05'16" E	40.95'
L24	S 23°59'21" E	5.01'
L25	S 09°05'51" W	5.08'
L26	S 62°39'21" E	11.92'
L27	S 52°51'45" E	21.10'
L28	S 53°17'55" E	88.34'
L29	S 52°44'24" E	69.21'
L30	S 51°37'08" E	58.38'
L31	S 51°38'54" E	66.12'
L32	S 50°49'27" E	106.68'
L33	S 48°28'21" E	88.28'
L34	S 47°08'10" E	8.77'
L35	S 27°42'13" E	2.67'
L36	S 51°51'37" E	32.05'
L37	S 49°13'40" E	214.67'

HACKENSACK RIVER

PIERHEAD AND BULKHEAD LINE AS ADOPTED DECEMBER 9, 1929

EXISTING WOOD BULKHEAD

PIERHEAD AND BULKHEAD LINE AS ADOPTED DECEMBER 9, 1929

N 59°38'29" W 1,519.31'

N 49°08'31" W 488.50'

S 49°22'28" E 10.39'

S 24°46'55" W 241.26'

DEED NOTICE AREA #5
(HATCH AREA)
AREA=438.399± S.F.
10.064 Ac.

DEED NOTICE AREA 7

DEED NOTICE AREA 7 LIMIT LINE

DEED NOTICE AREA 14

DEED NOTICE AREA 14 LIMIT LINE

BLOCK 21901
LOT 8
DB 7452 PG. 62

BLOCK 21901
LOT 9
DB 8531 PG. 196

BLOCK 21901
LOT 10
DB 8531 PG. 196

BLOCK 21901
LOT 1
N/F 585 ROUTE 440, LLC

BLOCK 21901
LOT 7
DB 7452 PG. 62

BLOCK 21901
LOT 5
DB 8642 PG. 118

BLOCK 21901
LOT 6
DB 8642 PG. 118

BLOCK 21901
LOT 2
N/F 585 ROUTE 440, LLC

BLOCK 21901
LOT 4
N/F PAUL TRENK

PREVIOUS DEVELOPMENT
BLOCK 6

BLOCK LIMIT LINE

LOT 6

LOT 5

LOT LINE

4.16'

195.84'

(AREA 5 TIE)

61'

51'

CENTERLINE

POINT OF BEGINNING

CULVER CIRCLE

CULVER AVENUE

NEW JERSEY STATE HIGHWAY ROUTE 440

(112' WIDE R.O.W.)

200 160 120 80 40 0 100 200 400

SCALE : 1" = 200'

MASER CONSULTING P.A.

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www.maserconsulting.com
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State of N.J. Cert. of Authorization: 24GA27986500

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Office Locations:
- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Marmora, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Albany, NY
- Chestnut Ridge, NY
- Newburgh, NY
- Hawthorne, NY
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Columbia, MD
- Tampa, FL

REV	DATE	DRAWN BY	DESCRIPTION
1	12/7/16	HA	EXPAND DEED NOTICE AREA
2	1/13/17	KAN	BLOCK 6
3	2/2/17	KAN	BLOCK 6
.	.	.	.
.	.	.	.
.	.	.	.

DEED NOTICE AREA 5
SA6 NORTH

BLOCK 21901
LOTS 5-10

CITY OF JERSEY CITY
HUDSON COUNTY
NEW JERSEY

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/16/2016	KAN	GJL

PROJECT NUMBER: 10000292Q
DRAWING NAME: V-EXBT-DN-5_REV

SHEET TITLE: DEED NOTICE EXHIBIT

SHEET NUMBER: 1 of 1

Exhibit A-2
Tax Map

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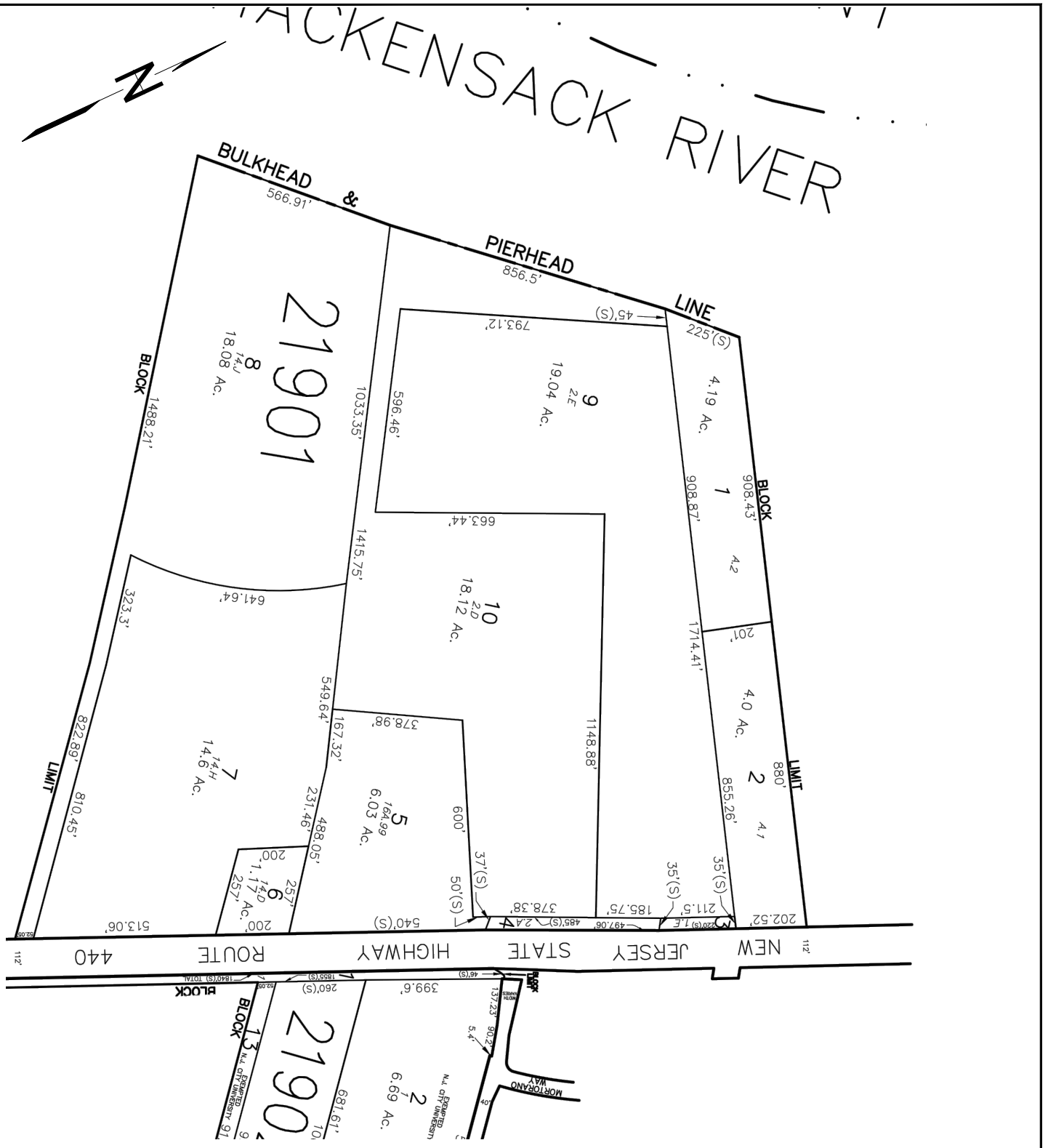

SOURCE:
DRAWING TITLED: "TAX MAP CITY OF JERSEY CITY", PREPARED BY T&M ASSOCIATED, MIDDLETOWN TWP., NJ SHEET 219, DATED AUGUST, 2006; NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF TAXATION PROPERTY ADMINISTRATION DATED MAY 8, 2009 SERIAL NO.: 934.

0 150 300 600
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150450 *DRAWING:* 3480150487-6100-A205-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	

EXHIBIT A-□
TA□ MAP
BLOCK 21901, LOTS 5 -10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE □5

Exhibit A-3A and A-3B
Open Space Area Property Maps

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT, AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

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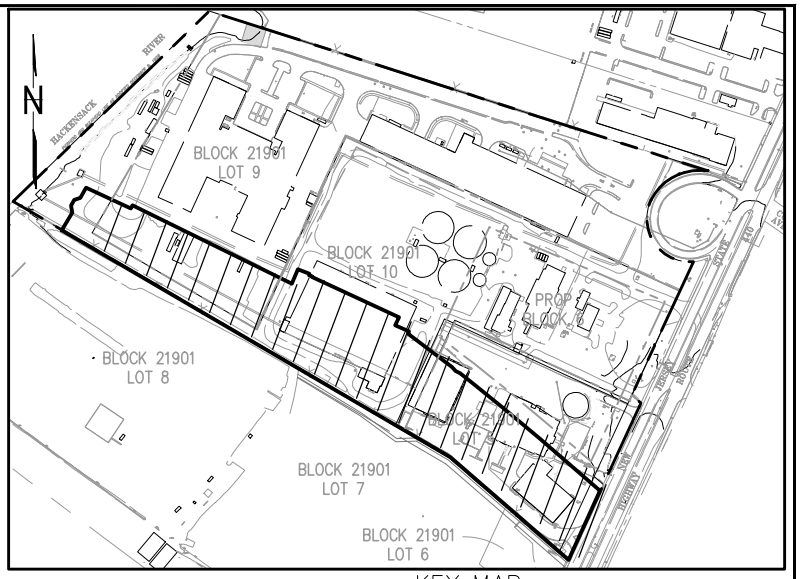
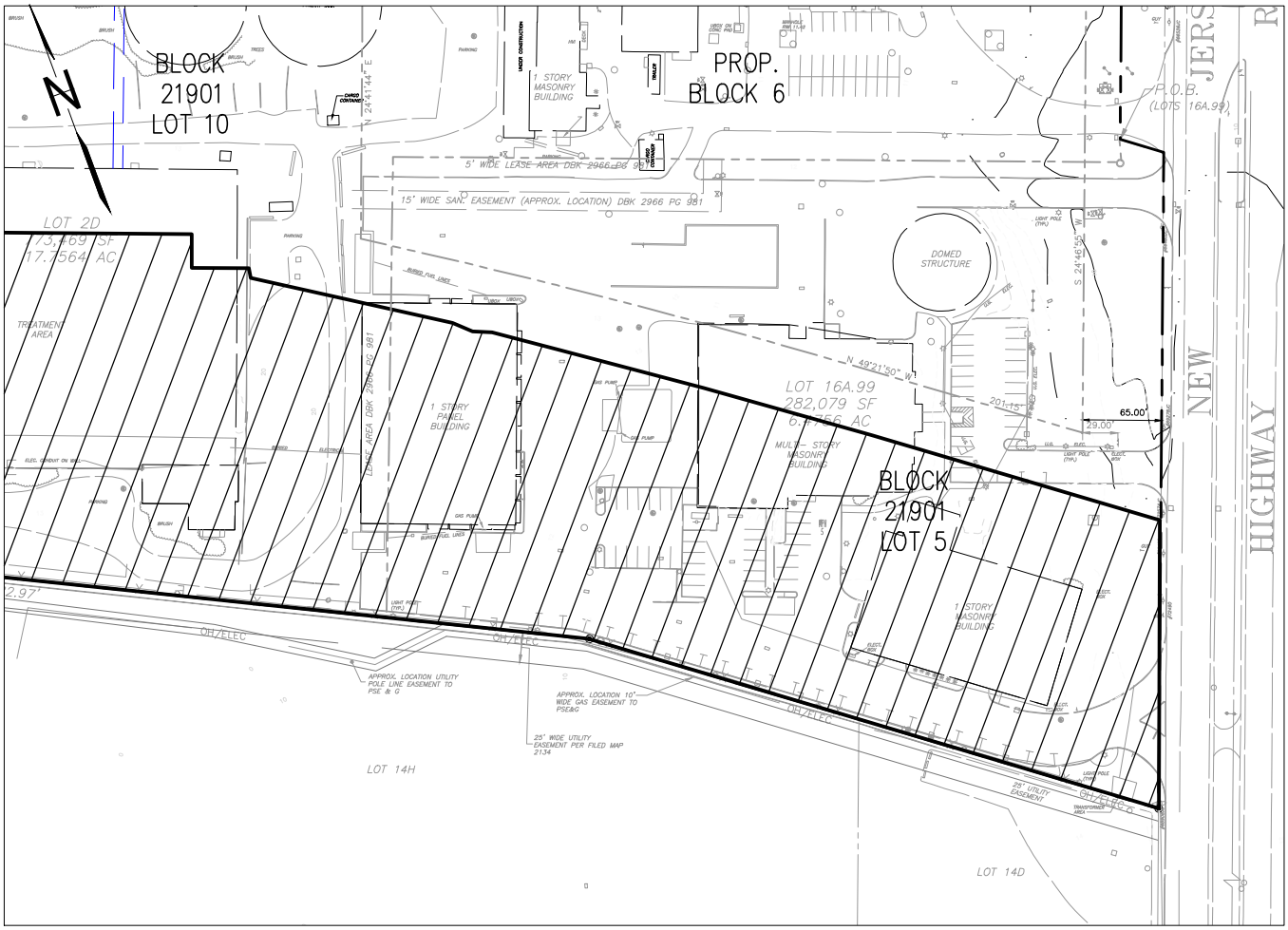
LEGEND

PROPERTY BOUNDARY

CEA AREA AND OPEN SPACE AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

0 60 120 240
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A305-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

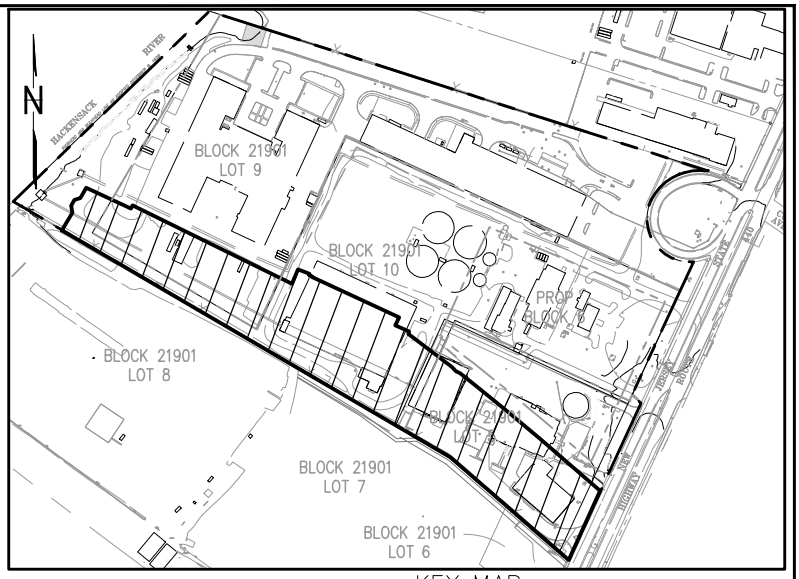
EXHIBIT A-□A
PROPERTY AREA MAP
BLOCK 21901; LOTS 5-10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE 5

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

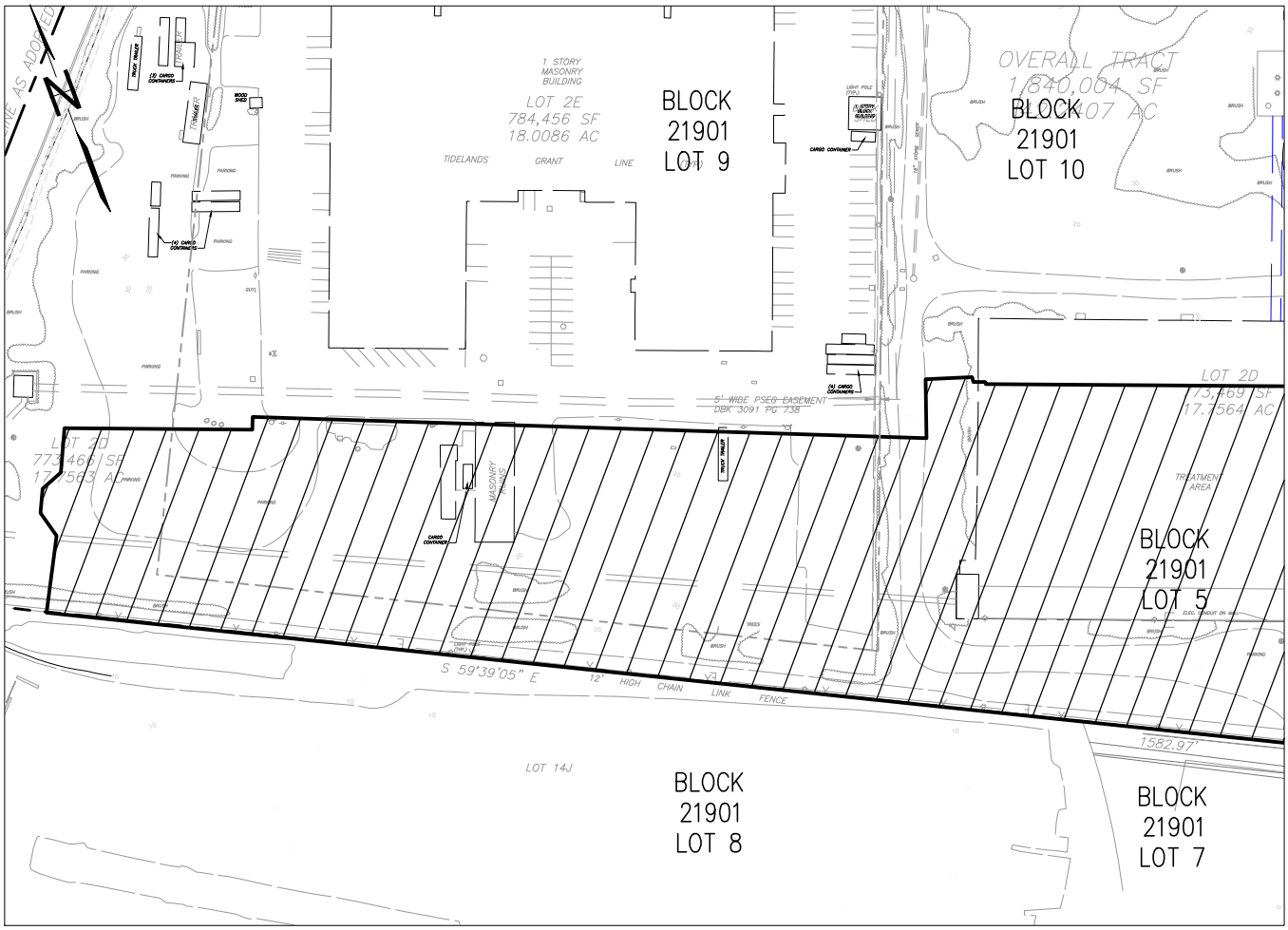
LEGEND

PROPERTY BOUNDARY

CEA AREA AND OPEN SPACE AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

0 75 150 300
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A305-0000	
PREPARED/DATE: STR 12/12/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-□B
PROPERTY AREA MAP
BLOCK 21901; LOTS 5-10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE □5

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EXHIBIT B
Deed Notice #5 SA-6 North Open Space Area

B-1A and B-1B Restricted Area Maps
B-2A and B-2B Chromium Remedy Components
B-3 Restricted Area Data Table
Portions of Block 21901, Lots 5 through 10
City of Jersey City, New Jersey

Exhibit B-1 Restricted Area Maps includes Exhibit B-1A and Exhibit B-1B (Restricted Area Soil Sample Locations).

Exhibit B-2 Chromium Remedy Components includes Exhibit B-2A chromium remedy components and B-2B cap system detail.

Exhibit B-3 is a Restricted Area Data Table indicating soil sample locations with concentrations remaining above the New Jersey Department of Environmental Protection (NJDEP) Chromium Policy and/or NJDEP Soil Quality Standards.

Restricted Area Map Notes:

Exhibits B-1A and B-1B indicate engineering controls. For soils with hexavalent chromium concentrations above 20 mg/kg, the engineering controls include (1) underground containment walls, and (2) a capping system consisting of: a warning layer, impervious geo-membrane liner; geo-composite drainage layer; and clean soil cover with minimum 12 inches thickness in areas where pavement is proposed; and an average of 36-inches and a minimum 24-inches thickness in areas where landscaping is proposed.

Exhibit B-2B indicates engineering controls cap system detail.

Exhibits B-1A and B-1B indicate restricted area soil sample locations with concentrations above the NJDEP Soil Cleanup Criteria (SCC). The soil contaminant of concern is hexavalent chromium above the NJDEP SCC of 20 mg/kg, benzene, methyl tert butyl ether (MTBE), and historic fill above the NJDEP SCC as shown on Exhibit B-3.

Analytical results and soil borings indicate that historic fill is present onsite and extends over the entire Restricted Area. Historic fill onsite typically consists of the following: metals, PAHs, and miscellaneous debris (including but not limited to coal fragments, brick, timber, and other construction materials).

A table summarizing maximum concentrations of typical contaminants found in Site historic fill material is included as Exhibit B-3.

Exhibits B-1A and B-1B
Restricted Area Maps

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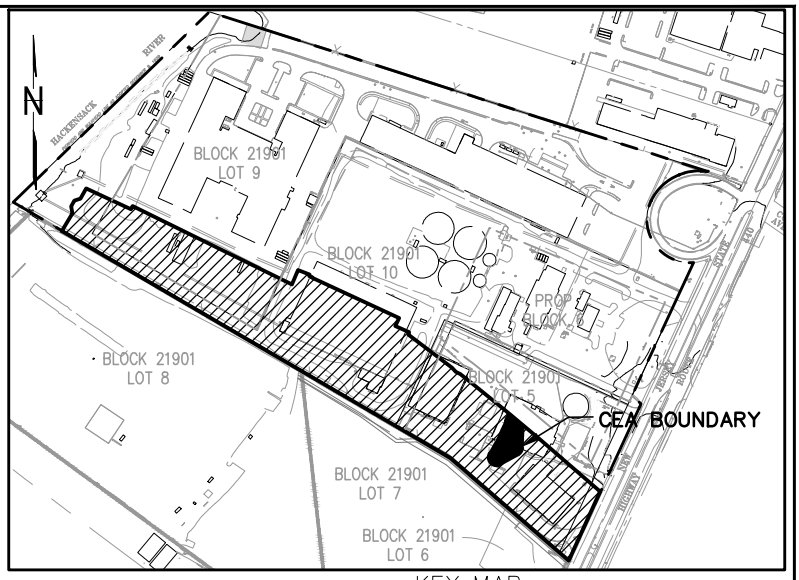
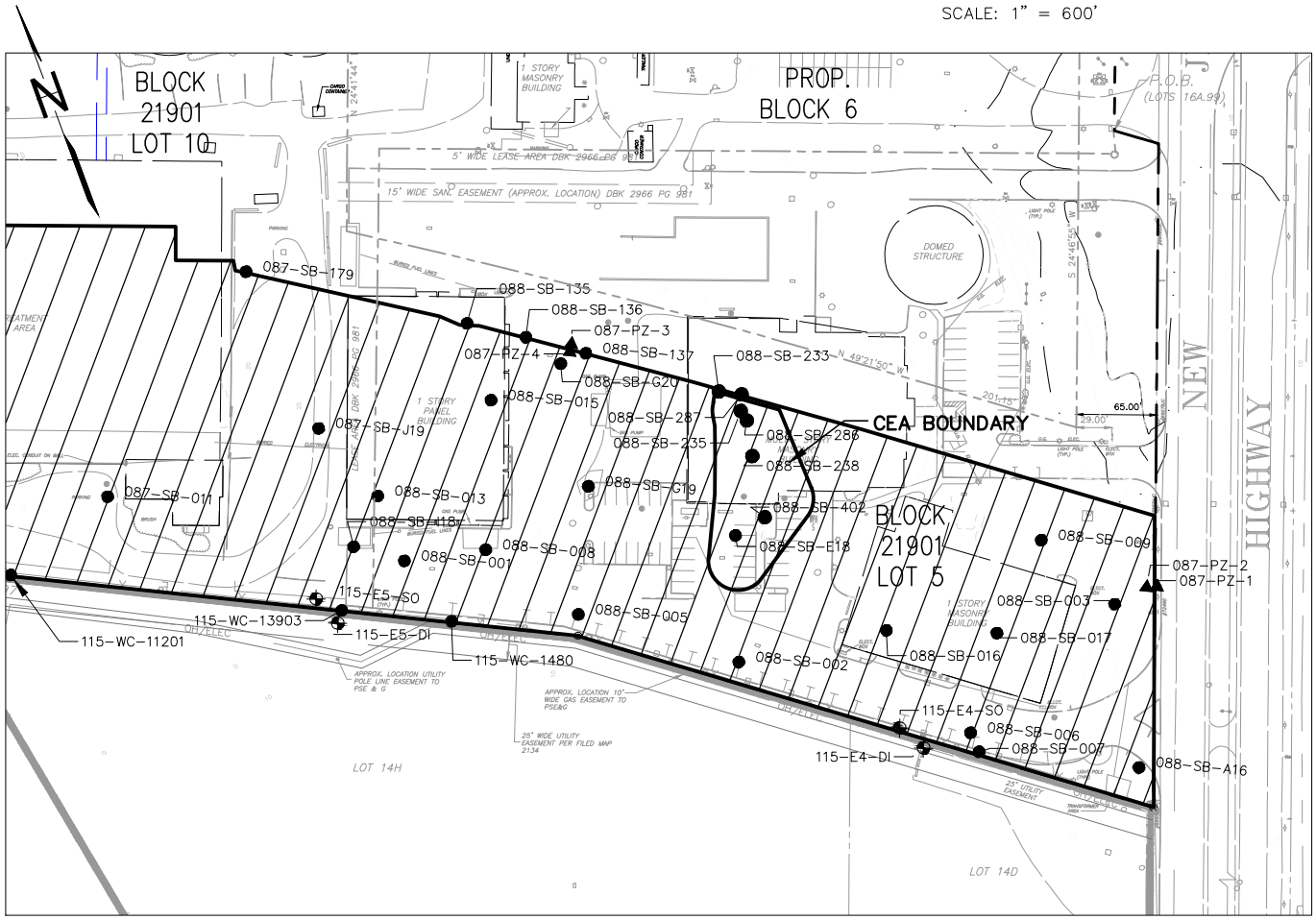
LEGEND

- SOIL SAMPLE LOCATION ABOVE STANDARD (SEE EXHIBIT B-2)
- MONITORING WELL
- PIEZOMETER
- PROPERTY BOUNDARY
- HYDRAULIC BARRIER SCB WALL
- CEA AREA AND OPEN SPACE AREA RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

DRAFT

0 75 150 300
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-B005-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 12/22/16	

EXHIBIT B-1A
CEA AREA AND OPEN SPACE AREA MAP
BLOCK 21901; LOTS 5-10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE 5

P:\JOBS\HONEWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\B005\USED NOTICE\DN_S\3480150487-6100-B005-0000.dwg Wed, 15 Feb 2017 - 10:45am scott.sudlo Layout: Layout1 (2)

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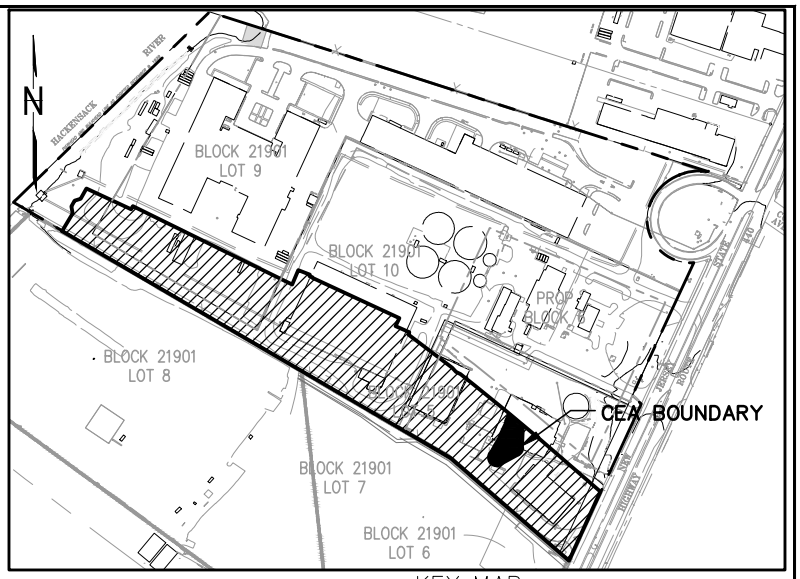
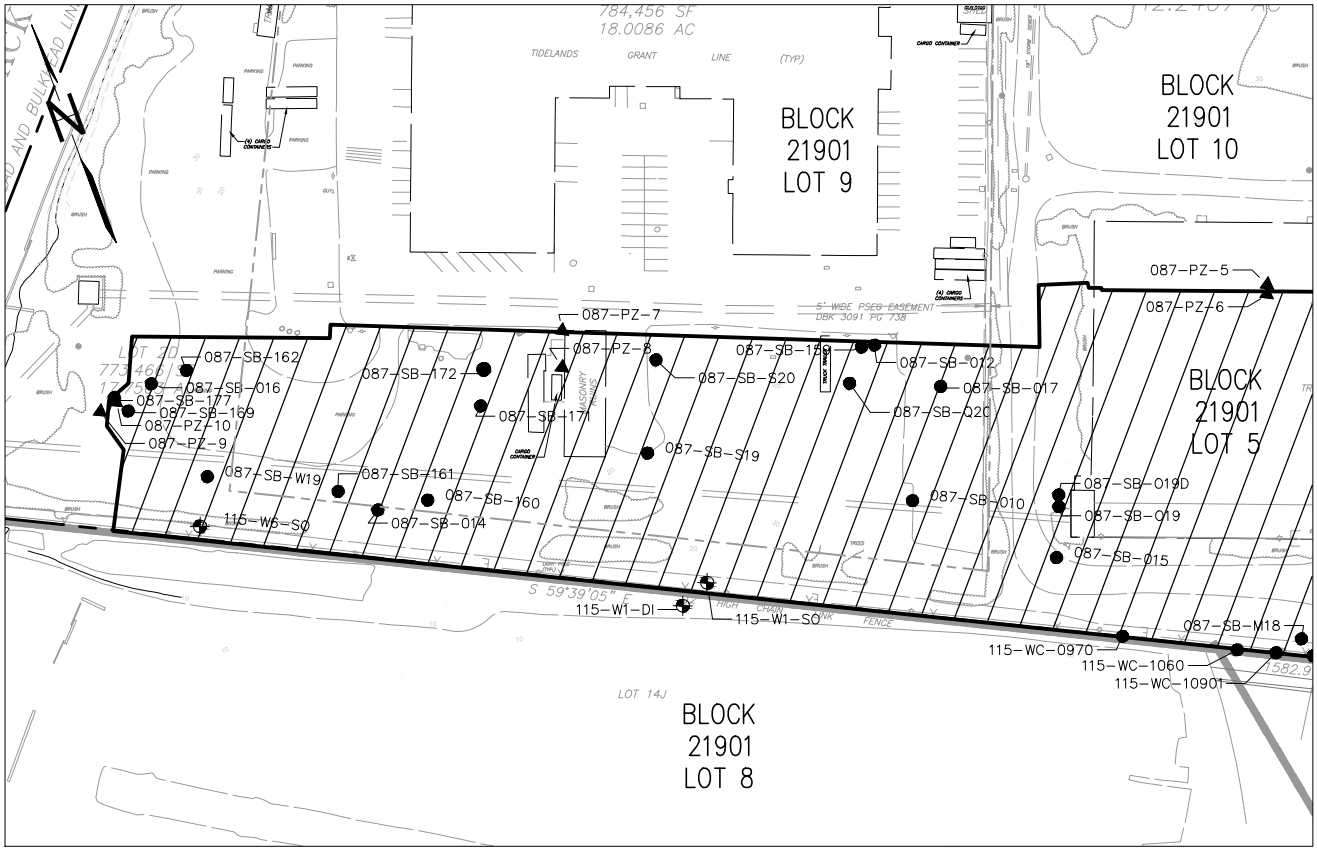
LEGEND

- SOIL SAMPLE LOCATION ABOVE STANDARD (SEE EXHIBIT B-2)
- MONITORING WELL
- PIEZOMETER
- PROPERTY BOUNDARY
- HYDRAULIC BARRIER SCB WALL
- CEA AREA AND OPEN SPACE AREA RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



DRAFT

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SCALE IN FEET

SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-B005-0000	
PREPARED/DATE: STR 12/12/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

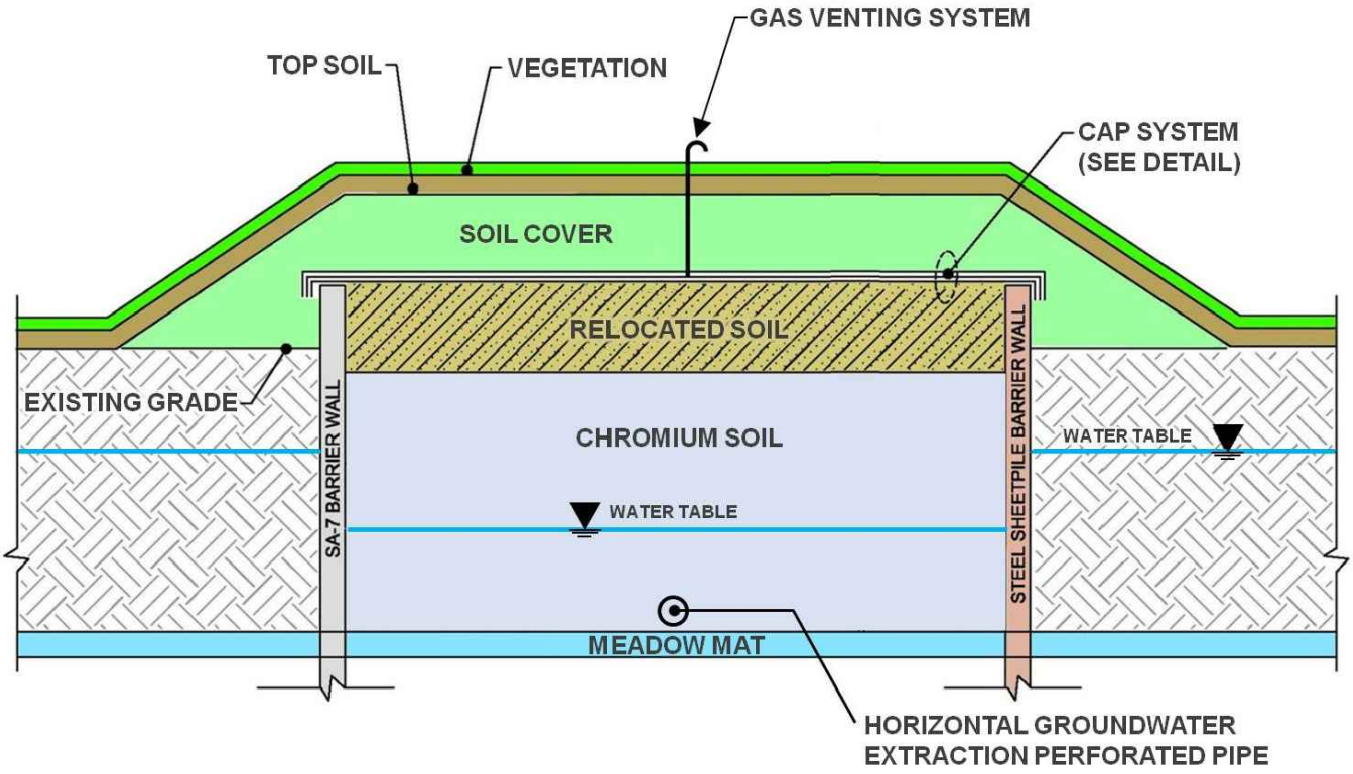
EXHIBIT B-1B
CEA AREA AND OPEN SPACE AREA MAP
BLOCK 21901; LOTS 5-10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE 5

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\61000\DEED NOTICE\DN 5\3480150487-6100-B005-0000.dwg Wed, 15 Feb 2017 - 11:22am scott.rudkin Layout: Layout1

Exhibits B-2A and B-2B
Chromium Remedy Components and Cap System Details

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 5\3480150487-6100-CPCS-5000.dwg Fri, 10 Feb 2017 - 1:50pm scott.rudkin



CHROMIUM REMEDY COMPONENTS

NTS

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150487-6100-CPCS-5000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1** CHROMIUM REMEDY COMPONENTS BLOCK 21901 LOTS 5-10 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE 5
PREPARED/DATE: STR 03/10/16	*CHECKED/DATE:* DEN 01/31/17		

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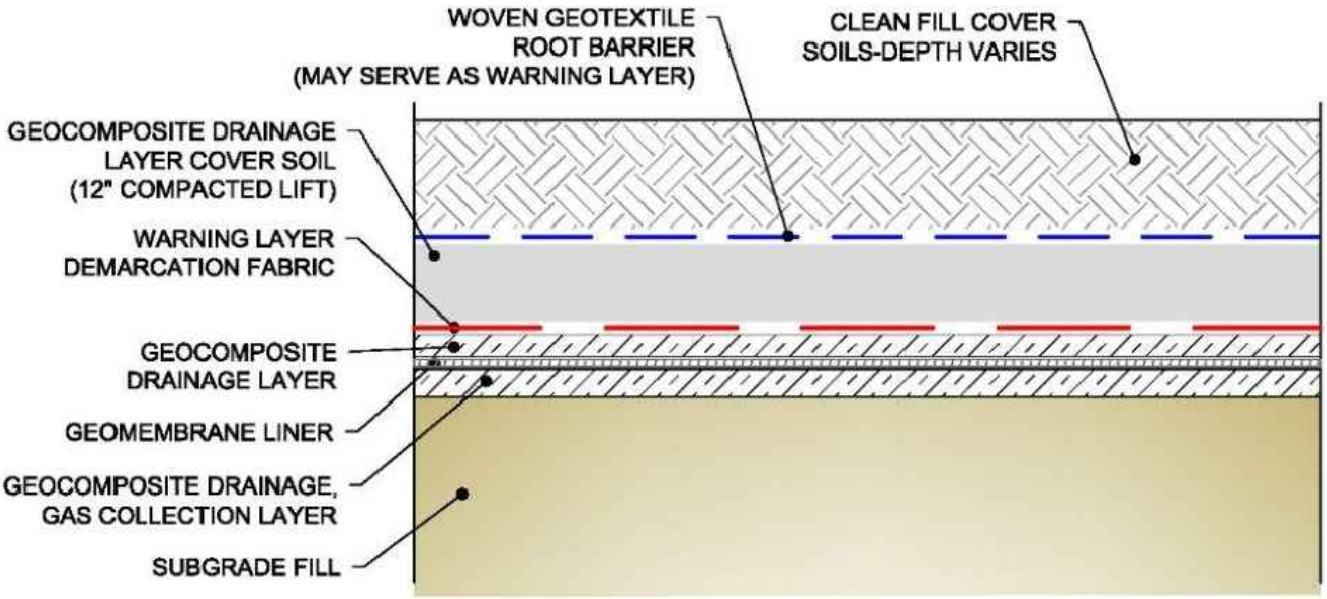
P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\61001\DEED NOTICE\DN 5\3480150487-6100-CSD0-5000.dwg Tue, 14 Feb 2017 - 1:47pm scott.rudkin

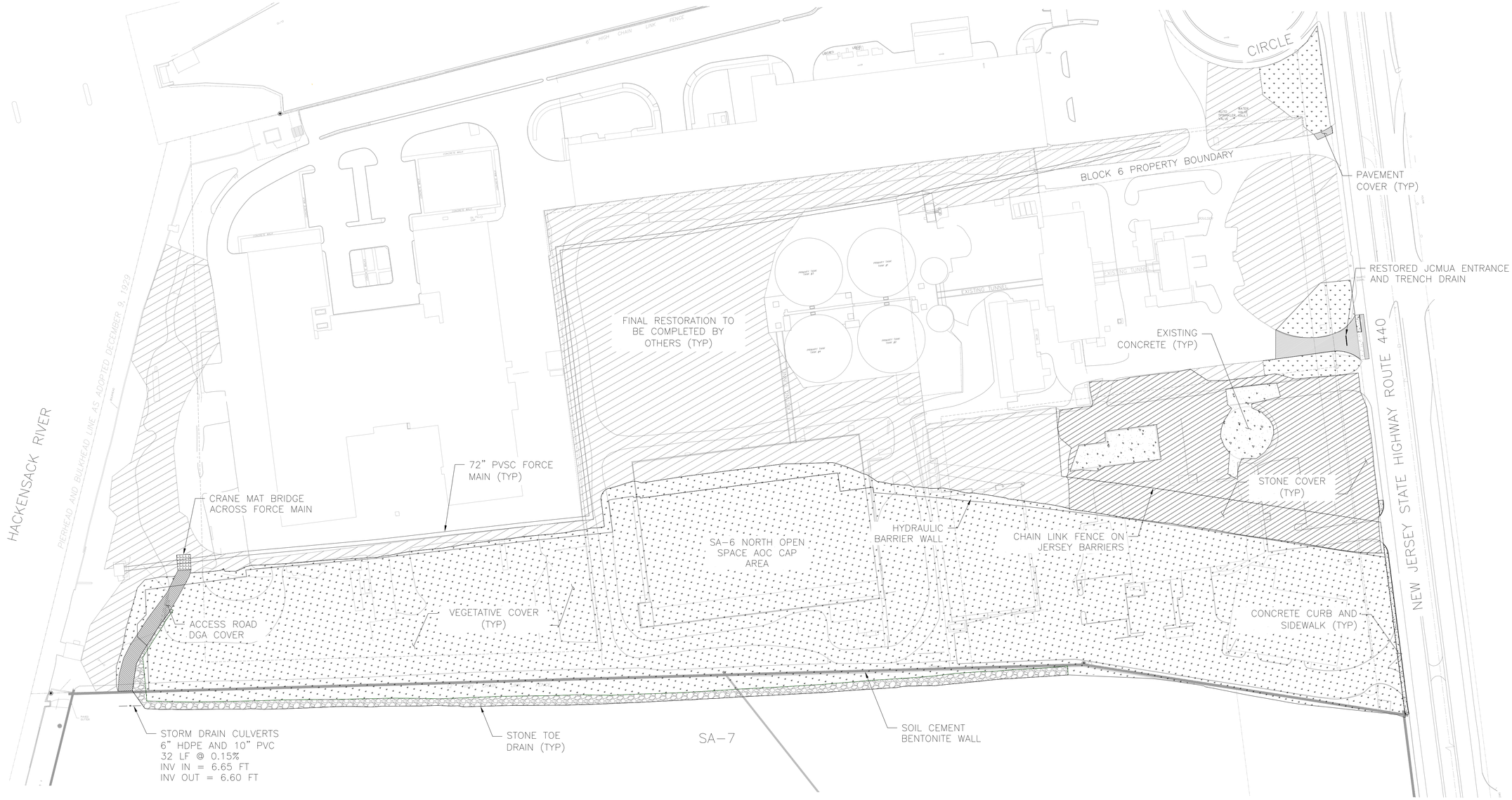


CAP SYSTEM DETAIL

NTS

DRAFT

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150487-6100-CSD0-5000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1D** CAP SYSTEM DETAIL BLOCK 21901 LOTS 5-10 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □5
PREPARED/DATE: STR 03/10/16	*CHECKED/DATE:* DEN 01/31/17		



NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
DGA COVER
VEGETATED COVER
RESTORATION BY OTHERS
PAVEMENT COVER
STONE TOE DRAIN
CONCRETE COVER
SD — STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH – SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Exhibit B-3: Table B-3
Soil Sample Data Tables

EXHIBIT B-3
Restricted Area Data Table
Deed Notice #5 SA-6 North Open Space Area
Portions of Block 21901, Lots 5 through 10
Jersey City, New Jersey

Location ID	Sample Date	Sample Elevation (feet msl)	Depth (ft bgs)	Compounds	CASR #	NJ 2012 RDCSRS (mg/kg)	Concentration (mg/kg)
088-SB-231	7/8/2013	6	7.0-7.5	Benzene	71-43-2	2.0	**4.12**
088-SB-235	6/12/2008	7	6.0-8.0	Benzene	71-43-2	2.0	**67.3**
088-SB-238	6/12/2008	7	6.0-8.0	Benzene	71-43-2	2	**24.2**
		-1	14.0-16.0	Benzene	71-43-2	2	**2.26**
088-SB-287	6/15/2009	5.5	7.5-8.0	Benzene	71-43-2	2.0	**2.71**
088-SB-286	6/11/2009	6	7.0-7.5	Benzene	71-43-2	2.0	**60.9**
	6/11/2009	3	10-10.5	Benzene	71-43-2	2.0	**5.97**
088-SB-402	7/14/2013	6	7.0-7.5	methyl tert butyl ether (MTBE)	1634-04-4	110	**129**

Notes:
Results reported in milligrams per kilogram (mg/kg).

Abbreviations:
Feet bgs - Feet below ground surface
mg/kg - milligrams per kilogram
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP RDCSRS - New Jersey Department of Environmental Protection Residential Direct Contact Soil Remediation Standard, 2012
CASR# - Chemical Abstract Service Number

Prepared By: US 09/20/2016

EXHIBIT B-3
Restricted Area Data Table
Deed Notice #5 SA-6 North Open Space Area
Portions of Block 21901, Lots 5 through 10
Jersey City, New Jersey

Location ID	Sample Date	Sample Elevation (NAVD88)	Hexavalent Chromium (mg/kg)	Q
087-SB-010	05/27/2005	-1.9	**52.3**	J
087-SB-010	05/27/2005	-4.9	**3590**	J
087-SB-011	05/24/2005	-0.5	**104**	
087-SB-011	05/24/2005	-3	**4630**	J
087-SB-012	05/27/2005	-5.9	**873**	J
087-SB-014	05/27/2005	1.5	**292**	J
087-SB-014	05/27/2005	-3.5	**292**	J
087-SB-015	05/24/2005	1.5	**8530**	J
087-SB-015	05/24/2005	-0.5	**6960**	J
087-SB-015	05/24/2005	4.5	**5580**	J
087-SB-016	05/26/2005	2.2	**5340**	J
087-SB-017	05/27/2005	-5	**980**	J
087-SB-017	05/27/2005	-9.4	**7580**	J
087-SB-159	07/02/2008	3.5	**93.5**	
087-SB-159	07/02/2008	2	**722**	
087-SB-160	07/09/2008	3	**22.4**	J
087-SB-160	07/09/2008	1.5	**1990**	
087-SB-160	07/09/2008	-0.5	**40.5**	J
087-SB-161	07/09/2008	0	**606**	
087-SB-162	07/09/2008	5.5	**10800**	J
087-SB-162	07/09/2008	2	**22.5**	J
087-SB-169	08/08/2008	5	**25.5**	J
087-SB-169	08/08/2008	3.5	**60.8**	J
087-SB-169	08/08/2008	1.5	**20.3**	J
087-SB-171	08/11/2008	3.5	**27.5**	
087-SB-171	08/11/2008	1	**1760**	J
087-SB-172	08/11/2008	1	**429**	
087-SB-177	09/03/2008	4	**7020**	
087-SB-179	09/03/2008	-3.4	**20.3**	
087-SB-J19	08/20/1997	-4.4	**27.8**	
087-SB-J19	08/20/1997	-6.4	**4390**	
087-SB-M18	05/21/1997	11.5	**21.6**	J
087-SB-M18	05/21/1997	1.5	**9600**	J
087-SB-M18	05/21/1997	-0.5	**10200**	J
087-SB-M18	05/21/1997	-2.5	**1180**	J
087-SB-M18	05/21/1997	-4.5	**5210**	J
087-SB-M18	05/21/1997	3.5	**39.8**	J
087-SB-O19	05/20/1997	14	**42.6**	J
087-SB-O19	05/20/1997	2	**6100**	J
087-SB-O19D	10/13/1997	2	**3480**	J
087-SB-Q20	05/21/1997	1.6	**282**	J
087-SB-S19	05/20/1997	-0.4	**1140**	J
087-SB-S20	08/21/1997	0.7	**346**	
087-SB-S20	08/21/1997	-1.3	**734**	
087-SB-S20	08/21/1997	-3.3	**588**	
087-SB-S20	08/21/1997	12.7	**266**	
087-SB-W19	05/20/1997	2.4	**97.3**	J
087-SB-W19	05/20/1997	0.4	**25.2**	J
087-SB-W19	05/20/1997	14.4	**161**	J
088-MW-02	05/16/2005	8.7	**2110**	J
088-MW-02	05/16/2005	3.7	**973**	J
088-SB-001	05/20/2005	1.3	**4730**	J
088-SB-001	05/20/2005	-3.2	**7880**	J
088-SB-001	05/20/2005	-5.7	**1470**	J
088-SB-001	05/20/2005	5.3	**327**	J

EXHIBIT B-3
Restricted Area Data Table
Deed Notice #5 SA-6 North Open Space Area
Portions of Block 21901, Lots 5 through 10
Jersey City, New Jersey

Location ID	Sample Date	Sample Elevation (NAVD88)	Hexavalent Chromium (mg/kg)	Q
088-SB-002	05/17/2005	11.6	**25.8**	J
088-SB-002	05/17/2005	-1.9	**54.7**	J
088-SB-002	05/17/2005	-4.4	**395**	J
088-SB-002	05/17/2005	9.6	**227**	J
088-SB-002	05/17/2005	3.6	**4240**	J
088-SB-003	05/20/2005	-1.3	**1740**	J
088-SB-003	05/20/2005	-4.3	**190**	J
088-SB-003	05/20/2005	7.7	**911**	J
088-SB-003	05/20/2005	3.7	**2040**	J
088-SB-005	05/17/2005	-1	**9150**	J
088-SB-005	05/17/2005	-4.5	**2410**	J
088-SB-005	05/17/2005	3.5	**754**	J
088-SB-006	05/17/2005	-0.8	**11300**	J
088-SB-006	05/17/2005	-3.3	**12100**	J
088-SB-006	05/17/2005	7.7	**4660**	J
088-SB-006	05/17/2005	3.7	**28.7**	J
088-SB-007	05/16/2005	-1.8	**14600**	J
088-SB-007	05/16/2005	3.7	**3440**	J
088-SB-007	05/17/2005	8.69	**1730**	J
088-SB-008	05/20/2005	-2.7	**165**	J
088-SB-008	05/20/2005	-7.7	**206**	J
088-SB-008	05/20/2005	-9.5	**6510**	J
088-SB-009	05/20/2005	-3.13	**7160**	J
088-SB-009	05/20/2005	-6.13	**4580**	J
088-SB-009	05/20/2005	1.87	**239**	J
088-SB-013	05/18/2005	-2.7	**5310**	
088-SB-013	05/18/2005	-7.2	**2050**	
088-SB-015	05/18/2005	-2.7	**4020**	
088-SB-016	05/20/2005	-1.4	**9120**	
088-SB-016	05/20/2005	-5.9	**5690**	
088-SB-016	05/20/2005	6.6	**3770**	
088-SB-016	05/20/2005	3.6	**7990**	
088-SB-017	05/20/2005	-1.3	**123**	J
088-SB-017	05/20/2005	-6.3	**222**	J
088-SB-017	05/20/2005	6.7	**189**	
088-SB-017	05/20/2005	3.7	**7290**	
088-SB-135	09/04/2008	-4.2	**225**	J
088-SB-136	09/04/2008	-2.7	**146**	J
088-SB-136	09/04/2008	-4.2	**217**	J
088-SB-137	09/03/2008	-0.7	**37.4**	J
088-SB-137	09/03/2008	-3.2	**162**	
088-SB-137	09/03/2008	-4.7	**35.2**	
088-SB-142	09/04/2008	-0.4	**1360**	J
088-SB-142	09/04/2008	-1.4	**159**	J
088-SB-142	09/04/2008	-2.9	**188**	J
088-SB-143	09/05/2008	2.6	**320**	
088-SB-143	09/05/2008	1.1	**595**	
088-SB-A16	05/15/1997	13.2	**144**	
088-SB-A16	05/15/1997	1.2	**35.1**	
088-SB-A16	05/15/1997	11.2	**3550**	
088-SB-A16	05/15/1997	9.2	**948**	
088-SB-A16	05/15/1997	7.2	**2580**	
088-SB-A16	05/15/1997	5.2	**4550**	
088-SB-A16	11/17/1998	11.2	**263**	J
088-SB-E18	05/15/1997	5.1	**4840**	

EXHIBIT B-3
Restricted Area Data Table
Deed Notice #5 SA-6 North Open Space Area
Portions of Block 21901, Lots 5 through 10
Jersey City, New Jersey

Location ID	Sample Date	Sample Elevation (NAVD88)	Hexavalent Chromium (mg/kg)	Q
088-SB-G19	05/15/1997	3.1	**5500**	
088-SB-G19	05/15/1997	1.1	**9080**	
088-SB-G19	05/15/1997	5.1	**24.7**	
088-SB-G20	08/20/1997	-2.9	**585**	J
088-SB-I18	05/15/1997	11.8	**2650**	J
088-SB-I18	05/15/1997	1.8	**9170**	J
088-SB-I18	05/15/1997	-0.2	**11100**	J
088-SB-I18	05/15/1997	-2.2	**1960**	J
088-SB-I18	05/15/1997	-4.2	**8780**	J
088-SB-I18	05/15/1997	-6.2	**732**	J
115-WC-N1480	7/27/2007	7	**25.2**	
115-WC-N13903	3/6/2008	13.3	**27.4**	
115-WC-N11201	5/14/2008	12.2	**25.5**	
115-WC-N10901	5/14/2008	11.8	**28.9**	
115-WC-N1060	6/3/2008	7	**50.8**	J
115-WC-N0970	6/3/2008	7	**47.4**	

Notes:
Results reported in milligrams per kilogram (mg/kg).

Data Qualifiers:
J - Data indicates the presence of a compound that meets the identification criteria.
The concentration given is an approximate value.

Abbreviations:
Feet bgs - Feet below ground surface
mg/kg - milligrams per kilogram
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP Chromium SCC - New Jersey Department of Environmental Protection Chromium Soil Cleanup Criteria, revised April 2010
CASR# - Chemical Abstract Service Number for hexavalent chromium is 18540-29-9.

EXHIBIT C
Deed Notice #5 SA-6 North Open Space Area

C-1 Institutional Controls
C-2 Engineering Controls
Open Space Area Portions of Block 21901, Lots 5 through 10 City of Jersey City, New Jersey

C-1 Institutional Controls

C-1 Deed Notice, Consent Decree, Zoning, and Conservation Restriction as Institutional Controls: Exhibit C-1 (A through D) for the portions of Block 21901, Lots 5 through 10, City of Jersey City, New Jersey known as the Open Space Area

i. Exhibits C-1A through D. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control; Exhibit C-1C: Zoning as Institutional Control; Exhibit C-1D: Conservation Restriction as Institutional Control: Exhibits C-1A through C-1D include a narrative description of the restrictions and obligations of this Deed Notice and the other Institutional Controls that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;

The Open Space Area Property constitutes portions of Block 21901, Lots 5 through and 10. The estimated size of the Open Space Area containing chromium-impacted soils (hexavalent chromium above 20 mg/kg) is identified Cap Area on Exhibit B-1 is estimated at approximately 10 acres.

(2) Description of the restrictions on the Open Space Area Property by operation of the Institutional Control;

The Open Space Area shall only be used for activities consistent with this Deed Notice, the Consent Decree, including, but not limited to, Paragraphs 60(j) and 60 (k) of the Consent Decree, the applicable zoning standards, and the Conservation Restriction. Intrusive activities (i.e., excavation or digging) that breach the engineering controls (as described in Exhibit C-2) will not be permitted on the Open Space Area Property except in compliance with the terms of the Consent Decree and the Long-Term Monitoring Plan developed thereunder, and this Deed Notice. See Deed Notice for additional information; subsections 7A Alterations, Improvements, Disturbances, and 7B, Emergencies.

(3) The objective of the restrictions;

The restrictions will prohibit contact with soils above the NJDEP Soil Cleanup Criteria for hexavalent chromium and Soil Remediation Standards for benzene, MTBE, and historic fill.

.

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

Visual inspections of the Open Space Area Property and other monitoring as set forth in the Consent Decree and Long-Term Monitoring Plan established thereunder.

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

Same as (B)(1).

(3) The current land use on the Open Space Area Property is consistent with the restrictions in this Deed Notice;

Same as (B)(1).

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

Review of newly promulgated or modified requirements of applicable regulations or laws that potentially may apply to the Open Space Area Property.

(5) Any new standards, regulations, or laws apply to the Open Space Area Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

Same as (B)(4).

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Open Space Area Property is consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards and the Conservation Restriction; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including evaluation of any available documents as a result of changes in land use or incidents.***
- ***A report that determines whether or not the land use at the Open Space Area Property has remained consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards and the Conservation Restriction.***
- ***A report that determines whether or not the Deed Notice continues to be protective of the public health and safety and the environment.***

C-2 Engineering Controls
Deed Notice #5 SA-6 North Open Space Area

Open Space Area Portions of Block 24601, Lots 5 through 10
City of Jersey City, New Jersey

Exhibits C-2A through C: Narrative description of the Engineering Controls including (A) the Clean Fill and Soil Capping System; (B) Underground Containment Walls; (C) Shallow Groundwater Collection and Treatment System as follows:

(A) General Description of the engineering controls:

(1) Description of the engineering controls;

The Engineering Controls consist of the following: (A) The engineering controls include a capping system consisting of: a root barrier, a warning layer, impervious geo-membrane liner; geo-composite drainage layer; and clean soil cover with minimum 12 inches thickness in areas where pavement is proposed; and an average of 36-inches and a minimum 24-inches thickness in areas where landscaping is proposed. For the purposes of this deed notice, the engineering controls exclude cover soils that are within 12 inches of the root barrier. (B) Engineering controls will also include underground containment walls around the perimeter of the Open Space Area. The Engineering Controls are more fully set forth in the Consent Decree.

(2) The objective of the engineering controls; and

The objective of the controls is to prevent contact with soils that exceed the hexavalent chromium standard in the NJDEP Chromium Policy, soils that are consistent with NJDEP's definition of "historic fill material" found at N.J.A.C. 7:26E-1.8, and to contain shallow groundwater above the NJDEP groundwater quality standard for total chromium.

(3) How the engineering controls are intended to function.

The soil engineering controls are intended to function as a barrier to underlying and adjacent soils that exceed the NJDEP Soil Cleanup Criteria. The groundwater engineering controls are intended to restrict the flow of shallow groundwater, and to collect and treat contaminated groundwater within the Open Space Area Property. Monitoring requirements for the engineering controls are set forth in the Long Term Monitoring Plan.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

Honeywell will perform monitoring by visual inspection of the Open Space Area Property pursuant to the Consent Decree. Other monitoring activities shall be performed as set forth in the Long-Term Monitoring Plan developed pursuant to the Consent Decree.

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

Same as (B)(1) above.

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering controls;

Same as (B)(1) above. Also, see the Consent Decree and the Deed Notice for additional information: subsections 7A Alterations, Improvements, Disturbances, and 7B Emergencies.

(4) The engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

Same as (B)(1) above.

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering controls. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering controls; and

Records of the inspections are to be maintained as listed in (5). Should the activities carried out in conformance with the Long Term Monitoring Plan developed pursuant to the Consent Decree indicate that other activities are necessary, those activities will be listed and executed.

(6) Any new standards, regulations, or laws apply to the Open Space Area Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

A review of any new standards, regulations, or laws will be conducted. Should the review indicate that other activities are necessary, those activities will be listed and executed.

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including an evaluation to determine whether or not the engineering controls are continuing to meet the original objective and intended function.***
- ***A report to determine whether or not the engineering controls continue to operate as designed.***
- ***A report to determine whether or not the engineering controls continue to be protective of the public health and safety and of the environment.***

APPENDIX III

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

JERSEY CITY MUNICIPAL UTILITIES AUTHORITY, Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5955 Consolidated under Docket No. 95-2097 (DMC)
JERSEY CITY INCINERATOR AUTHORITY Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5993 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)
HACKENSACK RIVERKEEPER, INC., *et al.* Plaintiffs, v. HONEYWELL INTERNATIONAL INC., *et al.* Defendants.	Civil Action No. 06-22 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)

FIRST AMENDED CONSENT DECREE REGARDING REMEDIATION AND REDEVELOPMENT OF STUDY AREA 6 NORTH

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RECITALS

Whereas, on June 30, 2003, the district court for the District of New Jersey issued a Final Judgment in *Interfaith Community Organization v. Honeywell International Inc.*, Civ. No. 95-2097 (DMC) ("*ICO v. Honeywell*"), ordering the remediation of an area designated by the New Jersey Department of Environmental Protection ("NJDEP") as Study Area 7 by excavation of all chromium contamination on the property, under the oversight of a court-appointed Special Master;

Whereas, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property owned by JCMUA and other relief;

Whereas, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property owned by JCIA and other relief;

Whereas, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., Captain William Sheehan, Reverend Winston Clarke, and Lawrence Baker ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater, surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

Whereas, Study Areas 6 North and South are directly adjacent to Study Area 7 on the north and south sides, respectively;

Whereas, Study Area 5 is comprised of properties to the east of Study Areas 6 North, 6 South, and 7 across Route 440;

Whereas, the property owned by JCIA and JCMUA and collectively the subject of *JCMUA v. Honeywell* and *JCIA v. Honeywell* comprises a part of Study Area 6 North;

Whereas, the City of Jersey City ("Jersey City") also owns property that comprises a part of Study Area 6 North;

Whereas, Riverkeeper also named as defendants in *Riverkeeper v. Honeywell* Jersey City, JCMUA, and JCIA (collectively the "Jersey City Entities");

Whereas, the Jersey City Entities and Honeywell also asserted cross-claims against each other in *Riverkeeper v. Honeywell*;

Whereas, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation");

Whereas, in the Consolidated Litigation, the Jersey City Entities and Riverkeeper have alleged that Honeywell bears responsibility for the presence and remediation of chromite ore processing residue ("COPR") and chromium in soils and groundwater on the Study Area 6 North property;

Whereas, in the Consolidated Litigation, Honeywell has alleged that the Jersey City Entities bear full responsibility for lead and other contamination on the Study Area 6 North property, and also bear an equitable share of liability for the presence and remediation of COPR and chromium in soils and groundwater on the Study Area 6 North property and for chromium and other contamination in Hackensack River sediments in the vicinity of Study Area 6 North;

Whereas, on October 9, 2007, Honeywell and Riverkeeper submitted the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"), resolving issues related to the remediation of chromium contaminated sediments in the Hackensack River in the vicinity of Study Areas 5, 6, and 7;

Whereas, the Parties to this Consent Decree each believe that it is in their mutual interest to move forward productively to resolve their differences so that they can implement environmental remediation at Study Area 6 North that ensures the continued protection of human health and the environment and so that Study Area 6 and Study Area 7 can be redeveloped in keeping with Jersey City's vision for a revitalized West Side;

Whereas, the Local Redevelopment and Housing Law, N.J.S.A. 40A:12A-1, *et seq*., as amended and supplemented (the "Redevelopment Law") provides for municipalities to participate in the redevelopment and improvement of areas in need of redevelopment;

Whereas, the portions of Study Area 6 and Study Area 7 (i) which are owned by the Jersey City Entities, (ii) which are owned by Honeywell, (iii) as to which Honeywell has a purchase and sale agreement with the current owner, or (iv) which hereafter will be acquired by a Jersey City Entity and/or Honeywell are parcels which by ordinance adopted by the City Council of Jersey City on February 27, 2008, have been determined to be "areas in need of redevelopment" under the criteria of the Redevelopment Law because of conditions prevalent on those parcels;

Whereas, the settlement which is the subject matter of this Consent Decree contemplates the environmental remediation of Study Area 6 North and redevelopment of the parcels that comprise Study Areas 6 and 7 to create a major mixed use project in an important section of Jersey City;

Whereas, each of the actions to implement this Consent Decree have been fully considered by the Parties as a means to accomplish the aforesaid purposes of this settlement;

Whereas, the consent of each of the Jersey City Entities to this Consent Decree was considered at a duly noticed and appropriate meeting of their respective governing bodies, open to the public, at which members of the public were provided an opportunity to comment on all aspects of the settlement, including, without limitation, the commitments made by the Jersey City Entities herein; and

Whereas, Honeywell and the Jersey City Entities are settling their claims, cross-claims, or counter-claims in the Consolidated Litigation against each other in the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* (hereafter "Jersey City/Honeywell Consent Order"), filed in the Consolidated Litigation simultaneously with this Consent Decree and attached as Exhibit A to this Consent Decree:

NOW, THEREFORE, IT IS HEREBY ORDERED AND DECREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For purposes of this Consent Decree, the following terms shall have the meanings set forth in this Article:

1. **AOC 1** shall mean that area of Study Area 6 North in which the hexavalent chromium concentration in the top 20 feet of soil below existing ground surfaces exceeds concentrations of 20 mg/kg and the Chromium Remedy will be implemented pursuant to Article III. AOC 1 is shown on Exhibit B.

2. **AOC 1 Additional Excavation Areas** shall mean those areas of Study Area 6 North which require excavation pursuant to paragraph 57. The AOC 1 Additional Excavation Areas are not contiguous to AOC 1. The AOC 1 Additional Excavation Areas are shown on Exhibit B.

3. **AOC 1 Open Space Area** shall mean the AOC 1 Open Space Area, as defined by paragraph 53, consisting of approximately 11 acres enclosed by the hydraulic barrier walls constructed under the Chromium Remedy, and which shall be subject to paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B.

4. **AOC 2** shall mean that area of Study Area 6 North on which the Historic Fill Remedy will be implemented pursuant to Article II.B of the Jersey City/Honeywell Consent Order. AOC 2 is shown on Exhibit B.

5. **Bayfront Redevelopment LLC** shall have the meaning set forth in paragraph 4.1 of the Jersey City/Honeywell Consent Order.

6. **COPR** shall mean Chromite Ore Processing Residue.

7. **Chromium Remedy** or **Chromium Remediation** shall mean the remedy set forth in Article III.

8. **Consolidated Litigation** shall mean *Jersey City Municipal Utility Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC).

9. The **Court** shall mean the United States District Court of the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

10. **Deep Groundwater Remedy** shall mean the deep overburden and bedrock groundwater pump and treat remedy as required by the Order Approving the Deep Overburden Groundwater Remediation, entered on October 6, 2006, and the Stipulation on Consent Regarding the Schedule for Implementation of Deep Groundwater Remedial Actions, currently pending before the Special Master in *ICO v. Honeywell.* In the event that Riverkeeper and Honeywell reach a settlement on source control issues, the Deep Groundwater Remedy shall

include the remedy to which Riverkeeper and Honeywell have agreed. In the event that Riverkeeper and Honeywell do not reach a settlement on source control issues, the Deep Groundwater Remedy shall include the remedy ordered by the Special Master or the Court in *ICO v. Honeywell* for source control.

11. **Hackensack River Watershed Land Trust** shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

12. **Historic Fill** shall have the definition provided in the NJDEP Technical Requirements for Site Remediation.

13. **Historic Fill Remedy or Historic Fill Remediation** shall mean the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order, except that the Historic Fill Remedy shall not be limited to the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order if NJDEP requires a more stringent remedy.

14. **Honeywell** shall mean Honeywell International Inc. and its affiliates, including Kellogg Street 80 Property LLC, Kellogg Street 60 Property LLC, and Kellogg Street/440 Property LLC.

15. **Honeywell's Treatment Plant** shall mean the treatment plant currently located at 80 Kellogg Street that is used to treat, *inter alia*, chromium contaminated groundwater.

16. ***ICO v. Honeywell*** shall mean *Interfaith Community Organization v. Honeywell International Inc.,* D.N.J., Civ. No. 95-2097 (DMC).

17. **Including** shall mean including, but not limited to.

18. **JCIA** shall mean the Jersey City Incinerator Authority.

19. **JCMUA** shall mean the Jersey City Municipal Utilities Authority.

20. **JCRA** shall mean the Jersey City Redevelopment Agency.

21. **Jersey City Entities** shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

22. **Jersey City/Honeywell Consent Order** shall mean the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* entered in the Consolidated Litigation simultaneously with this Consent Decree.

23. **NJDEP** shall mean the New Jersey Department of Environmental Protection.

24. **NJDEP Chromium Directive** shall mean the Chromium Directive issued by NJDEP on February 8, 2007, and attached as Exhibit C.

25. **Party or Parties** shall mean any one or all of the signatories to this Consent Decree.

26. **RCRA** shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*, as amended.

27. **Redevelopment Agreement** shall have the meaning set forth in paragraph 4.11(e) of the Jersey City/Honeywell Consent Order.

28. **Redevelopment Area** shall mean Study Area 6 North, Study Area 6 South, and Study Area 7, collectively.

29. **Redevelopment Law** shall mean the New Jersey Local Redevelopment and Housing Law, N.J.S.A. 40A:12A1, *et seq.*, as amended and supplemented.

30. **Redevelopment Plan** shall mean the Bayfront I Redevelopment Plan as adopted by Jersey City on March 12, 2008.

31. **Riverkeeper** shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

32. **Sediment Consent Order** shall mean the Consent Order on Sediment Remediation and Financial Assurances, which the Parties expect will be entered by the Court in *ICO v. Honeywell* and this Consolidated Litigation.

33. **Shallow Groundwater** or **Shallow Level of Groundwater** shall mean groundwater above the meadow mat, groundwater at stratigraphically equivalent depths in locations where there is no meadow mat, and groundwater that is contaminated by recent contact with COPR or other chromium soil contamination above the meadow mat and subsequently flows downward through or past the meadow mat into the upper portion of the lacustrine sediments. This does not include groundwater found in the bedrock, the deep zone, or any plume of contamination that is in both the intermediate and deep zones, as those zones are defined in the Final Groundwater Investigation Report, prepared in *ICO v. Honeywell*, dated February 2007, p. 1-2.

34. **Site** shall mean Study Area 6 North.

35. **Site Preparation Activities** shall have the meaning set forth in paragraph 3.1 of the Jersey City/Honeywell Consent Order.

36. **Site Preparation Plan** shall have the meaning set forth in paragraph 3.2 of the Jersey City/Honeywell Consent Order.

37. **Soil** shall mean soils, historic fill, and/or COPR.

38. The **Special Master** shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

39. **Stratum O** shall mean the layer composed of soft brown silty fine sand interlayered with soft gray silty clay and fine sandy to clayey silt generally located above the meadow mat below the Historic Fill and/or COPR.

40. **Study Area 6 North** shall mean that property comprising Sites 87 and 88 of the Chromate Chemical Production Waste Sites designated by NJDEP, comprising approximately 41.58 acres and including: (a) all such property owned by JCMUA located at 555 Route 440, Jersey City, New Jersey, (b) all such property owned by JCIA located at 501 Route 440, Jersey City, New Jersey; (c) all such property owned by Jersey City or its Department of Public Works and located at 575 Route 440, Jersey City, New Jersey; and (d) all such property owned by Paul Trenk consisting of Block 1290.1, Lot 2A, Jersey City, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

41. **Study Area 6 South** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC consisting of Site 73, located at 200 Kellogg Street Jersey City, Hudson County, New Jersey; (b) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 134, located at 100 Kellogg Street Jersey City, Hudson County, New Jersey; (c) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 140 located at 80 Kellogg Street Jersey City, Hudson County, New Jersey; (d) that property currently owned by Kellogg Street 60 LLC consisting of Site 125, located at 60 Kellogg Street Jersey City, Hudson County, New Jersey; (e) that property currently owned by Kellogg Street/440 Property LLC consisting of Site 124, Jersey City, Hudson County, New Jersey; (f) that property currently owned by Kellogg St/Harsimus Cove Realty located at 150 Kellogg Street, Jersey City, Hudson County, New Jersey, (g) that property currently owned by Cordova Enterprises Ltd located at 38 Kellogg Street, Jersey City, Hudson County, New Jersey, and (g) that property currently owned by Cordova Enterprises Ltd located at 28 Kellogg Street, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

42. **Study Area 6** shall mean Study Area 6 North and Study Area 6 South, collectively.

43. **Study Area 7** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC located at 425 and 445 Route 440, Jersey City, Hudson County, New Jersey, and (b) that property currently owned by Roned Realty/Edward Navlen located at 465 Route 440, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

44. **Technical Requirements for Site Remediation** shall mean the NJDEP Technical Requirements for Site Remediation, N.J.A.C. Chapter 26E, as duly and properly promulgated and amended.

45. **Unrestricted Use** shall mean that the contaminated medium is restored to a condition or quality suitable for all uses.

ARTICLE II: SCOPE OF THE CONSENT DECREE, JURISDICTION, AND CLAIMS RESOLVED

46. Except as provided in this paragraph, the terms of the Jersey City/Honeywell Consent Order shall remain in full force and effect. To the extent that any provision in the Jersey City/Honeywell Consent Order refers to the Chromium Remedy or Chromium Remediation, it shall be construed as referring to Article III of this Decree. In the event of any conflict or inconsistency between the terms of this Decree and the Jersey City/Honeywell Consent Order, the terms of this Decree govern. In the event that any action taken pursuant to the Jersey City/Honeywell Consent Order is in conflict with or inconsistent with the terms of this Decree, the terms of this Decree shall govern.

47. This Court has jurisdiction over the Parties and subject matter of the Consolidated Litigation pursuant to Section 6972 of RCRA.

48. For purposes of this Consent Decree, the Complaints in the Consolidated Litigation each state claims upon which relief may be granted against Honeywell.

49. In the event that this Decree is not terminated by one or more Parties pursuant to paragraph 100, this Consent Decree resolves, settles, and satisfies all claims by Riverkeeper against Honeywell with respect to soils and shallow groundwater at Study Area 6 North. This Consent Decree does not resolve any claims by Riverkeeper against Honeywell with respect to Study Area 6 South, Study Area 5, or groundwater at Study Area 6 North other than shallow groundwater.

50. Nothing in this Consent Decree shall be construed or interpreted to waive any claim or defense any Party has asserted or may assert against any third party in the Consolidated Litigation except as explicitly stated herein.

51. This Consent Decree does not constitute an admission of liability on the part of any Party with respect to any claims, cross-claims, or counter-claims in the Consolidated Litigation.

ARTICLE III: CHROMIUM REMEDIATION

A. Chromium Remedy

52. **Responsibility for Implementation of Chromium Remediation.** As between the Parties, Honeywell shall be responsible for and shall undertake remediation of COPR and chromium present in Study Area 6 North at Honeywell's sole cost and expense. Remediation of COPR and chromium present in Study Area 6 North shall be undertaken in accordance with the terms of this Consent Decree.

53. **AOC 1 and AOC 2.** For the purposes of remediation, Study Area 6 North shall consist of two Areas of Concern ("AOCs"), designated as AOC 1 and AOC 2 as shown on Exhibit B. AOC 1 is set forth on Exhibit B and consists of that portion of Study Area 6 North for which chromium remediation is required pursuant to paragraphs 55, 56, and 57. AOC 2 consists of the entirety of Study Area 6 North, including AOC 1, to the extent that historic fill is present in any area of Study Area 6 North. For AOC 1, the intended land use will determine the types

of remedial measures taken in the Chromium Remedy. There are two distinct land uses for AOC 1: open space and residential. As a result, AOC 1 will be further subdivided into:

(a) The AOC 1 Open Space Area, which shall comprise that portion of AOC 1 for which future use shall be restricted as provided in paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B;

(b) The AOC 1 Residential Area, which shall comprise that portion of AOC 1 for which future use shall allow for residential and/or commercial and retail uses, but for which the remedial measures shall assume only a residential use . The AOC 1 Residential Area is shown on Exhibit B; and

(c) The AOC 1 Additional Excavation Areas, which consist of those portions of Study Area 6 North that require remediation pursuant to paragraph 57. The planned land use for the AOC 1 Additional Excavation Areas is residential and/or commercial and retail uses, but the remedial measures shall assume only a residential use.

54. **Scope and General Requirements of the Chromium Remedy.** The Chromium Remedy shall address shallow groundwater and soil containing hexavalent chromium in AOC 1, and shall be consistent with the requirements set forth in this Article. The Chromium Remedy set forth in this Consent Decree addresses only the shallow level of groundwater (see paragraph 58). The deep overburden and bedrock groundwater remediation, including source control, shall be addressed in a separate consent order, which shall place these issues within the jurisdiction of the Special Master in conjunction with the groundwater remedies for Study Area 7.

(a) The Chromium Remedy shall be consistent with the NJDEP Technical Requirements for Site Remediation, the Chromium Directive as issued by NJDEP on February 8, 2007 ("the NJDEP Chromium Directive"), and the Remedial Action Work Plan (with addenda) approved by NJDEP on or about February 19, 2008. This Consent Decree shall have precedence

over the Remedial Action Work Plan in the event of any inconsistency.

(b) The Chromium Remedy shall be carried out diligently, and the development and implementation of the Historic Fill Remedy shall not delay satisfaction of the milestones in the Schedule established pursuant to this paragraph. Honeywell shall propose a master Schedule for the implementation of the Chromium Remedy within 90 days of the entry of this Consent Decree, which shall include, at a minimum, the following milestones:

(i) Submission to the Special Master for all documents subject to review by the Special Master pursuant to paragraph 72(c);

(ii) Relocation of the Jersey City Entities' Study Area 6 North Operations as shall be required prior to the implementation of the Chromium Remedy;

(iii) Completion of those Site Preparation Activities necessary for the implementation of the Chromium Remedy, including remediation of the AOC 1 Additional Excavation Areas;

(iv) A final date for Honeywell's proposal of *in situ* treatment for any part of the AOC 1 Residential Area pursuant to paragraph 55(d) and a date for the final decision as to whether excavation or *in situ* treatment shall be used in the event of such a proposal;

(v) The initiation of work related to the Chromium Remedy;

(vi) The date for completion of the installation of the Chromium Remedy;

(vii) Implementation of the long-term protections of the AOC 1 Open Space Area established pursuant to paragraph 60; and

(viii) Transfer of the AOC 1 Open Space Area to Jersey City pursuant to paragraph 60(a)(iii).

(c) **Demolition and Grading Activities.** During demolition and grading activities, adequate protective measures shall be taken to protect site workers and the community

from airborne dusts and exposures to contaminated soils.

(d) **Vegetation of Clean Fill.** All clean soil fill in areas that will not involve paved roads, sidewalks, paths, walkways, or building structures shall be vegetated in such a manner to protect and maintain the required depth of clean soil fill.

55. **AOC 1 Residential Area Soil Remedy.** In the AOC 1 Residential Area, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive.

(a) Those soils excavated from the AOC 1 Residential Area in which hexavalent chromium concentrations exceed 240 mg/kg shall be disposed of off-site at a waste disposal facility licensed to accept such waste.

(b) Those soils excavated from the AOC 1 Residential Area in which the hexavalent chromium concentration is less than 240 mg/kg, but greater than 20 mg/kg, shall be consolidated within the AOC 1 Open Space Area. However, any such soils which would require venting of gases shall be disposed of off-site.

(c) Soils excavated from the AOC 1 Residential Area shall be replaced with existing soils from AOC 2 or backfill soil. Any backfill soil brought to the Site shall either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master.

(d) In the AOC 1 Residential Area, excavation of soils containing hexavalent chromium greater than 20 mg/kg shall be the presumptive remedy. Around remaining active underground utilities or other structures, such as the bulkhead, *in situ* treatment may be considered in lieu of excavation only if Honeywell demonstrates, and all Parties, the Special

Master, and NJDEP agree that (1) excavation is technically impracticable and (2) treatment will result in hexavalent chromium concentrations of 20 mg/kg or less and no rebound will occur. If no treatment option is available, Honeywell shall propose an alternative remedial approach, subject to review and comment by the Parties and approval by the Special Master.

(e) Honeywell shall excavate all soils containing hexavalent chromium greater than 20 mg/kg in conjunction with the placement of the piping for the Deep Groundwater Remedy. Honeywell shall not propose treatment in lieu of excavation based on the location of the pipes for the Deep Groundwater Remedy or any apparent impracticability of excavating in conjunction with their installation.

56. **AOC 1 Open Space Area Soil Remedy.** In the AOC 1 Open Space Area, the soil remedy shall consist of an engineered RCRA cap to isolate contaminated soils, with gas venting, if necessary, to address the generation of methane and other naturally occurring gases in the Stratum O and/or Stratum D in the Open Space AOC. Soils consolidated under the cap, shall not require gas venting and shall not be the basis for the inclusion of gas venting as a component of the cap. The cap shall be designed and constructed so that:

(a) The cap shall consist of gas collection system, if gas venting is necessary, a base protective layer, an impervious geomembrane liner with a minimum thickness of 40 mil; a geocomposite drainage layer; a filter fabric; and a distinctive colored warning layer with markings in English and Spanish that would deter penetration of the cap in the event that digging occurred in the vicinity of the cap;

(b) All utilities, including those supporting the pump-and-treat system for groundwater remediation, with the exception of any extraction wells or collection trenches, shall be placed above the cap (but may be below the ground surface and/or contained within utility corridors). In the event that above-cap-grade gas collection and treatment is selected or is

needed to meet current or future regulatory requirements, such collection and treatment facilities are prohibited in the Open Space AOC, except for piping to connect the sub-liner collection system with the treatment facilities. Honeywell shall configure the cap so that all active piping for the wastewater treatment system operated by JCMUA, including all force mains and any connections to the emergency outfall, shall be outside the capped area. Honeywell may propose, subject to the review process in paragraph 72, to use treatment in lieu of excavation in the vicinity of the emergency outfall line if the criteria of paragraph 55(d) are satisfied; and

(c) Exclusive of roadways, the cap shall be overlain by layers of clean fill, backfill and/or overburden with an average depth of at least three feet and a minimum depth of at least two feet provided that any layer that incorporates overburden shall be below at least two feet of clean fill. Any clean fill or backfill soil brought to the Site will either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master. One foot of clean fill, covered with bituminous blacktop, shall be sufficient cover where roads, walkways, or other paved surfaces are located within the AOC 1 Open Space Area. All clean soil fill in areas that will not involve paved roads, walkways, or other paved surfaces shall be vegetated in such a manner as to protect and maintain the required depth of the clean soil fill and to ensure that such vegetation shall not cause any interference with or penetration of the cap.

(d) The existing overburden soils in the AOC 1 Open Space Area shall first be stripped off and set aside for use. If hexavalent chromium concentrations in the overburden exceed 20 mg/kg, the overburden shall be placed under the cap. If hexavalent chromium concentrations in the overburden do not exceed 20 mg/kg, the overburden may be placed above the cap but below the two feet of clean fill required by paragraph 56(c). Excavated hexavalent

chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the AOC 1 Residential Area shall be placed and spread in the AOC 1 Open Space Area under the cap. Excavated hexavalent chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the Study Area 6 South Development AOC (as defined in the First Amended Consent Decree Regarding Remediation and Redevelopment of Study Area 6 South and including only those portions of Study Area 6 South for which the future uses of the property may include commercial or residential development) may be placed and spread in the AOC 1 Open Space Area under the cap, provided that such soils do not require venting of gases and shall not serve as the basis for the inclusion of gas venting as part of the Study Area 6 North AOC 1 Open Space Area remedy. Both the chromium impacted soils and the previously stripped overburden shall be suitably compacted according to design specifications. Debris, to the extent it would interfere with the compaction specification requirements of the 100% Design, shall not be placed under the cap. The engineered cap shall be installed over the chromium-impacted soils exceeding 20 mg/kg hexavalent chromium.

57. **AOC 1 Additional Excavation Areas Remedy.** For those AOC 1 Additional Excavation Areas, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive. Excavation of those areas comprising the AOC 1 Additional Excavation Areas shall initially be conducted in the 50-foot by 50-foot area planned in the RAWP but shall not be so limited in the event that confirmation sampling indicates that hexavalent chromium concentrations continue to exceed 20 mg/kg. Honeywell shall excavate laterally and vertically (to depths of up to 20 feet below current ground surface) until the hexavalent chromium is less than 20 mg/kg based on the results of confirmation sampling. Confirmation sampling for the AOC 1 Additional Excavation Areas shall be taken from the side

walls and bottom of the excavation, in accordance with the Technical Requirements for Site Remediation, to confirm complete removal of contaminated soils.

58. **Shallow Groundwater Remedy.** The shallow groundwater remedy shall consist of hydraulic barriers with a pump-and-treat system designed to isolate shallow groundwater and to intercept and treat shallow groundwater flowing above the meadow mat in the AOC 1 Open Space Area. The shallow groundwater remedy shall consist of the following:

(a) The existing soil/cement/bentonite wall on the boundary of Study Area 6 North and Study Area 7 shall be incorporated into the other engineering controls;

(b) Subterranean slurry walls or other hydraulic barriers shall be installed along the northern, eastern and western sides of the AOC 1 Open Space Area and keyed into the meadow mat or Stratum O or to comparable depths below ground surface;

(c) A groundwater extraction system shall be established that will consist of (i) one or more shallow extraction wells, sumps, or french drains within the AOC 1 Open Space Area; (ii) pumps; and (iii) underground piping to convey any extracted water to Honeywell's Treatment Plant;

(d) The capture zone for the shallow groundwater remedy shall include at least the entire area of contaminated shallow groundwater (except for shallow groundwater that penetrates the meadow mat and is captured by the Deep Groundwater Remedy);

(e) A plan for control of water levels shall be developed;

(f) In the event that underground structures are demolished, the plans shall address the need for special attention for structures that extend below the meadow mat in order to control needed water levels; and

(g) Honeywell shall submit such information as is required to allow NJDEP to establish a classification exception area for groundwater at the Site, in accordance with NJDEP

regulations.

59. **Permits and Authorizations.** Honeywell shall obtain all necessary federal, state, and local permits and authorizations to carry out the Chromium Remedy as set forth in this Article. The Jersey City Entities agree to cooperate with Honeywell in the applications for any such permits, authorizations, or approvals. Such cooperation shall include providing information or data with respect to permit applications, co-signing permit applications, and allowing access to Study Area 6 North to obtain information necessary for the permits.

B. Long-Term Monitoring, Maintenance, and Protection of Engineering and Institutional Controls

60. **Protection of the AOC 1 Open Space Area.** Except as provided in paragraphs 60(j) and 60(k), development in the AOC 1 Open Space Area shall be prohibited. The AOC 1 Open Space Area shall be protected against activities that may jeopardize the integrity of the cap and/or the groundwater remedial measures that shall be installed in the AOC 1 Open Space Area pursuant to the Chromium Remedy or that may impede the long-term monitoring and maintenance of the cap and/or groundwater remedial measures. It is the intention of the Parties to implement different layers of protection, which alone or in concert, impose restrictions on development, run with the land, and survive all parties. Accordingly, the following actions shall be taken pursuant to the Schedule provided in paragraph 54(b):

(a) **Ownership of and Access to the AOC 1 Open Space Area.** Ownership of and access to the AOC 1 Open Space Area shall be in accordance with the following:

(i) Pursuant to the terms of this Consent Decree and paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall become the owner in fee simple absolute of all of the property that comprises the AOC 1 Open Space Area and shall not convey any rights or interests in such property except as provided in this Decree. At the time

of the conveyance from JCRA to Bayfront Redevelopment LLC, Bayfront Redevelopment LLC shall give Jersey City an option to buy AOC 1 Open Space Area prior to the planned transfer pursuant to paragraph 60(a)(iii). Such option to buy shall be subject to the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall exercise the option to buy the AOC 1 Open Space Area in the event that the conditions allowing for withdrawal of funds from the financial assurance mechanisms under paragraphs 84(c) or 84(d) are met;

(ii) At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall grant a conservation restriction for the AOC 1 Open Space Area pursuant to the requirements of paragraph 60(b);

(iii) Upon the final construction of all roads and utility corridors within the AOC 1 Open Space Area, Bayfront Development LLC shall donate good and marketable title to all the land comprising the AOC 1 Open Space Area to Jersey City. In conjunction with such donation, Bayfront Redevelopment LLC shall petition to subdivide the properties within Study Area 6 North to create a new parcel(s) comprising the AOC 1 Open Space Area. At the time of the donation, Jersey City shall grant Honeywell an easement for the purpose of monitoring and maintaining the Chromium Remedy. Jersey City shall also grant Honeywell all necessary access to the AOC 1 Open Space Area by license or such other mechanisms as may be appropriate for purposes of monitoring and maintaining the Chromium Remedy. After it acquires title pursuant to this paragraph, Jersey City shall retain ownership of the AOC 1 Open Space Area unless and until it shall have complied with the requirements of paragraph 60(a)(iv);

(iv) After it acquires title pursuant to this paragraph, Jersey City shall not convey or enter into any lease of the AOC 1 Open Space Area to any other person or entity unless it has first satisfied either of the following conditions:

(1) Jersey City has obtained the Special Master's (or if the Special Master's appointment has expired, the Court's) approval to convey the AOC 1 Open Space Area to a government entity that has the capacity and willingness to fulfill Jersey City's obligations under the Consent Decree with respect to the AOC 1 Open Space Area and such entity agrees to submit to the Court's jurisdiction and to be bound by the requirements of the Consent Decree that Jersey City has committed to fulfill with respect to protection of the AOC 1 Open Space Area pursuant to this paragraph and routine maintenance of the permissible development in the AOC 1 Open Space Area pursuant to paragraph 64(d); or

(2) The AOC 1 Open Space Area has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(b) **Conservation Restriction.** At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, but prior to the grant of the option to buy pursuant to paragraph 60(a)(i), Bayfront Redevelopment LLC shall grant an open space conservation restriction, pursuant to N.J.S.A. 13:8-B-1, *et seq.*, over the AOC 1 Open Space Area substantially in the form set forth in Exhibit D. Exhibit D is a conservation restriction that is consistent with the terms of this paragraph and this Consent Decree. The conservation restriction shall allow for the implementation, maintenance, monitoring, repair and replacement of the Chromium Remedy and development consistent with paragraphs 60(j) and 60(k), including the construction and

placement of roads and utilities. The Hackensack River Watershed Land Trust shall be the primary holder of the conservation restriction, with all rights of monitoring and enforcement. Riverkeeper shall propose an entity to serve as the secondary holder of the conservation restriction subject to comment by the Parties and review by the Special Master. The secondary holder shall have secondary rights of monitoring and enforcement.

(i) The conservation restriction shall be incorporated into this Consent Decree and made part of this Consent Decree. The final, executed conservation restriction shall be lodged with the Court and entered as an order of the Court. The conservation restriction shall be enforceable in this Court, in the same manner as this Consent Decree.

(ii) The conservation restrictions provided under this Consent Decree shall be consistent with the prohibited and permitted development of the AOC 1 Open Space Area as set forth in paragraphs 60(j) and 60(k) below.

(iii) Jersey City shall not take any action, whether through exercise of any power of eminent domain, application to the State of New Jersey for approval of a diversion of public park or recreation land, legal challenge to the validity or enforceability of the conservation restriction, or otherwise, the effect of which would be to in any way terminate, abrogate, or diminish the terms, conditions, or purposes of the conservation restriction. If, notwithstanding the preceding sentence, Jersey City proceeds with a condemnation or other action, the result of which would be to terminate, abrogate, or otherwise diminish the terms, conditions, or purposes of the conservation restriction, Jersey City shall, before taking any such action satisfy all of the conditions set forth in paragraph60(a)(iv)(2).

(iv) Notwithstanding the foregoing, the conservation restriction may be terminated upon application of any Party when no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the

levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive.

(c) **Deed Notice.** Upon completion of the Chromium Remedy, the AOC 1 Open Space Area shall be subjected to the deed notice substantially in the form set forth in Exhibit E that restricts future activities on the AOC 1 Open Space Area. Nothing in the deed notice shall be construed as preventing the imposition of more stringent restrictions on the development allowed in the AOC 1 Open Space Area pursuant to this paragraph and, in particular, the conservation restriction provided for in paragraph 60(b).

(d) **Recording of the Consent Decree, Conservation Restriction, and Deed Notice.** This Consent Decree, the conservation restriction imposed pursuant to paragraph 60(b), and the deed notice imposed pursuant to paragraph 60(c) shall be recorded, pursuant to N.J.S.A. 46:15-1.1, 46:16-1.1, and 46:16-2, in the office of the Hudson County Register and a conspicuous reference to the Consent Decree, conservation restriction, and deed notice shall be included in all instruments concerning title to the AOC 1 Open Space Area. Any Party shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Consent Decree, the conservation restriction, the deed notice, and/or any further orders of the Court related to the AOC 1 Open Space Area in the real estate records related to the AOC 1 Open Space Area.

(e) **Zoning.** Pursuant to the Redevelopment Plan, the AOC 1 Open Space Area is designated for open space and park. Jersey City shall not amend or change this designation unless it first satisfies the requirements of paragraph 60(a)(iv)(2).

(f) **Recreation and Open Space Inventory.** Upon acquiring fee simple absolute title to the AOC 1 Open Space, Jersey City shall add those portions of the AOC 1 Open Space Area not covered by roads, the pedestrian thoroughfare, and utility corridors adjacent to

roads onto its Green Acres Program Recreation and Open Space Inventory ("ROSI") pursuant to N.J.A.C. 7:36 and shall specify in such listing that it is subject to (i) Honeywell's prior easement to monitor, maintain, repair, and replace the Chromium Remedy; (ii) the actions necessary to implement, monitor, maintain, repair, and replace the Chromium Remedy; (iii) the actions necessary to install any development permissible under paragraphs 60(j) and 60(k); and (iv) the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall also take all steps necessary or appropriate to notify the New Jersey Green Acres Program that such portions of the AOC 1 Open Space Area have been added to its ROSI, such that those portions of the AOC 1 Open Space Area shall thereafter be subject to all procedural and regulatory requirements applicable under the Green Acres Program, including prohibitions against diversion.

(g) **Eminent Domain.** If all or part of the AOC 1 Open Space Area is taken in exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, by any public, corporate, or other authority so as to terminate, abrogate, or limit the restrictions created by this Consent Decree or the conservation restriction imposed pursuant to paragraph 60(b), in whole or in part, any Party may take appropriate actions to challenge such taking if there is a reasonable legal basis for doing so. In the event that the Parties are unable to prevent a taking notwithstanding their reasonable and appropriate efforts, any Party may take appropriate actions to recover the full value of the interests in the AOC 1 Open Space Area subject to the taking or in lieu purchase, and all direct and incidental damages, costs, and fees occasioned thereby.

(h) **Environmental Covenant.** In the event that New Jersey enacts the Uniform Environmental Covenants Act or its substantial equivalent, the Parties shall address the issue of whether an environmental covenant shall be established for the AOC 1 Open Space Area under the statute. If the Parties are unable to reach agreement on establishment of an environmental

covenant, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of an environmental covenant if it would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(i) **Future Protections.** Any Party shall have the right to propose consideration of additional or substitute protections for the AOC 1 Open Space Area. If the Parties are unable to reach agreement with regard to the proposal, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of additional or substitute protections for the AOC 1 Open Space Area if they would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(j) **Prohibited Development in AOC 1 Open Space Area.** Only development satisfying the requirements of this paragraph and paragraph 60(k) shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(i) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Area regardless of when the construction or installation of permissible development occurs. The Open Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy.

(ii) The Initial Development in the AOC 1 Open Space Area shall be the

development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Area. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii).

(iii) The Special Master shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(iv) Honeywell shall ensure that the requirements of this paragraph and paragraph 60(k) are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy.

(v) Any development undertaken in the AOC 1 Open Space Area, regardless of when undertaken, shall satisfy each of the following requirements:

(1) It shall not jeopardize the integrity of the Chromium Remedy;

(2) It shall be limited to the types of development permitted under paragraph 60(k);

(3) It shall be consistent with this Consent Decree, including the conservation restriction imposed pursuant to paragraph 60(b), and the Redevelopment Plan;

however, in the event of any conflict or inconsistency between this Decree and the Redevelopment Plan, this Decree shall govern;

(4) In total, at least 75% of the AOC 1 Open Space Area, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi);

(5) The portion of the Open Space Design Standards necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy;

(6) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(7) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(8) No permanent concession facilities shall be permitted.

(vi) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c), except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) shall apply, except that the Special Master need not provide notice to NJDEP.

(vii) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant

to paragraph 60(j)(vi) and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii).

(viii) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(ix) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, and paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement).

(x) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(1) Jersey City satisfies the conditions set forth in paragraph 60(a)(iv)(2);

(2) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, and paragraph 60(j)(v); or

(3) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi), and Jersey City provides notice of its intention to alter or add to the

development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of the conservation restriction shall have the right to move the Court to prohibit such alteration or addition.

(xi) If any of the development features or facilities that Jersey City seeks to add pursuant to paragraph 60(j)(x) require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(xii) Jersey City shall provide Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2), to the development undertaken during the Initial Development Period.

(xiii) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy.

(k) **Permissible Development in the AOC 1 Open Space Area.** The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v):

(i) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Area, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(ii) Curbing and fences;

(iii) Sidewalks, paths, walkways, and nature trails;

(iv) Utilities and utility corridors, lighting, and restrooms;

(v) Irrigation or sprinkler components or systems;

(vi) Water features;

(vii) Above-ground storm water cisterns;

(viii) Signs, including the signs or display required by paragraph 60(l);

(ix) Benches, trash receptacles, and bicycle racks;

(x) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(xi) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4).

(l) **Signs or Displays.** Honeywell shall develop a permanent plan for informing visitors to the AOC 1 Open Space Area of the history of the chromium production, contamination, and its remediation. Such plan shall provide for appropriate signs or displays that communicate this information. Such plan shall be subject to review and comment by the Parties and approval by the Special Master.

61. **Honeywell's Ongoing Responsibility.** Honeywell shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy in perpetuity. Honeywell shall satisfy this responsibility through establishment and implementation of a Long-Term Monitoring Plan. In the event that Honeywell ceases to exist without a

successor-in-interest or its obligations under this Consent Decree are stayed or limited due to a bankruptcy petition, the Court shall appoint an independent third-party fiduciary who shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy pursuant to the requirements of this Consent Decree and the Long-Term Monitoring Plan, unless Jersey City volunteers to assume these responsibilities for the Chromium Remedy.

62. **Long-Term Monitoring Plan.** In consultation with the Parties, and subject to approval by the Special Master and NJDEP, Honeywell shall develop a Long-Term Monitoring Plan to ensure the ongoing effectiveness of the Chromium Remedy to meet the objectives set forth in paragraphs 56, 58, and 63. The Long-Term Monitoring Plan shall be consistent with the applicable EPA policies and guidance, including, among others, EPA's Comprehensive Five Year Review Guidance (2001) (or any subsequent revision) and with NJDEP's Technical Requirements for Site Remediation (or any subsequent revision).

63. **Long-Term Monitoring Plan Objectives.** Honeywell shall design the Long-Term Monitoring Plan to satisfy each of the following objectives:

(a) Provide monitoring to ensure that the integrity and effectiveness of the Chromium Remedy are maintained; and

(b) Provide monitoring to ensure that the restrictions of the institutional controls are being satisfied, including the prohibition on development in the AOC 1 Open Space Area.

64. **Monitoring and Remediation Under the Long-Term Monitoring Plan.** The Long-Term Monitoring Plan shall include the monitoring and remediation activities set forth in this paragraph and other monitoring and remediation activities, if necessary, to meet the objectives of paragraph 63. Honeywell shall provide Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP with annual reports on activities conducted under the Long-Term Monitoring Plan.

(a) **Monitoring Activities in the Long-Term Monitoring Plan.** Honeywell shall undertake the following monitoring activities at intervals to be specified in the Long-Term Monitoring Plan, but no less frequently than set forth below, and, if the monitoring shows it is necessary, Honeywell shall also undertake the remediation activities as set forth below:

(i) Quarterly visual inspection monitoring of the AOC 1 Open Space Area to ensure that it is not being put to any use that is inconsistent with paragraphs 60(j) and 60(k) or any use that may compromise the integrity of the Chromium Remedy. The Long-Term Monitoring Plan shall include an inventory of the prohibited and permissible uses pursuant to paragraph 60 and a corresponding checklist to be used by the individuals conducting the monitoring. If Honeywell determines that the AOC 1 Open Space Area is being used in a manner inconsistent with the protections or the integrity and effectiveness of the Chromium Remedy, Honeywell shall act as soon as possible to cause such use to cease and, if there has been damage to the Chromium Remedy, to repair or replace it to original specifications or to a level of protection equivalent to the original Chromium Remedy;

(ii) Quarterly visual inspection monitoring of the AOC 1 Open Space Area grade and slope to identify whether erosion has occurred or is occurring. Honeywell shall remediate any significant erosion.

(iii) Quarterly visual inspection monitoring to determine whether noticeable differential settlement or subsidence has occurred or is occurring in the AOC 1 Open Space Area such that the integrity of the Chromium Remedy may be materially impaired. If evidence of differential settlement or subsidence is found, Honeywell shall propose further investigative measures. Honeywell shall remediate any differential settlement or subsidence that is beyond the degree of differential settlement/subsidence allowed for in the 100% Design

and repair the cap and/or the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(iv) A baseline topographic survey at the completion of the Chromium Remedy and three additional surveys conducted at five-year intervals beginning five years after the conduct of the baseline survey. The topographic survey shall be of sufficient precision and accuracy to present the results as one-foot contours;

(v) Quarterly visual inspection monitoring to determine whether the Chromium Remedy in the AOC 1 Open Space Area has been disturbed. Any evidence of the distinctive warning layer materials or any other cap materials as described in paragraph 56(a) at the surface is an indication that the cap has been disturbed. In such an event, Honeywell shall propose further investigative measures to evaluate whether the integrity of the cap has been compromised. In the event that the investigative measures show that the cap integrity has been compromised, Honeywell shall repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vi) Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy. If evidence of burrowing animals is found, Honeywell shall follow humane removal procedures and repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vii) Quarterly visual inspection monitoring of the vegetative cover in the AOC 1 Open Space Area to ensure that vegetative cover is in conformance with the landscaping provisions of the 100% Design and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy. Maintenance of the vegetative cover shall include, at a

minimum, mowing to ensure that tree species cannot become established and removal of any other vegetation with the potential to damage the Chromium Remedy;

(viii) Quarterly groundwater monitoring to ensure that groundwater levels are maintained in accordance with the requirement to maintain an outward gradient from Study Area 7 and in accordance with the water level control plan developed pursuant to paragraph 58(e);

(ix) Monitoring of vented gases and the gas venting system to ensure proper operation of the system, to evaluate any degradation of the system, to assess the need for treatment of vented gases, either initial, subsequent, or further depending on whether treatment has been previously provided, and to detect any condition that might endanger public health or safety. Such monitoring shall be conducted on a monthly basis for at least one year and, if the readings are stable, such monitoring may be conducted thereafter on a quarterly basis; and

(x) Any additional monitoring as required by specific details added in the design phase of the AOC 1 Open Space Area.

(b) **Procedures for Proposing Changes to the Long-Term Monitoring Plan.** Any Party may, from time to time, propose changes to the scope of the monitoring activities under the Long-Term Monitoring Plan. If the Parties agree, the Long-Monitoring Plan shall be so changed subject to approval by NJDEP and by the Special Master, if his appointment has not terminated, or otherwise, by the Court. If the Parties are unable to reach agreement over alterations to the monitoring and the Special Master's appointment has not terminated under this Consent Decree, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation. In the event that the dispute arises after the Special Master's appointment has terminated, any Party may file a motion seeking a resolution of the dispute by

the Court.

(c) **Contingency Plan.** As part of the Long-Term Monitoring Plan, Honeywell shall develop a contingency plan to ensure the integrity of the remediation in the event of any planned penetration of the cap or otherwise planned activity that compromises the cap or any unplanned event or accident that penetrates the cap or otherwise compromises the integrity of the Chromium Remedy. The contingency plan shall include, at a minimum, an annually updated plan to notify the relevant persons, including the Special Master, NJDEP, and the Parties, of (i) the event penetrating the cap, compromising the cap, or compromising the integrity of the Chromium Remedy; (ii) the general steps to be taken to identify the extent of the problem; and (iii) the standards for remedying the problem.

(d) **Routine Maintenance.** The title owner of the AOC 1 Open Space Area shall conduct maintenance of the AOC 1 Open Space Area features or facilities that are permissible under paragraphs 60(j) and 60(k). The maintenance workers shall be trained in maintenance procedures that do not jeopardize the integrity of the Chromium Remedy. The training shall include the identification and reporting of any uses or features that are not permissible in the AOC 1 Open Space Area or that may jeopardize the integrity of the Chromium Remedy. Honeywell shall provide all training materials. The title owner of AOC 1 Open Space Area shall annually provide to the other Parties and the Special Master a report describing the training which has been provided to its maintenance workers. The title owner of the AOC 1 Open Space Area shall also provide to the Parties and the Special Master notice of any violations of the restrictions relating to the AOC 1 Open Space Area identified by its workers during routine maintenance.

(e) **Recordkeeping.** Honeywell shall maintain written logs or other records of those monitoring and remediation activities undertaken pursuant to the Long-Term Monitoring

Plan. Such logs shall be provided to Riverkeeper and the Jersey City Entities on a quarterly basis.

65. **Monitoring and Reporting to Riverkeeper and Jersey City Entities.** Riverkeeper and Jersey City Entities shall be provided with all documents submitted to NJDEP and/or the Special Master with respect to the Chromium Remedy, including the documents identified in paragraph 72(c).

66. **Notice to Stakeholders.** All residents, regardless of whether they are owners or lessees, and all commercial tenants on Study Areas 6 and 7 are hereby deemed stakeholders. Honeywell shall ensure that all stakeholders shall be provided at the time of their purchase or lease with notice of the contamination, the remedial actions that have been undertaken or are planned, and the importance of reporting activities that may appear to jeopardize the integrity of the engineering controls. Notice shall be accomplished in the following manner:

(a) Bold or otherwise conspicuous language on the first page of the deed provided to all purchasers in the Residential Area;

(b) A summary notice of the Chromium Remedy which:

(i) Has been subject to review and comment by the Parties and approval by the Special Master; and

(ii) Provides a reference to public websites and libraries and/or the future equivalents thereof, where the following can be found:

(1) Zoning and other Jersey City maps showing the AOC 1 Open Space Area; and

(2) Documents describing the contamination and the remediation, including:

(a) This Consent Decree;

(b) The Remedial Investigation Report and the Final Remedial Action Report,

(c) The annual reports on long-term monitoring and maintenance and repair activities as required by paragraph 64 and annual reports on changes to the Initial Development as required by paragraph 60(j)(xii); and

(d) The Long-Term Monitoring Plan.

(c) The provision of the maps and documents referred to in paragraph 66(b)(ii) to the public via websites and libraries and/or the future equivalents thereof; and

(d) Notices to lessees and commercial tenants in all lease documents.

67. **Annual Letter to Riverkeeper and Jersey City Entities on Notice to Stakeholders.** Each year beginning one year after the issuance of the first notice in a deed or lease pursuant to paragraph 66, Honeywell shall provide a letter to the Riverkeeper and the Jersey City Entities documenting its compliance with paragraph 66.

68. **Future Notice to Stakeholders.** Honeywell shall ensure that all stakeholders are provided with notice, at least annually, of long-term monitoring activities and any additional remediation activities undertaken with respect to the Chromium Remedy. Such notice shall be accomplished by notices on websites or future equivalents thereof, including Jersey City websites, any websites created to provide information about the Chromium Remediation or redevelopment of the Redevelopment Area, and one or more of the following:

(a) Any community message board or other similar site used and/or maintained by stakeholders or the manager(s) of the Redevelopment Area;

(b) Mailings to all stakeholders; and

(c) Posters and flyers throughout the Redevelopment Area.

69. **Stakeholder Enforcement.** Any stakeholder shall have the right to enforce the

remedial obligations of this Consent Decree in the Court, including post-implementation monitoring and maintenance obligations, and the terms of any deed notice or use restriction.

C. Oversight and Enforcement by the Special Master and NJDEP

70. **Federal Court Jurisdiction.** The Court shall retain jurisdiction for the purpose of overseeing and enforcing this Consent Decree and to review any issue or dispute which is not resolved through the oversight process described in Article III.C.

71. **Appointment and Jurisdiction of the Special Master.** The Chromium Remedy provided for in this Consent Decree is hereby referred to a Special Master pursuant to Rule 53 of the Federal Rules of Civil Procedure. The Special Master is appointed in the Consolidated Litigation for the purpose of overseeing and enforcing the Chromium Remedy, the first five years of long-term monitoring of the Chromium Remedy, financial assurances for the Chromium Remedy, and the Initial Development Period for each phase of development in the AOC 1 Open Space Area. The Special Master is also appointed in the Consolidated Litigation for the limited purpose of ensuring that the scheduling and implementation of the Historic Fill Remedy, the site preparation activities, and the site redevelopment activities described in the Jersey City/Honeywell Consent Order, Articles II.B, III, and IV, do not undermine the integrity of, unreasonably interfere with, or unnecessarily delay the effectuation of the Chromium Remedy, the Study Area 7 remedies, and other remedies within his jurisdiction as of the date of entry of this Consent Decree. The Special Master shall have jurisdiction over all matters for which he is appointed.

72. **Oversight of the Chromium Remedy.**

(a) **NJDEP Authority.** NJDEP shall retain its full statutory and regulatory authority with respect to the Study Area 6 North site, including (i) permitting authority; (ii) authority to review and approve the Remedial Action Work Plan, 100% Design, and final

Remedial Action Report for the Chromium Remedy; and (iii) authority to issue a no further action letter.

(b) **Special Master Responsibilities.** The Special Master shall have the following responsibilities:

(i) Ensuring that Honeywell's implementation of the Chromium Remedy satisfies the requirements of this Consent Decree;

(ii) Ensuring that Honeywell's implementation of the Chromium Remedy conforms with federal, state, and local permit requirements;

(iii) Establishing a reasonable schedule for the implementation of the Chromium Remedy and monitoring conformance with it;

(iv) Reviewing monthly progress reports and conducting periodic meetings with the Parties to review the progress of the implementation of the Chromium Remedy. NJDEP shall be invited, but not required, to participate in these meetings and the decision as to whether to participate shall be left to NJDEP's sole discretion;

(v) Submitting quarterly progress reports to the Court;

(vi) Overseeing the financial assurances established pursuant to paragraphs 77 through 86, and, until the expiration of his term pursuant to paragraph 76, overseeing the financial assurances established pursuant to paragraphs 87 through 98;

(vii) Coordinating review of the documents as provided in paragraphs 72(c) through 72(f);

(viii) Overseeing all development undertaken in the AOC 1 Open Space Area during the Initial Development Period pursuant to paragraph 60(j)(iii); and

(ix) To the extent that, in matters within the jurisdiction of the Special Master as set forth herein, a dispute arises between the Parties with respect to implementation of the Chromium Remedy, issuing a recommendation to the Court with respect to the dispute.

(c) **Submission of Documents by Honeywell.** Honeywell shall submit the following documents to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP:

(i) An overall schedule with milestones for the design and implementation of the remedy ("Schedule");

(ii) Design drawings and specifications at the 50% level;

(iii) Design drawings and specifications at the 100% level (after selection of the contractor) (hereafter "100% Design");

(iv) The data validation plan, including quality control and quality assurance protocols;

(v) The site-wide master health and safety plan;

(vi) The Long-Term Monitoring Plan;

(vii) The final Remedial Action Report or final construction report (including as-built drawings and such other reports as may be prepared of the remedy as implemented);

(viii) A report reviewing measured groundwater levels for the groundwater remedy;

(ix) Documents required during the Initial Development Period pursuant to paragraphs 60(j)(vi), 60(j)(vii), and 60(j)(viii) ; and

(x) Other post-implementation monitoring reports as required by the Long-Term Monitoring Plan.

(d) **Comment on Submitted Documents.** For each of the documents submitted by Honeywell pursuant to paragraph 72(c), the Special Master shall establish a schedule for the submission of comments and responses to comments. For each of the documents submitted, Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP shall have the right to submit comments to Honeywell. Honeywell shall address all received comments and submit a revised document. The revised document shall be submitted by Honeywell to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP. The revised document shall be subject to review and approval pursuant to paragraph 72(e).

(e) **Review and Approval of the Submitted/Revised Document**

(i) **Scope of Review.** All documents submitted by Honeywell, pursuant to paragraph 72(c) and 72(d), shall be subject to review and approval by the Special Master in accordance with the following procedure. All such documents, except the Schedule and the 100% Design, shall be subject to the review and approval process and shall not require an order of the Court. The Schedule and 100% Design documents shall be subject to the review and approval process, but shall also require an order of the Court as provided in paragraph 72(f). A document shall be approved if the document (1) complies with this Consent Decree; (2) complies with the Remedial Action Work Plan for the Chromium Remedy; and (3) complies with the Schedule and 100% Design.

(ii) **Procedure.** Prior to making a decision on a document, the Special Master shall notify NJDEP of his intention to rule on the document or make a recommendation to the Court on the document. Such notice shall notify NJDEP that the Special Master will consider any comments NJDEP wishes to submit on the document if such comments are submitted within 30 days of NJDEP's receipt of the notice. NJDEP shall in its sole discretion determine whether to submit comments to the Special Master.

(iii) **Court Review.** If any Party objects to the Special Master's recommendation to the Court or approval of any document pursuant to this paragraph, that Party may seek further relief from the Court with respect to the document.

(f) **Schedule and 100% Design Documents.** As to the Schedule and the 100% Design documents, Honeywell shall have the responsibility, within 30 days of the Special Master's approval of each document, of (i) moving for entry of an order by the Court approving the document as approved by the Special Master; or (ii) filing objections with the Court to the Special Master's approval (and any recommendations contained therein) and moving for entry of the Schedule or 100% Design (including any such recommendations of the Special Master to which Honeywell agrees). Riverkeeper and the Jersey City Entities shall have the right in these proceedings to raise any objections they might have to the Schedule or 100% Design as approved by the Special Master or to the submission by Honeywell to the Court. NJDEP shall receive notice of any motion filed with respect to the Schedule or the 100% Design.

(g) **Flexibility in 50% and 100% Design Documents**. The Parties recognize that work conducted to implement the Chromium Remedy may be conducted by Honeywell contractors and that Honeywell may establish performance-based criteria or specifications for its contractors. As a result, the Parties recognize that the 50% Design and 100% Design documents for the Chromium Remedy may include performance-based standards, criteria, and specifications. These documents shall be sufficiently prescriptive to enable the Parties and the Special Master to evaluate their conformance with the Remedial Action Work Plan and this Consent Decree. The Parties also recognize that the 100% Design will be completed after Honeywell has selected a contractor. The Parties further recognize that completing the 100% Design after the selection of the contractor(s) shall not make the 100% Design subject to any less

stringent or more deferential review. Honeywell's commitment to the contractor(s) shall not be cause to limit review by the Parties and the Special Master.

(h) **Changes to the Schedule**. The Parties recognize that changes to individual line items in the Schedule will occur. To the extent that (i) the Parties and the Special Master agree that such changes do not have a material impact on satisfaction of the Schedule milestones established for items set forth in paragraph 54(b); and (ii) such changes do not require modifications to any necessary permits or authorizations for the Chromium Remedy, such changes may be made upon agreement of the Parties and the Special Master without further order of the Court.

73. **Retention of Professionals.** The Special Master may retain the services of professionals and/or other technical personnel, as reasonably needed, to fulfill his obligations under this Consent Decree, and for which he will be reimbursed pursuant to paragraph 75.

74. **Insurance for the Special Master.** The Special Master shall obtain insurance coverage relating to the performance of the Special Master's duties and responsibilities under this Consent Decree. Such coverage shall be similar to the Special Master's existing coverage in *ICO v. Honeywell*, procured pursuant to the Court's November 11, 2005 Stipulation and Order Regarding Special Master's Application to Procure Insurance Coverage, and as extended to the Consolidated Litigation by the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"). The insurance coverage shall be sufficiently extended in duration and scope to cover all additional duties and responsibilities as set forth hereunder. Honeywell shall pay the premiums and other administrative costs of the Special Master's insurance.

75. **Reimbursement of Special Master Fees and Expenses.** The Special Master shall submit fee applications to the Court for approval of reasonable fees and expenses incurred in the

oversight of matters referred to him pursuant to this Consent Decree. Any Party may raise with the Court objections to such fee applications. Upon approval of a fee application by the Court, the reimbursement of the Special Master's fees and expenses shall be made from the escrow fund previously established by Honeywell for the purpose of paying the Special Master's fees and expenses in *ICO v. Honeywell* pursuant to this Court's September 15, 2003 Order Setting Financial Assurances and extended to the Consolidated Litigation by the Sediment Consent Order.

76. **Expiration of Special Master's Appointment.** The Special Master's appointment under this Consent Decree shall expire after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy and the Initial Development Period for each phase of development has been concluded as provided in paragraph 60(j)(ii). However, solely to the extent that the Special Master is still supervising other portions of the Consolidated Litigation or *ICO v. Honeywell* after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy or the Initial Development Period for each phase of development as provided in paragraph 60(j)(ii), whichever is later, the Special Master shall continue to have jurisdiction under this Consent Decree until he has completed his specifically enumerated responsibilities under the Final Judgment in *ICO v. Honeywell*, the Sediment Consent Order, the Deep Groundwater Consent Order, and any other future orders, decrees, or judgments in *ICO v. Honeywell* and the Consolidated Litigation. Enumerated responsibilities under any order, decree, or judgment shall include only those tasks specifically assigned to the Special Master in the order, decree, or judgment. Enumerated responsibilities shall not include any continued jurisdiction exercised over long-term monitoring beyond the initial period specified in the order, decree, or judgment. For example, the Special Master has jurisdiction over the first five years of long-term monitoring under the Sediment Consent Order. Oversight during these five years shall

be an enumerated responsibility, but any continued oversight of long-term monitoring, pursuant to the extension of the Special Master's jurisdiction beyond the first five years, as provided in paragraph 60 of the Sediment Consent Order, shall not be an enumerated responsibility. Such extensions of jurisdiction shall be effective only so long as specific enumerated responsibilities in any order, decree, or judgment have not been fulfilled.

D. Initial Financial Assurances

77. **Chromium Remedy Letter of Credit.** Honeywell shall obtain a one-year, irrevocable letter of credit (the "Chromium Remedy Letter of Credit") to be automatically renewed annually in an amount equal to the "Remedial Costs Subject to Financial Assurance."

(a) Remedial Costs Subject to Financial Assurance shall mean:

(i) The costs of implementing the Chromium Remedy;

(ii) The costs of monitoring and maintenance activities, as required by the Long-Term Monitoring Plan, for five years; and

(iii) A contingency of 25% with respect to those costs listed in paragraphs 77(a)(i) and 77(a)(ii).

(b) The Chromium Remedy Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution, provided that in either case, the financial institution shall be acceptable to the Special Master.

78. **Procedures for Review of the Proposed Chromium Remedy Letter of Credit.** No later than 60 days after entry by the Court of this Consent Decree, Honeywell shall submit to Riverkeeper, Jersey City Entities, and the Special Master for their review the proposed (a) amount of the Chromium Remedy Letter of Credit; (b) form of the Chromium Remedy Letter of Credit; and (c) name of the institution that will issue the Chromium Remedy Letter of Credit. If

Riverkeeper or the Jersey City Entities do not agree to the terms of the Chromium Remedy Letter of Credit, the Parties shall meet and confer in an effort to resolve their differences. If the Parties are unable to reach agreement over the terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the Chromium Remedy Letter of Credit.

79. **Automatic Renewal.** The Chromium Remedy Letter of Credit shall be automatically renewed annually unless (a) no later than 120 days prior to the anniversary of the Chromium Remedy Letter of Credit issue date, the issuer provides notice of nonrenewal or (b) Honeywell seeks a reduction in the Chromium Remedy Letter of Credit, pursuant to paragraph 80, to correspond to the reduced estimate of Remedial Costs Subject to Financial Assurances. If the issuer provides notice of nonrenewal, Honeywell shall obtain a replacement irrevocable Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit. If Honeywell is not otherwise in default as provided in Article III.D, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit within 91 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit. In the event that the Special Master is entitled to draw upon a Chromium Remedy Letter of Credit because there are two Chromium Remedy Letters of Credit currently in place, the Special Master shall not draw an aggregate amount in excess of the highest valued Chromium Remedy Letter of Credit. Upon Honeywell's request, the Special Master may, at his option, decide not to require overlapping letters of credit in any year based on Honeywell's financial strength in that year, provided that Honeywell has submitted all necessary information so that the Special Master can make his determination at least 150 days prior to the expiration of the Chromium Remedy Letter of Credit.

80. **Annual Right to Seek Reduction in Amount of Chromium Remedy Letter of Credit.** Honeywell shall have the right annually to seek a reduction in the Chromium Remedy Letter of Credit. At the time of seeking such reduction, Honeywell shall submit to the Riverkeeper, the Jersey City Entities, and the Special Master an estimate of the remaining Remedial Costs Subject to Financial Assurance, including the contingency as described in paragraph 77(a)(iii), and shall seek adjustment of the Chromium Remedy Letter of Credit so that the total estimated amount of remaining Remedial Costs Subject to Financial Assurance are covered by the Chromium Remedy Letter of Credit. However, the adjustment shall not result in reducing the Chromium Remedy Letter of Credit to an amount below the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), plus a contingency of 25% of the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), and shall not result in reducing the Chromium Remedy Letter of Credit to an amount less than $20,000,000 as expressed in 2008 dollars unless long-term financial assurances are in place pursuant to Article III.E. Before making any request to reduce the amount or modify the terms of the Chromium Remedy Letter of Credit, Honeywell shall first confer with the Riverkeeper and the Jersey City Entities in an effort to reach agreement on the modified amount or terms of the Chromium Remedy Letter of Credit. If the Parties are unable to reach agreement over the modified amount or terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall resolve the dispute. Any Party shall have the right to seek review by the Court of the Special Master's decision regarding the modified amount or terms of the Chromium Remedy Letter of Credit. Upon agreement on the amount of the reduction or modified terms of the Chromium Remedy Letter of Credit (or upon order of the Court directing that the Chromium Remedy Letter of Credit be reduced to an identified amount or otherwise modified), Honeywell shall obtain a replacement Chromium Remedy Letter of Credit in such amount and with such

terms. If Honeywell is not otherwise in default as provided in Article III.D and the issuer of the primary Chromium Remedy Letter of Credit has not provided notice of non-renewal, within 30 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit.

81. **Bankruptcy Protection.** Neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy. The Chromium Remedy Letter of Credit shall contain the language necessary to assure that neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

82. **Exclusive Court Jurisdiction.** The Chromium Remedy Letter of Credit shall recite that the issuer submits to the exclusive jurisdiction of this Court for any and all disputes arising under the Letter of Credit.

83. **Application of New York Law.** The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Chromium Remedy Letter of Credit.

84. **Procedures upon Honeywell's Material Default of Its Obligations.** During the period in which the Special Master has jurisdiction pursuant to paragraph 71, the Chromium Remedy Letter of Credit shall be payable to the Special Master and shall not, prior to its expiration date, be revoked or terminated except consistent with this Consent Decree and with the consent of the Special Master and approval by the Court. The Special Master's ability to draw upon the Chromium Remedy Letter of Credit shall not be limited by any agreement between Honeywell and the issuer. The Special Master may, without further order or notice to

this Court, draw upon the Chromium Remedy Letter of Credit upon the occurrence of default by Honeywell, which shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 79 to deliver a replacement Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 15 days after written notice to Honeywell thereof and either (i) Honeywell, in the opinion of the Special Master without further input from the Parties, shall have failed to cure the breach; (ii) during the 15-day period, the Court has not entered an order to prevent the Special Master from drawing on the Chromium Remedy Letter of Credit; or (iii) the Court or the Special Master has not granted Honeywell additional time to cure the breach;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if involuntary filing has not been dismissed within 60 days; the appointment of a custodian, receiver, liquidator, or trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under paragraph 84(c) above, and the failure of Honeywell to provide assurance to the Special Master, within 15 days after written notice, that such an event will not impair Honeywell's ability to

carry out the terms of this Consent Decree.

85. **Placement of Proceeds in Court Registry Investment System Account.** In the event that the Special Master draws upon the Chromium Remedy Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Chromium Remedy Letter of Credit which represent the remaining estimated Chromium Remedy costs under paragraphs 77(a)(i), plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), in an account with the Court Registry Investment System in accordance with Local Civil Rule 67.1 and not expend the proceeds of the Letter of Credit without further order of this Court. The Special Master shall place all additional proceeds of the Chromium Remedy Letter of Credit in a trust fund pursuant to paragraph 90(b)(v).

86. **Termination of Chromium Remedy Letter of Credit.** The Chromium Remedy Letter of Credit may be withdrawn in its entirety upon the satisfaction of all of the following:

(a) The implementation of the Chromium Remedy; and

(b) Establishment of long-term financial assurance pursuant to Article III.E.

E. Long-Term Financial Assurances

87. **Long-Term Financial Assurances.** Honeywell shall fund long-term financial assurances to ensure that the activities set forth in paragraph 89(a) are carried out regardless of whether Honeywell is financially able to carry out such activities in perpetuity.

88. **Resolution of the Amount of Long-Term Financial Assurances.** The Parties have agreed to the following options with regard to how the long-term financial assurances shall be determined:

(a) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less,

and agree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E.

(b) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, but disagree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E except that the dispute as to the amount of the long-term financial assurances shall be submitted to the Special Master pursuant to paragraph 91.

(c) If the Parties do not agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, or the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is greater than $10,000,000, the Parties shall seek resolution by the Court of the long-term financial assurances issues, including (i) the type of financial assurances to be provided; (ii) the scope of the financial assurances; (iii) the amount of the financial assurances; and (iv) the duration of the financial assurances. In the event that the Parties seek resolution by the Court, the provisions of paragraphs 90 through 98 shall not apply.

(d) Within 60 days of the entry of this Consent Decree, the Parties shall determine which option under this paragraph shall apply. In the event that the Parties determine that paragraph 88(c) applies, Riverkeeper shall initiate the proceedings by moving the Court for the imposition of long-term financial assurances.

(e) If the Parties determine that they are proceeding under paragraph 88(c), Honeywell shall maintain the Chromium Remedy Letter of Credit required by paragraph 77 in an amount equal to at least $20,000,000 in 2008 dollars until such time as the long-term financial assurances ordered by the Court are in place. In the event of any default by Honeywell pursuant

to paragraph 84 while the Chromium Remedy Letter of Credit is in place, the provisions of paragraph 90(b)(v) for the placement of the proceeds that exceed the remaining estimated Chromium Remedy costs under paragraph 77(a)(i) plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), shall apply.

89. **Costs Subject to Long-Term Financial Assurances.**

(a) Long-term financial assurances shall provide enough funds to cover the costs of the following activities:

(i) Perpetual monitoring and maintenance of the Chromium Remedy, including installation, operation and monitoring of any above-cap-grade gas collection and/or treatment system as may be necessary, but such system is not part of the 100% Design;

(ii) Perpetual operation of the shallow groundwater pump-and-treat remedy;

(iii) Perpetual repair of the cap;

(iv) Perpetual replacement of the cap on a 75-year replacement interval; and

(v) In the event that Honeywell selects a trust fund pursuant to paragraph 90(a), the perpetual administration of the trust fund.

(b) The costs that shall be subject to financial assurances is an amount that will provide the full payment for each of the activities set forth in paragraphs 89(a)(i) through 89(a)(v) plus a 25% contingency when the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to be performed. The costs subject to financial assurances are forward looking because they state an amount valued at the time the funds are needed. As such, they shall be stated in contemporary time as the present value (calculated on the basis of a discount rate of 4.75%) of

the estimated future costs of the activities specified in paragraphs 89(a)(i) through 89(a)(v), plus a 25% contingency on those costs.

90. **Long-Term Financial Assurance Mechanisms.** Honeywell shall provide long-term financial assurances in the amount of the costs subject to long-term financial assurances in the form of a trust fund, a letter of credit, or some combination of the two. The selected mechanism(s) shall satisfy the following requirements:

(a) **Trust Fund.** In the event that Honeywell selects a trust fund, Honeywell shall create a trust fund such that it can provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(i) The trust fund shall be at arm's length from Honeywell and shall not be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The trust fund agreement shall contain the language necessary to assure that neither the trust fund nor the earnings of the trust fund shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The trust fund shall be managed by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution managing the trust fund declares bankruptcy, the Court shall withdraw the funds and appoint another financial institution meeting the requirements of this paragraph to manage the trust.

(iii) No more frequently than once per year, Honeywell may apply to the Court for an order directing the trust manager to reimburse Honeywell for any costs that it has incurred to carry out the activities set forth in paragraphs 89(a)(i) through 89(a)(iv).

(b) **Long-Term Letter of Credit.** In the event that Honeywell selects a letter of credit, Honeywell shall obtain a one-year irrevocable letter of credit (the "Long-Term Letter of Credit") to be automatically renewed annually in an amount that provides sufficient funds such that a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a), could be created. The Long-Term Letter of Credit-funded trust, plus any trust fund established under paragraph 90(a), shall provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The amount of any Long-Term Letter of Credit shall therefore be adjusted periodically as the cap replacement interval is approached because, for example, the money needed in the 10th year to fund a trust that can provide for replacement of the cap in the 75th year is much less than the money that would be needed in the 40th year. Such periodic adjustments shall be proposed and approved by the Court in conjunction with the adjustments under paragraph 92.

(i) Neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The Long-Term Letter of Credit shall contain the language necessary to assure that neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The Long-Term Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution issuing the Long-Term Letter of Credit declares bankruptcy, the Court shall authorize the drawing of funds from the Long-Term Letter of Credit

and shall deposit those funds in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(iii) The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Long-Term Letter of Credit.

(iv) The Long-Term Letter of Credit shall be automatically renewed annually, unless, no later than 120 days prior to the anniversary of the Long-Term Letter of Credit issue date, the issuer provides notice of non-renewal. If the issuer provides notice of non-renewal, Honeywell shall obtain a replacement irrevocable Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit. If Honeywell is not otherwise in default as provided in this Article, the Court shall direct the cancellation of the prior Long-Term Letter of Credit within 91 days after delivery to the Court of any replacement of a Long-Term Letter of Credit. In the event that the Court is entitled to draw upon a Long-Term Letter of Credit when there are two Letters of Credit currently in place, the Court shall not draw an aggregate amount in excess of the highest valued Long-Term Letter of Credit.

(v) Prior to the expiration of the Special Master's appointment pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Special Master. During the time the Long-Term Letter of Credit is payable to the Special Master, the Special Master may draw on the Long-Term Letter of Credit as provided in paragraph 84. In the event that the Special Master draws upon the Long-Term Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a). After the Special Master's appointment expires pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Court and, in the event that the Court draws

on the Long-Term Letter of Credit, the Court shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(vi) Whether the Long-Term Letter of Credit is payable to the Special Master or the Court, it shall not, prior to its expiration date, be revoked or terminated by Honeywell except consistent with this Consent Decree and with the approval of the Court. The ability of the Special Master or the Court to draw upon the Long-Term Letter of Credit shall not be limited by any agreement between Honeywell and the issuer.

(vii) In the event that the Long-Term Letter of Credit is drawn upon and invested pursuant to paragraph 90(b)(ii), 90(b)(v) or 95 and Honeywell has also selected a trust fund pursuant to paragraph 90(a), resulting in the existence of two trust funds, the two trust funds shall be managed so as to ensure that the combined amount of the trust funds is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(c) **Combination.** Honeywell may use some combination of a trust fund and a letter of credit to achieve the requirements of this paragraph. However, if a combination is used, Honeywell shall ensure that the combined amount of financial assurances is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The trust fund and the letter of credit shall otherwise satisfy all the requirements of paragraphs 90(a) and 90(b).

91. **Procedures for Review of the Proposed Long-Term Financial Assurances.** In the event that the Parties have determined that they are proceeding pursuant to paragraph 88(a) or 88(b), no later than 120 days after the determination under paragraph 88(d), Honeywell shall submit to Riverkeeper, the Jersey City Entities, and the Special Master, for their review (a) the

amount of the proposed long-term financial assurances; (b) the form(s) of the proposed long-term financial assurance mechanisms; and (c) the name(s) of the institution proposed to manage or issue the long-term financial assurances. If Riverkeeper and the Jersey City Entities agree to the terms of the proposed long-term financial assurances, within 60 days of such agreement, Honeywell shall create a trust fund and/or secure a Long-Term Letter of Credit on those terms. If the Parties are unable to reach agreement over the terms of the long-term financial assurances, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the financial assurances. In any event, until the long-term financial assurances have been put into place, Honeywell shall maintain the Chromium Remedy Letter of Credit and the requirements of paragraphs 88(e) and 90(b)(v) shall apply to the Chromium Remedy Letter of Credit.

92. **Adjustment of Amount Held in Long-Term Financial Assurances.** Every five years as marked from the establishment of the first long-term financial assurances pursuant to paragraph 90, the Parties shall report to the Court whether the long-term financial assurances are adequately funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. At such time as the Parties report to the Court, any Party may seek an adjustment in the amount of the long-term financial assurances. The Party seeking an adjustment must demonstrate that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Such demonstration shall reflect the actual costs of implementing the remedy and/or any replacement of the remedy, once such actual costs are available. The demonstration shall also reflect the costs of work completed to date and the actual lifetime of the cap, once the

cap has been replaced or has passed a replacement interval without requiring replacement. The demonstration shall further reflect the actual performance of the fund and its ability to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Any demonstration shall be forward looking and shall be based upon estimates of what the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to cost at the time they must be performed and the amount of funding projected to be available to undertake such activities at the time they must be performed. If, after reviewing the submission(s) received from the Parties, the Court determines that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary, the Court shall order an adjustment in the amount held in the long-term financial assurances to overcome the shortage or overage. In the event that the Court determines that the long-term financial assurances are under-funded, it shall order Honeywell to increase the amount held in the long-term financial assurances. In the event that the Court determines that any trust fund established pursuant to paragraph 90(a) is over-funded, the Court shall issue an order directing the trust manager to pay the overage to Honeywell. In the event that the Court determines that the Long-Term Letter of Credit is over-funded, the Court shall issue an order permitting Honeywell to reduce the amount covered during the next annual renewal of the Long-Term Letter of Credit pursuant to paragraph 90(b)(iv). Any adjustment to the amount of the Long-Term Letter of Credit pursuant to this paragraph shall be in addition to any adjustment of the amount of the Long-Term Letter of Credit required pursuant to paragraph 90(b).

93. **Exclusive Court Jurisdiction.** The trust fund agreement and/or the Long-Term Letter of Credit shall recite that the trust fund manager and/or issuer of the Long-Term Letter of Credit submit to the exclusive jurisdiction of this Court for any and all disputes arising under the

trust fund or the Long-Term Letter of Credit. The requirements of this paragraph shall apply whether the trust fund is established pursuant to paragraph 90(a), 90(b)(ii), 90(b)(v), or 95.

94. **Procedures upon Honeywell's Material Default of Its Obligations after the Special Master's Appointment Has Expired.** Upon the occurrence of default by Honeywell, after the Special Master's appointment has expired, Riverkeeper or the Jersey City Entities may move the Court on an expedited basis for an order to withdraw funds from the trust fund or to draw on the Long-Term Letter of Credit. Default shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 90(b)(iv) to deliver a replacement Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 30 days after written notice by Riverkeeper or the Jersey City Entities to Honeywell of the alleged material failure, unless Honeywell cures the alleged breach within the 30-day notice period or such longer period as the Parties may agree to or the Court may order;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if the involuntary filing is not dismissed within 60 days; the appointment of a custodian, receiver, liquidator, trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under

paragraph 94(c), if Honeywell fails to provide assurance to Riverkeeper, the Jersey City Entities, and the Court, within 15 days after written notice, that such an event will not impair Honeywell's ability to carry out the terms of this Consent Decree.

95. **Drawing on the Long-Term Letter of Credit in the Event of Honeywell's Default.** If the Court grants any motion by Riverkeeper or the Jersey City Entities pursuant to paragraph 94 to draw on the Long-Term Letter of Credit, the sum approved by the Court's order granting the motion shall be paid from the Long-Term Letter of Credit into a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

96. **Use of the Trust Fund in the Event of Honeywell's Default**. In the event of Honeywell's default, the money in the trust fund established pursuant to paragraph 90(a) shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

97. **Use of a Trust Fund Established Pursuant to Paragraph 85, 90(b)(ii), 90(b)(v), or 95.** In the event that a trust fund is established pursuant to paragraph 85, 90(b)(ii), 90(b)(v), or 95, the money in the trust fund shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

98. **Termination of the Long-Term Financial Assurances.** Honeywell's obligations

under Article III.E shall be terminated and the long-term financial assurance mechanisms shall be terminated when the Court finds that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area or on the Site, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon determining that long-term financial assurances may be terminated, the Court shall order that any Long-Term Letter of Credit may be withdrawn in its entirety and any trust fund may be terminated. In conjunction with its order terminating any trust fund, the Court in its discretion shall designate a recipient(s) of any remaining trust funds.

ARTICLE IV: IMPLEMENTATION SCHEDULE AND TERMINATION

99. **Schedule for Remedy and Site Preparation Implementation Activities.** The Chromium Remedy under Article III and the Historic Fill Remedy under Article II.B of the Jersey City/Honeywell Consent Order and Site Preparation Activities under Article III of the Jersey City/Honeywell Consent Order shall be undertaken by the Parties in accordance with the following anticipated schedule, recognizing that this schedule may be further modified in writing by agreement of the Parties and with the approval of the Court:

(a) By October 1, 2008, the Jersey City Entities and Honeywell shall develop a Site Preparation Plan, pursuant to paragraph 3.2 of the Jersey City/Honeywell Consent Order, for all Site Preparation Activities necessary to undertake the Chromium Remedy;

(b) No later than June 18, 2009, Honeywell shall submit to NJDEP a remedial design document for the Chromium Remedy;

(c) No later than September 1, 2009, Honeywell shall submit all applications for permits and authorizations for the performance of the Chromium Remedy to all appropriate local, state, and federal government entities;

(d) Honeywell shall use its best efforts to complete the Chromium Remedy no later than four years after all appropriate applications and authorizations for the performance of the Chromium Remedy have been obtained;

(e) By May 1, 2008, Honeywell and the Jersey City Entities shall submit a work plan for further Remedial Investigation for AOC 2 to NJDEP; and

(f) By December 1, 2008, Honeywell and the Jersey City Entities shall submit a Remedial Action Selection Report and Remedial Action Workplan for the Historic Fill Remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order. The Workplan shall contain a schedule for implementation of the Historic Fill Remedy.

100. **Termination of this Consent Decree.** This Consent Decree shall terminate upon the withdrawal of any Party as provided for in this paragraph. Any Party may elect to withdraw from this Consent Decree due to the occurrence of one or more of the following events, provided that such Party provides written notice of withdrawal to the other Parties pursuant to paragraph 108:

(a) The Court fails to enter the Jersey City/Honeywell Consent Order or this Consent Decree or either the Jersey City/Honeywell Consent Order or this Consent Decree is determined to be invalid on appeal;

(b) JCRA fails to take those actions required under paragraphs 4.11(a), (b), and (c) of the Jersey City/Honeywell Consent Order within nine months of entry of this Consent Decree; or

(c) JCRA fails to approve a Redevelopment Agreement between Bayfront Redevelopment LLC and JCRA pursuant to paragraph 4.11(e) of the Jersey City/Honeywell Consent Order within 12 months of entry of this Consent Decree.

101. **Procedures for Withdrawal and Termination.** Any Party electing to withdraw pursuant to paragraph 100 and thereby terminate this Consent Decree shall provide written notice of such withdrawal and termination to all other Parties within 30 days of the occurrence giving rise to the decision to withdraw. If any Party objects to termination of the Consent Decree, or believes that the conditions set forth in paragraph 100 have not been met, such objecting Party may move the Court for an expedited hearing on the issue of whether the conditions for termination have been effectuated.

102. **Good-Faith Obligation to Avoid Termination.** The Parties agree that they will each endeavor to fulfill the terms of this Consent Decree, that they will work diligently and in good faith to meet their obligations hereunder, and that they will promptly and timely take all reasonable steps to give effect to this Consent Decree and to avoid termination under paragraph 100.

103. **Effect of Termination.** If this Consent Decree is terminated pursuant to paragraph 100, the Consent Decree shall no longer be binding on the Parties and shall be of no further effect. In the event that this Consent Decree is terminated by one or more Parties pursuant to paragraph 100, each Party to this Consent Decree reserves all of its rights, claims, and defenses (both legal and factual) against the other Parties with respect to the matters at issue in the Consolidated Litigation and each Party remains free to pursue such rights, claims, and defenses.

ARTICLE V: ADDITIONAL PROVISIONS RELATED TO HISTORIC FILL AND SITE PREPARATION AND REDEVELOPMENT

104. **Historic Fill Remedy**. This Consent Decree shall adopt and incorporate the terms of Article II.B of the Jersey City/Honeywell Consent Order with respect to the Historic Fill Remedy. The Historic Fill Remedy shall not be limited to the activities set forth in Article II.B of the Jersey City/Honeywell Consent Order in the event that NJDEP requires a more extensive remedy. The Historic Fill Remedy shall be compatible with the Chromium Remedy such that no

part of the Historic Fill Remedy shall interfere with the installation, maintenance, and monitoring of the Chromium Remedy. In addition, the Historic Fill Remedy for any discharge of non-chromium contaminants to the Hackensack River shall not interfere with the remedies under the Sediment Consent Order, including the source control remedies. In the event that Jersey City conducts the Historic Fill Remedy instead of Honeywell, the terms of this paragraph shall still apply.

105. **Oversight of Historic Fill Remedy**. Paragraph 2.11 of the Jersey City/Honeywell Consent Order shall apply only to the Historic Fill Remedy, not the Chromium Remedy. The Progress Reports provided for in paragraphs 2.12 and 3.7 of the Jersey City/Honeywell Consent Order shall be provided to Riverkeeper and the Special Master at the time they are submitted.

106. **Transfer of Title of Study Areas 6 North and 7 to and from Bayfront Redevelopment LLC**. The transfer of title of Study Area 6 North and Study Area 7 properties to Bayfront Redevelopment LLC pursuant to the Jersey City/Honeywell Consent Order and any subsequent transfers shall not impede Honeywell's obligations to (a) complete the remediation of Study Area 7 and implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or (b) complete the Chromium Remedy and conduct long-term monitoring and fulfill its other obligations set forth in this Consent Decree. Such transfers of Study Areas 6 North and Study Area 7 shall not include a transfer of Honeywell's obligations to implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or a transfer of Honeywell's obligations under this Consent Decree, but shall include a right of access or any other right required by Honeywell to complete the remediation. Any subsequent transfer of Study Area 6 North or Study Area 7 from Bayfront Redevelopment LLC to a redeveloper or other party shall provide all necessary agreements to allow Honeywell all necessary access to Study Area 6 North and Study Area 7 for purposes of completing Honeywell's obligations with respect to Study Area 6 North under this

Consent Decree and completing the Study Area 7 remediation and implementing the Final Judgment and subsequent orders in *ICO v. Honeywell*.

107. **Dispute Resolution Procedures.** The provisions of Article VIII of the Jersey City/Honeywell Consent Order do not apply to any disputes regarding or impacting the Chromium Remedy, which shall be resolved as provided in paragraph 72. The provisions of Article VIII of the Jersey City/Honeywell Consent Order shall apply to disputes between the Jersey City Entities and Honeywell regarding the Historic Fill Remedy and other obligations provided in the Jersey City/Honeywell Consent Order, except to the extent that such disputes may affect the Chromium Remedy. If any such dispute may affect the Chromium Remedy, it shall be resolved as provided in paragraph 72. Honeywell shall provide Riverkeeper with a copy of each notice of any breach provided under paragraph 8.1 of the Jersey City/Honeywell Consent Order within 10 days of Honeywell's receipt or issuance of such notice. Honeywell shall provide Riverkeeper with a copy of any written resolution of a dispute pursuant to paragraph 8.2 within 10 days of the resolution.

ARTICLE XI: NOTICE

108. **Notice.** Any and all notices given in connection with this Consent Decree shall be deemed adequately given only if in writing and addressed to the Party for whom such notices are intended at the addresses set forth in this paragraph. All notices shall be sent by Federal Express or other nationally recognized overnight messenger service or by first-class registered or certified mail, postage prepaid, return receipt requested. A written notice shall be deemed to have been given to the recipient party on the earlier of (a) the date it shall be delivered to the address set forth in this paragraph; (b) the date delivery shall have been refused at the address set forth in this paragraph; or (c) with respect to notices sent by mail, the date as of which the postal service shall have indicated such notice to be undeliverable at the address set forth in this paragraph.

Any and all notices referred to in this Consent Decree, or which any Party desires to give to the other, shall be addressed as follows:

If to Honeywell and/or
Bayfront Redevelopment LLC :

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

If to Riverkeeper:

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th St., N.W.
Washington, DC 20005-4632
(202) 682-2100

With copies to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-4003

If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

If to JCIA:

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

If to JCMUA:

Sam Della Fera Jr.
Trenk, DiPasquale, Webster,
Della Ferra & Sodono, P.C.
347 Mount Pleasant Ave.
West Orange, NJ 07052
(973) 243-8600

If to JCRA:

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Any party may change its designated recipients or addresses for notice in this paragraph by providing written notice of such change to all other Parties.

ARTICLE XII: RIVERKEEPER'S ATTORNEYS' FEES

109. **Payment of Past Fees and Expenses.** Within 30 days of the entry of this Consent Decree, Honeywell shall pay Terris, Pravlik & Millian, LLP the sum of $1,513,217.15 which represents the following:

(a) A compromise of the attorneys' fees incurred by Riverkeeper in the litigation of Study Area 6 North portion of *Riverkeeper v. Honeywell* through March 27, 2008; and

(b) $187,862.27 in out-of-pocket expenses representing 50% of the expenses incurred by Riverkeeper in *Riverkeeper v. Honeywell* from the inception of the litigation after deducting the expenses to be paid pursuant to the Sediment Consent Order.

Payment of the sum of $1,513,217.15 shall be in full satisfaction of all obligations, duties, and responsibilities of Honeywell with respect to the $1,556,747.46 in fees and expenses that Riverkeeper claimed with regard to the above described fees and expenses.

110. **Future Fees and Expenses.** Honeywell shall reimburse Riverkeeper's attorneys for reasonable fees and expenses incurred: (a) in negotiating this Consent Decree after March 27, 2008; (b) in the monitoring and enforcement of this Consent Decree; and (c) in participation in the Special Master process established pursuant to this Consent Decree. Honeywell shall also reimburse Riverkeeper for reasonable attorneys' fees and expenses for Riverkeeper's review of and participation in the Long-Term Monitoring Plan and monitoring and enforcement of this Consent Decree following the term of the Special Master. In the event that any dispute arises between the Parties under this Consent Decree that must be resolved by the Court, Riverkeeper shall be entitled to recover its attorneys' fees and expenses for litigation of the dispute to the extent allowed by federal law. Riverkeeper and Honeywell shall use the same informal procedure for attempting to settle fees issues as has been used for post-judgment monitoring fees in *ICO v. Honeywell*. In the event that Riverkeeper and Honeywell are unable to reach a

settlement on fees, Riverkeeper shall apply to the Court for an award of attorneys' fees and expenses. If Honeywell objects to only a portion of the Riverkeeper's statement of attorneys' fees and expenses, Honeywell shall pay the undisputed portion within 60 days of Riverkeeper's submittal of the statement to Honeywell. The Court shall resolve any objections to Riverkeeper's statement of attorneys' fees and expenses and shall enter an appropriate Order.

ARTICLE XIII: MISCELLANEOUS PROVISIONS

111. **Force Majeure.** Force Majeure, for the purposes of this Consent Decree, is defined as an event arising from causes beyond the control of any Party or Parties (or their agents, contractors, subcontractors, representatives, or assigns) which could not have been overcome by reasonable diligence and which delays or prevents the performance of any obligation under this Consent Decree. Examples of events which may constitute force majeure include the refusal of any federal or state governmental authority to grant a permit or authorization necessary for the completion of actions required by this Consent Decree, floods, hurricanes, tornadoes, and other extraordinary weather events, earthquakes and other natural disasters, terrorist attacks, war, and other national emergencies. Examples of events that are not force majeure events include normal inclement weather, increased costs or expense, the failure to timely and fully apply for a permit or authorization necessary for the completion of actions required by this Consent Decree, or financial difficulty of any Party. The Party claiming force majeure shall bear the burden of showing an event was a force majeure event.

112. **JCRA and Bayfront Redevelopment LLC as Parties.** As signatories to this Consent Decree, JCRA and Bayfront Redevelopment LLC subject themselves to the Court's jurisdiction for the purpose of enforcing this Consent Decree and agree to be bound by this Consent Decree. This Consent Decree shall be fully enforceable against JCRA and Bayfront Redevelopment LLC.

113. **Successors and Assigns.** This Consent Decree shall be binding upon and shall inure to the benefit of the successors, assigns, heirs, corporate parents, subsidiaries, and affiliates of each Party. No assignment or delegation of the obligations hereunder shall release the assigning Party from its obligations under this Consent Decree.

114. **Successors to Hackensack Riverkeeper, Inc.** In the event that Hackensack Riverkeeper, Inc. disbands or otherwise ceases operations, it shall assign its rights under this Consent Decree to another qualified nonprofit organization. A nonprofit organization shall be qualified for assignment under this Consent Decree if it is a charitable organization under Section 501(c)(3) of the Internal Revenue Code or its substantial equivalent and has an established record of working to enhance or preserve the ecology, natural habitat, or environment. Any such assignment shall be subject to approval by the Court and Honeywell shall have the right to object to any proposed assignment. Any successor organization shall have the duty to assign its rights under this Consent Decree to another qualified nonprofit organization in the event that the successor disbands or otherwise ceases operations. In the event that a successor is not appointed at any given time, the New Jersey Attorney General or equivalent officer shall appoint a successor subject to approval by the Court and objection by Honeywell.

115. **Reservation of Rights and Claims**. Except as set forth expressly herein, this Consent Decree does not affect in any way any of the Parties' claims or defenses against third parties who have not signed the Consent Decree.

116. **Governing Law and Continuing Jurisdiction.** The Court shall retain jurisdiction over the matters addressed in this Consent Decree for purposes of enabling the Parties to apply to the Court for any further order as may be necessary to construe, carry out, or enforce the terms of this Consent Decree. This Consent Decree shall be interpreted and enforced under the laws of

the United States and the State of New Jersey by the United States District Court for the District of New Jersey.

117. **Construction.** Questions regarding the interpretation of this Consent Decree shall not be resolved against any Party on the ground that this Consent Decree has been drafted by that Party. This Consent Decree is the result of review, negotiation, and compromise by each Party.

118. **Authority to Enter into Agreement.** The undersigned representative for each Party represents, certifies, and warrants that he or she is duly authorized by the Party whom he or she represents to enter into the terms of this Consent Decree and bind such Party legally to this Consent Decree.

119. **Measures to Effectuate This Consent Decree.** The Jersey City Entities and JCRA shall take all appropriate steps to ensure that this Consent Decree has been (and that actions required hereunder will be) duly considered, ratified, and approved. Such steps include consideration of this Consent Decree at a meeting of the City Council, open to the public, at which members of the public have the opportunity to comment on all aspects of the Settlement, including the commitments made by Jersey City; and consideration by and approval of the commissioners of the JCIA, JCMUA, and JCRA.

120. **Modifications.** This Consent Decree may be modified by mutual agreement of the Parties but such agreement must be in writing, duly and properly signed by all Parties, and shall be submitted to the Court for approval.

121. **Severability.** Each of the provisions in paragraph 60 of this Consent Decree shall be deemed severable and, in the event that one or more of such provisions is deemed invalid or unenforceable, it shall not affect the validity or enforceability of the other provisions of the Consent Decree.

122. **Signatures.** This Consent Decree may be signed simultaneously or in counterparts by the respective signatories, which shall be as fully valid and binding as if a single document was signed by all of the signatories. This Consent Decree may be signed electronically by any or all signatories, and such electronic signature shall be as fully valid and binding as a hand-written signature.

Consented to and approved for entry:

s/Aurelio Vincitore

William Matsikoudis
Aurelio Vincitore
Corporation Counsel
City of Jersey City
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(201) 547-4667

Counsel for the City of Jersey City

s/David L. Isabel

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Counsel for Jersey City Incinerator Authority

s/ Joni Noble McDonnell

Joni Noble McDonnell
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Counsel for Jersey City Municipal Utilities Authority

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Executive Director of Jersey City Redevelopment Agency

s/ David Sheehan

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(202) 682-2100

Counsel for the Hackensack Riverkeeper, William Sheehan, Reverend Winston Clarke, and Lawrence Baker

APPROVED AND ENTERED as an Order of this Court this ___ day of _____, 2012.

_____
Hon. Dennis M. Cavanaugh
United States District Judge

EXHIBITS

Exhibit A: Jersey City/Honeywell Consent Order

Exhibit B: Remedial AOC's and Remedial Approach Map

Exhibit C: NJDEP Chromium Policy

Exhibit D: Conservation Restriction

Exhibit E: Deed Notice

RECORD AND RETURN TO:

E. NEAL ZIMMERMANN, ESQ.
Waters, McPherson, McNeill, P.C.
300 Lighting Way
Secaucus, New Jersey 07096

20090109010002700 1/34
01/09/2009 04:14:54 PM DEED - MASTER
Bk: 8644 Pg: 662
Willie L.Flood
Hudson County, Register of Deeds
Receipt No. 55414

CONSERVATION RESTRICTION

This **CONSERVATION RESTRICTION** ("Conservation Restriction"), made on this 12th day of December, 2008, between BAYFRONT REDEVELOPMENT LLC, a limited liability company, having an address at c/o Honeywell International Inc., 101 Columbia Turnpike, Morristown, New Jersey 07962 (hereafter the "Grantor"), HONEYWELL INTERNATIONAL INC., a corporation of the State of Delaware, having an address at 101 Columbia Turnpike, Morristown, New Jersey 07962, and THE HACKENSACK WATERSHED LAND TRUST, a non-profit Corporation of the State of New Jersey with offices at 231 Main Street, Hackensack, New Jersey 07061 (hereafter "Grantee").

WHEREAS, the Grantee, is a non-profit corporation incorporated under the laws of the State of New Jersey as a tax exempt public charity under Section 501(c)(3) and 509(a)(1) of the Internal Revenue Code; is qualified under section 170(h) of the Internal Revenue Code to receive conservation contributions; is a charitable conservancy within the meaning of N.J.S.A. 13:8B-2(a); is qualified to do business in the State of New Jersey; and whose purpose is to preserve natural areas for scientific, charitable, educational, and aesthetic purposes; and

WHEREAS, Grantor is the owner in fee simple of certain AOC 1 Open Space Property consisting of approximately 11 acres and now known and designated as a portion of Block 1290.1, Lots 2D and 2E and Block 1290.1, Lot 16A.99 on the Tax Map of the City of Jersey City, as described in Schedule A and Exhibit A attached hereto (the "AOC 1 Open Space Property"); and

WHEREAS, the AOC 1 Open Space Property is subject to a certain Option to Purchase in favor of the City of Jersey City which may be exercised upon the occurrence of certain conditions, which is being recorded simultaneously with this Conservation Restriction, and which provides for purchase subject to this Conservation Restriction; and

WHEREAS, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property then-owned by JCMUA, which included the area known as the AOC 1 Open Space Property; and

WHEREAS, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property then-owned by JCIA, which included the area known as the AOC 1 Open Space Property; and

WHEREAS, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater,

surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

WHEREAS, Study Area 6 North includes the properties previously owned by JCMUA, JCIA, and the City of Jersey City and includes the AOC 1 Open Space Property.

WHEREAS, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation"); and

WHEREAS, the Consolidated Litigation was resolved, in part, by the "Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North" (hereinafter the "Consent Decree"), which decree is being recorded simultaneously with this Conservation Restriction; and

WHEREAS, the AOC 1 Open Space Property is being remediated for chromium contamination and following the remediation, development of the AOC 1 Open Space Property is prohibited except in the limited circumstances set forth in the Consent Decree and this Conservation Restriction; and

WHEREAS, subject to certain roadway and utility improvements affecting portions of the AOC 1 Open Space Property, and consistent with the terms of the Consent Decree and this Conservation Restriction, the AOC 1 Open Space Property will, following implementation of the Chromium Remedy as defined in the Consent Decree, be re-developed from commercial/industrial purposes to open space/public park purposes. Following the remediation, the AOC 1 Open Space Property will be established as a predominantly green open space with associated pedestrian walkways

and outdoor recreation facilities for the use and enjoyment of the public, while serving to protect the long-term integrity of the Chromium Remedy; and

WHEREAS, pursuant to the Bayfront I Redevelopment Plan, adopted by Jersey City on March 12, 2008, the AOC 1 Open Space Property has been zoned for open space and park use and certain roadways and utility improvements; and

WHEREAS, the AOC 1 Open Space Property is subject to certain provisions in the Consent Decree; and

WHEREAS, paragraph 60(b) of the Consent Decree provides that Bayfront Redevelopment LLC shall grant an open space conservation restriction over the AOC 1 Open Space Property; and

WHEREAS, the parties hereto wish to set forth certain terms and conditions that will restrict future uses of, and activities on, the AOC 1 Open Space Property and assure appropriate monitoring and enforcement of the conservation, open space, parks, and recreation purposes of this Conservation Restriction.

NOW THEREFORE, WITNESSETH: For and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration paid by Grantee to Grantor, the receipt and sufficiency of which is acknowledged by Grantor, and in consideration of the covenants hereinafter contained, the parties to this Conservation Restriction, intending to be legally bound, do

HEREBY AGREE AS FOLLOWS:

1. **Purpose**. It is the purpose of this Conservation Restriction to protect and preserve the AOC 1 Open Space Property; to permit Honeywell to implement, monitor, maintain, repair, and replace the Chromium Remedy; to prevent any use of the AOC 1

Open Space Property that will significantly impair or interfere with the purposes of the Consent Decree; and to preserve the AOC 1 Open Space Property as predominantly green open space with associated pedestrian walkways and outdoor recreation facilities for the use and enjoyment of the public. However, nothing in this Conservation Restriction shall grant a public right of access to enter upon, or use, the AOC 1 Open Space Property, or any portion thereof, during the time that the Chromium Remedy required by the Consent Decree is being implemented. Thereafter, Grantor and Grantee intend that this Conservation Restriction will confine the use of the AOC 1 Open Space Property to such activities as are consistent with the purpose of the Consent Decree. In the event of any conflict between the Consent Decree and this Conservation Restriction, the Consent Decree shall control.

2. **Title**. Grantor covenants and represents that Grantor is the sole owner and is seized of the AOC 1 Open Space Property in fee simple and has good right to grant and convey this Conservation Restriction and that Grantee(s) shall have the use of, and enjoyment of, the benefits derived from and existing out of this Conservation Restriction.

3. **Definitions**.

3.1 Capitalized terms in this Conservation Restriction which are not defined herein shall have the meaning ascribed to them in the Consent Decree.

3.2 AOC 1 Open Space Property shall mean the property consisting of approximately 11 acres and now known and designated as a portion of Block 1290.1, Lots 2D, 2E, and Block 1290.1, Lot 16A.99 on the Tax Map of the City of Jersey City, as described more fully in Schedule A and Exhibit A attached hereto. The AOC 1 Open

Space Property is the same property as the AOC 1 Open Space Area in the Consent Decree.

3.3 Bayfront Redevelopment LLC shall mean the limited liability company created by Honeywell for the purposes described in paragraph 4.1 of the Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc., filed simultaneously with the Consent Decree in the Consolidated Litigation.

3.4 Consent Decree shall mean the Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North, entered in the Consolidated Litigation and being recorded simultaneously with this Conservation Restriction.

3.5 Consolidated Litigation shall mean *Jersey City Municipal Utilities Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-022 (DMC).

3.6 The Court shall mean the United States District Court for the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

3.7 Hackensack River Watershed Land Trust shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

3.8 Holders of this Conservation Restriction shall mean Grantee and its successors and assigns and, in the event a Secondary Grantee is designated pursuant to paragraph 7.3, its successors and assigns.

3.9 Honeywell shall mean Honeywell International Inc.

3.10 Grantee shall mean Hackensack Watershed Land Trust and/or its designated successors and assigns. Grantee shall also mean the Secondary Grantee, in the event that the Secondary Grantee is designated pursuant to paragraph 7.3, and must fill the role of Grantee pursuant to paragraph 7.4.

3.11 Grantor shall mean Bayfront Redevelopment LLC as the current holder of the fee simple title to the AOC 1 Open Space Property and any subsequent holder of the fee simple title to the AOC 1 Open Space Property, including Jersey City.

3.12 Jersey City shall mean the City of Jersey City, New Jersey.

3.13 The Jersey City Entities shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

3.14 Party or Parties shall mean any one or all of the signatories to the Consent Decree.

3.15 Qualified Holder shall mean (a) an organization exempt from federal income taxation under Section 501(c)(3) of the Internal Revenue Code that satisfies the requirements to be a qualified organization within the meaning of Section 170(h)(3) of the Internal Revenue Code, or under any substantially similar provision of any successor tax code, and that is authorized to hold a conservation restriction with respect to property located within the State of New Jersey, (b) any trust or other entity

created by the legislature of the State of New Jersey or by Hudson County for substantially similar purposes, or (c) the State of New Jersey, Hudson County, or any other public body in New Jersey that is empowered to hold and administer a conservation restriction.

3.16 Riverkeeper shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

3.17 Secondary Grantee shall mean a qualified holder designated by Grantee pursuant to paragraph 7.3.

3.18 The Special Master shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

4. **Conservation Restriction**.

4.1 Grant. Grantor hereby grants and conveys to Grantee, a non-public conservation restriction on, over and across the AOC 1 Open Space Property as is depicted on the recorded Plat, which area is described in Schedule A and Exhibit A attached hereto and made a part hereof.

4.2 Grantor's Retained Responsibilities. Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership of the AOC 1 Open Space Property, including the payment of taxes. Grantor shall keep Grantee's interest in the AOC 1 Open Space Property free of any liens arising out of any work performed for, materials furnished to, or obligations incurred by

Grantor. Honeywell shall be solely responsible for the implementation, monitoring, maintenance, repair, and replacement of the Chromium Remedy in the AOC 1 Open Space Property as provided for under the Consent Decree. Neither Grantee nor Secondary Grantee, if such a grantee is designated pursuant to paragraph 7.3, shall have any responsibility whatsoever with respect to the implementation, monitoring, maintenance, repair, and/or replacement of the Chromium Remedy in the AOC 1 Open Space Property.

4.3 Recordation, Notice in Future Instruments. This Conservation Restriction shall be recorded in the office of the Hudson County Register and a conspicuous reference to this Conservation Restriction shall be included in all instruments concerning title to the AOC 1 Open Space Property. Any Party to the Consent Decree and Grantee shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Conservation Restriction in the real estate records related to the AOC 1 Open Space Property. This right of recordation shall be exercised in conjunction with the right of recordation provided in paragraph 60(d) of the Consent Decree.

4.4 Notice of Future Transfers. Grantor shall give written notice to Grantee(s) of any sale, lease, or other transfer of any interest in the Property not later than ten days following the date of such sale, lease, or transfer, which notice shall include the name and address of each party to whom an interest was sold, leased, or transferred. However, sales, leases, or transfers other than in accordance with the terms of paragraph 60 of the Consent Decree are prohibited.

5. **Permitted Activities.**

5.1 Remediation and Redevelopment as Open Space/Public Park. Grantor and/or Honeywell shall be permitted to undertake all activities reasonably required in connection with: (i) the implementation, maintenance, monitoring, repair, and replacement of the Chromium Remedy consistent with the Consent Decree, (ii) the construction of roads and associated utilities at the AOC 1 Open Space Property as permitted by the Consent Decree, and (iii) such further development of the AOC 1 Open Space Property into an open space/public park as is consistent with paragraphs 60(j) and 60(k) of the Consent Decree and paragraphs 5.2 and 5.3 of this Conservation Restriction. In addition, the Jersey City Entity Study Area 6 North Operations (as defined in the Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc. attached as Exhibit A to the Consent Decree) shall be allowed to continue on the AOC 1 Open Space Property until such time as those Operations are relocated prior to implementation of the Chromium Remedy pursuant to the Consent Decree.

5.2 Prohibited Development in the AOC 1 Open Space Property. Only development satisfying the requirements of this paragraph, paragraph 5.3 of this Conservation Restriction, and the requirements of paragraphs 60(j) and 60(k) of the Consent Decree shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(a) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Property, regardless of when the construction or installation of permissible development occurs. The Open

Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction, and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy, installed pursuant to the Consent Decree.

(b) The Initial Development in the AOC 1 Open Space Property shall be the development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Property, pursuant to the Consent Decree. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii) of the Consent Decree and paragraph 5.2(h) of this Conservation Restriction.

(c) The Special Master, appointed in the Consolidated Litigation pursuant to the Consent Decree, shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with the Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(d) Honeywell shall ensure that the requirements of this

paragraph, paragraph 5.3 of this Conservation Restriction, and of paragraphs 60(j) and 60(k) of the Consent Decree are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with the requirements of the Consent Decree and with protection of the integrity of the Chromium Remedy installed pursuant to the Consent Decree.

(e) Any development undertaken in the AOC 1 Open Space Property, regardless of when undertaken, shall satisfy each of the following requirements:

(i) It shall not jeopardize the integrity of the Chromium Remedy installed pursuant to the Consent Decree;

(ii) It shall be limited to the types of development permitted under paragraph 60(k) of the Consent Decree and paragraph 5.3 of this Conservation Restriction;

(iii) It shall be consistent with this Conservation Restriction, the Consent Decree, and the Redevelopment Plan; however, in the event of any conflict or inconsistency between this Conservation Restriction, the Consent Decree, and the Redevelopment Plan, the Consent Decree shall govern;

(iv) In total, at least 75% of the AOC 1 Open Space Property, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi) of the Consent Decree and paragraph 5.3(k) of this Conservation Restriction;

(v) The portion of the Open Space Design Standards

necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy, which is subject to review and approval pursuant to the terms of the Consent Decree;

(vi) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(vii) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(viii) No permanent concession facilities shall be permitted.

(f) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c) of the Consent Decree, except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) of the Consent Decree shall apply, except that the Special Master need not provide notice to NJDEP.

(g) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant to paragraph 60(j)(vi) of the Consent Decree and paragraph 5.2(f) of this Conservation Restriction, and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii) of the Consent

Decree and paragraph 5.2(c) of this Conservation Restriction.

(h) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(i) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement) of the Consent Decree and paragraphs 5.2(e) and 5.2(j)(iii) of this Conservation Restriction.

(j) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(i) The AOC 1 Open Space Property has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Property, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive

standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(ii) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction; or

(iii) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi) of the Consent Decree and paragraphs 5.2(e) and 5.2(k) of this Conservation Restriction, and Jersey City provides notice of its intention to alter or add to the development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of this Conservation Restriction at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of this Conservation Restriction shall have the right to move the Court to prohibit such alteration or addition.

(k) If any of the development features or facilities that Jersey City seeks to add, pursuant to paragraph 60(j)(x) of the Consent Decree and paragraph 5.2(j) of this Conservation Restriction, require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(l) Jersey City shall provide Honeywell, Riverkeeper, and the

holders of this Conservation Restriction with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2) of the Consent Decree and 5.2(j)(ii) of this Conservation Restriction, to the development undertaken during the Initial Development Period.

(m) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy required by the Consent Decree.

5.3 The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction:

(a) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Property, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(b) Curbing and fences;

(c) Sidewalks, paths, walkways, and nature trails;

(d) Utilities and utility corridors, lighting, and restrooms;

(e) Irrigation or sprinkler components or systems;

(f) Water features;

(g) Above-ground storm water cisterns;

(h) Signs, including the signs or display required by paragraph

60(l) of the Consent Decree;

(i) Benches, trash receptacles, and bicycle racks;

(j) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(k) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4) of the Consent Decree and paragraph 5.2(e)(iv) of this Conservation Restriction.

5.4 Easement for Monitoring, Maintenance, Repair, and Replacement: As between Grantor and Grantee, Honeywell shall remain solely responsible for monitoring, maintenance, repair, and replacement of the Chromium Remedy in accordance with the Consent Decree and shall reserve, or obtain a grant of, an easement for the purpose of such monitoring, maintenance, repair, and replacement. Neither Grantee nor Secondary Grantee, if such grantee is designated pursuant to paragraph 7.3, shall have any responsibility whatsoever with respect to the implementation, monitoring, maintenance, repair, and/or replacement of the Chromium Remedy in the AOC 1 Open Space Property. Honeywell shall be entitled to promptly record such reservation and/or easement and Grantee agrees that the terms, conditions, and restrictions and purposes of such reservation and/or easement, or reference thereto, will be inserted in any subsequent deed or other legal instrument by

which the City of Jersey City, Grantor, or Grantee divests either a real property or other recordable interest in the AOC 1 Open Space Property.

6. **Prohibited Activities.** Development at the AOC 1 Open Space Property is prohibited, except insofar as it meets the requirements of the Consent Decree and of paragraph 5 of this Conservation Restriction.

7. **Grantee's Rights.** To accomplish the purpose of this Conservation Restriction, the following rights are conveyed to Grantee:

7.1 Right of Entry. The right to enter the AOC 1 Open Space Property during the implementation of the Chromium Remedy pursuant to the Consent Decree at reasonable times and with prior notice for the purpose of: (a) inspecting the AOC 1 Open Space Property to determine if Grantor is complying with the covenants and purposes of this Conservation Restriction; (b) enforcing the terms of this Conservation Restriction; and (c) taking any and all actions with respect to the AOC 1 Open Space Property as may be legal, necessary and appropriate, to remedy or abate any material violations hereof. After the Chromium Remedy has been implemented, Grantee shall have the right to enter the AOC 1 Open Space Property at reasonable times for the purposes above without the need for prior notice.

7.2 Enforcement. The right to prevent any improvement, activity on, or use of, the AOC 1 Open Space Property that is inconsistent with the purpose of this Conservation Restriction and to require the restoration of such areas or features of the AOC 1 Open Space Property that may be damaged by any inconsistent improvement or use. For purposes of the enforcement of this Conservation Restriction, Grantee agrees

to pursue such enforcement solely before the Court in the Consolidated Litigation and to submit to the jurisdiction of that Court.

7.3 Designation of Secondary Grantee. Grantee has the right to designate a Qualified Holder as a Secondary Grantee with the written consent of Grantor, which consent will not be unreasonably withheld. Within 60 days of such designation, this Conservation Restriction shall be modified by the Parties and duly recorded.

7.4 Allocation of Responsibilities between Grantee and Secondary Grantee. In the event a Secondary Grantee is designated pursuant to paragraph 7.3, then the following shall apply: for so long as Grantee, or any successor in interest to Grantee, remains a holder of this Conservation Restriction, and unless and until Grantee and Secondary Grantee or their respective successors or assigns shall otherwise agree in a writing executed by them in recordable form and delivered to Grantor, Grantee shall be delegated the primary responsibility for monitoring and enforcing compliance with the terms of this Conservation Restriction. In connection therewith, Grantee, or its successors and assigns, shall have sole power and authority, as between Grantee and Secondary Grantee of this Conservation Restriction, to grant or withhold any and all other consents or approvals that may be required to be obtained by Grantor under the terms of this Conservation Restriction. Notwithstanding the foregoing, Secondary Grantee shall be entitled to receive a copy of all notices required to be given to Grantee, and shall be provided with a copy of all requests for approval submitted by Grantor and all written approvals, or denials thereof, given pursuant to this Conservation Restriction. Secondary Grantee's right to exercise rights and remedies

conferred by this Conservation Restriction upon Grantee, other than as provided in this paragraph, shall become effective upon Grantee's dissolution, in the event that Grantee has failed to name a successor.

8. **Grantee's Remedies**.

8.1 Proceedings upon Violation. In the event that Grantee becomes aware of a violation of the terms of this Conservation Restriction, Grantee shall promptly give notice to Grantor, Honeywell, the Jersey City Entities, and Riverkeeper of such violation via certified mail, return receipt requested, and request corrective action sufficient to abate such violation and restore the AOC 1 Open Space Property as closely as possible to the condition that would have existed had there been no violation. Failure by Grantor or Honeywell to cause discontinuance, abatement, or initiate such other corrective action as may be required by the Consent Decree within 90 days after receipt of such notice, or such longer period as may be necessary if the violation cannot reasonably be cured within 90 days, shall entitle Grantee to move the Court to enforce the terms of this Conservation Restriction; to require the restoration of the AOC 1 Open Space Property to its previous condition; and/or to enjoin compliance. If Grantee believes that circumstances are such that immediate action is required to prevent or mitigate significant additional harm or damage to the AOC 1 Open Space Property, Grantee may pursue its remedies without waiting for any period provided for cure to expire and without prior notice.

8.2 Proceedings upon Alteration or Addition to Development. Grantee shall have the right to participate in proceedings under paragraph 5.2(j)(iii) of this

Conservation Restriction and paragraph 60(j)(x)(3) of the Consent Decree to prohibit any alterations or additions to the development in the AOC 1 Open Space Property.

8.3 Forbearance. Any forbearance by Grantee to exercise its rights under this Conservation Restriction in the event of any breach of any term of this Conservation Restriction by Grantor shall not be deemed or construed to be a waiver by Grantee of such term or of any subsequent breach of the same or any other term of this Conservation Restriction or of any of Grantee's rights under this Conservation Restriction. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair such right or remedy or be construed as a waiver. Grantor shall not be entitled to assert any defense based upon laches, estoppel, or prescription with respect to any violation of this Conservation Restriction as to which Grantee was not specifically notified by Grantor in writing.

9. **Parties Subject to Conservation Restriction**. The covenants agreed to and the terms, conditions, and restrictions imposed by this grant shall be binding upon Grantor, its lessees, agents, personal representatives, successors, assigns, and all other successors in interest to Grantor. The covenants agreed to and the terms, conditions, and restrictions imposed by this grant shall be binding upon Grantee(s), their lessees, agents, personal representatives, successors, assigns, and all other successors in interest to Grantee(s).

10. **Termination**.

10.1 This Conservation Restriction is intended to be of unlimited duration, subject only to termination as provided in paragraph 10.2 of this Conservation

Restriction, and therefore may not be terminated solely by mutual agreement of Grantor and Grantee.

10.2 This Conservation Restriction may be terminated upon application to the Court of any Party to the Consent Decree when no hexavalent or total chromium contamination remains in AOC 1 Open Space Property, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon Court approval of termination of this Conservation Restriction, Grantor shall conduct a public hearing in accordance with N.J.S.A 13:8B-5 and Grantee(s) shall release the Conservation Restriction and shall execute, at the request of Grantor, a release of this Conservation Restriction and any other instrument to that effect deemed necessary or desirable.

11. **Assignment.**

11.1 Right to Assign. Grantee, and any future assignee of this Conservation Restriction, may with the prior written consent of Grantor, which consent will not be unreasonably withheld, transfer and assign this Conservation Restriction and the rights and obligations created hereby, in whole or in part, to one or more Qualified Holders as defined in paragraph 3.15 The assignee shall simultaneously with such assignment assume the obligation to carry out the conservation purposes for which this Conservation Restriction is granted.

11.2 Executory Limitation. In the event that a Secondary Grantee has been designated pursuant to paragraph 7.3 and the Grantee dissolves without having assigned all of it rights and interest in the Property and delegated all of its

responsibilities under this Conservation Restriction to one or more Qualified Holders, such rights and responsibilities shall be vested in the Secondary Grantee pursuant to paragraph 7.4. In the event that a Secondary Grantee is not designated pursuant to paragraph 7.3 and the Grantee dissolves without having assigned all of its rights and interest in the Property and delegated all of its responsibilities under this Conservation Restriction to one or more Qualified Holders, such rights and responsibilities shall be vested in another Qualified Holder pursuant to a *cy pres* proceeding in the Court. Grantor and Honeywell shall have the right to appear in any such proceeding as interested parties. In the event that a Secondary Grantee is designated pursuant to paragraph 7.3, and such Secondary Grantee dissolves without having assigned all of its rights and interest in the Property and delegated all of its responsibilities under this Conservation Restriction to one or more Qualified Holders, Grantee may designate another Secondary Grantee pursuant to paragraph 7.3.

11.3 Release of Grantee's Further Obligations. The holder or holders of this Conservation Restriction immediately before any assignment or judicial re-vesting pursuant to paragraph 11.2 shall thereafter have no further obligation to monitor compliance with, or enforce the provisions of, this Conservation Restriction, provided that the assignee meets the requirements set forth above and has assumed the obligation to monitor and enforce this Conservation Restriction.

12. **Miscellaneous Provisions.**

12.1 Severability. If any provision of this Conservation Restriction or the application thereof to any person or circumstances is found to be invalid, the remaining provisions of this Conservation Restriction, and the application of such provisions to

persons or circumstances other than those as to which it is found to be invalid, shall not be affected.

12.2 Successors and Assigns. The term "Grantor" shall include Grantor and Grantor's heirs, executors, administrators, successors, and assigns. The term "Grantor" shall also mean the masculine, feminine, corporate, singular, or plural of the word as needed in the context of its use.

12.3 No Third-Party Beneficiaries. The parties hereto intend that there be no third-party beneficiaries to this Conservation Restriction, except the Parties to the Consent Decree.

12.4 Captions. The captions herein have been inserted solely for convenience of reference and are not a part of this Conservation Restriction and shall have no effect upon construction or interpretation.

12.5 Notices. Any notices required in this Conservation Restriction shall be sent by registered or certified mail to the persons at the following addresses. Any party listed below may change the recipient or location for receipt of such notice by sending written notice of such change to the other Parties listed below:

(a) If to Grantor:

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

(b) With copy to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962

(973) 455-4003

(c) If to Grantee Hackensack River Watershed Land Trust:

William Sheehan
231 Main Street
Hackensack, NJ 07601

(d) If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

12.6 Amendment. This Conservation Restriction may be amended only with the written consent of Grantee and Grantor and of the Parties to the Consent Decree. Any such amendment shall be consistent with the purpose of the Consent Decree and this Conservation Restriction and shall comply with any applicable requirements of N.J.S.A. 13:8B-1 et seq.

12.7 No Extinguishment through Merger. If Grantee comes to own all or any portion of the fee interest in the AOC 1 Open Space Property, (a) Grantee, as successor in title to Grantor, shall observe and be bound by the obligations of Grantor and the restrictions imposed upon the AOC 1 Open Space Property by this Conservation Restriction, (b) in view of the public interest in its enforcement, this Conservation Restriction shall survive such simultaneous ownership of fee and Conservation Restriction interests in the AOC 1 Open Space Property, and shall not be extinguished notwithstanding any otherwise applicable legal doctrine under which such property interests would or might be merged, and (c) Grantee shall, as promptly as practicable, either assign its interests in this Conservation Restriction to another

Qualified Holder in conformity with the requirements of this paragraph or divest itself of its fee interest in the AOC 1 Open Space Property. Any instrument of assignment of this Conservation Restriction or the rights conveyed herein shall refer to the provisions of this paragraph, and shall contain language necessary to continue it in force.

IN WITNESS WHEREOF, the parties hereunto set their hands and seals the day and year first above written.

By: Richard J. Kriva
Title: Vice President, Global Real Estate.
Bayfront Redevelopment LLC

This 12th day of December, 2008

By: Richard J. Kriva
Title: Vice President, Global Real Estate
Honeywell International Inc.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

By: [signature]
Title: RIVERKEEPER
Hackensack Watershed Land Trust

This 25th day of November, 2008

KELLY G. PALAZZI
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES ~~APRIL 24,~~ May 6th, 2009

STATE OF ILLINOIS)
) SS:
COUNTY OF MC HENRY)

I CERTIFY that on December 12th, 2008, Richard J. Kriva, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Vice President, Global Real Estate of Honeywell International Inc., the corporation named in the attached document;

(b) this document was signed and made by the corporation as its voluntary act and deed and was duly authorized by the corporation; and

(c) this person delivered the attached document as the voluntary act and deed of the corporation.

Sworn to and Subscribed before me
this 12th day of December, 2008.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

Jennifer Scaletta
A Notary Public

STATE OF ILLINOIS)
) SS:
COUNTY OF MC HENRY)

I CERTIFY that on December 12th, 2008, Richard J. Kriva, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Vice President, Global Real Estate for Honeywell International Inc, which is the sole member of Bayfront Redevelopment LLC, the limited liability company named in the attached document;

(b) this document was signed and made by the limited liability company as its voluntary act and deed and was duly authorized by the sole member of the limited liability company; and

(c) this person delivered the attached document as the voluntary act and deed of the limited liability company.

Sworn to and Subscribed before me
this 12th day of December, 2008.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

Jennifer Scaletta
A Notary Public

STATE OF NEW JERSEY)
) SS:
COUNTY OF)

I CERTIFY that on November 25, 2008, William Sheehan, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Riverkeeper of the Hackensack Watershed Land Trust, the trust named in the attached document;

(b) this document was signed and made by the trust as its voluntary act and deed and was duly authorized by the trust; and

(c) this person delivered the attached document as the voluntary act and deed of the trust.

Sworn to and Subscribed before me
this 12th day of December, 2008.

A Notary Public

KELLY G. PALAZZI
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES ~~APRIL 24,~~ May 6, 2009

598375.1

Schedule A
MAXIMUM LEGAL DESCRIPTION
PRE-REMEDIATION AOC 1 OPEN SPACE PROPERTY
BLOCK 1290.1 Lots 2D, 2E, 14H, 14J, 15B, 15D and 16A.99
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY

The AOC 1 Open Space Property that is the subject of this Conservation Restriction is intended to consist of a parcel of land which will be bounded by underground Hydraulic Barrier Walls that have not been fully constructed as of the date of this instrument. Accordingly, the parties agree that until such time as construction of the Hydraulic Barrier Walls is completed and an Amended Conservation Restriction is approved by the Court as provided below, the legal description of the AOC 1 Open Space Property shall be as set forth in the survey and diagram attached hereto as Exhibit A. The parties further agree that such legal description is subject to revision as provided herein.

Upon completion of construction of the Hydraulic Barrier Walls, Grantor will cause the AOC 1 Open Space Property to be re-surveyed (the "As-Built Survey") with the perimeter of the AOC 1 Open Space Property to be the outer facing wall of the Hydraulic Barrier Walls, as constructed. Grantor shall further cause a metes and bounds description (the "As-Built Description") to be prepared based on the As-Built Survey. Following preparation of the As-Built Description, Grantor shall request that the Court amend the order which, pursuant to paragraph 60(b)(i) of the Consent Decree, embodies this Conservation Restriction ("the Conservation Restriction Order"), by substituting the As-Built Description for the metes and bounds description set forth in Exhibit A and thereby creating an Amended Conservation Restriction. Once the Conservation Restriction Order is so amended by the Court, Grantor shall record the Amended Conservation Restriction in the office of the Hudson County Register, without the need for execution or consent, written or otherwise, by Grantee.

Upon recording the Amended Conservation Restriction, the As-Built Description shall supersede, replace and make null and void the legal description set forth in Exhibit A to this Conservation Restriction.

CMX

Exhibit
A

July 2, 2008
Revised July 3, 2008
Revised July 29, 2008
Revised August 13, 2008
Revised October 3, 2008

Project No. 030117508

LEGAL DESCRIPTION
PROPOSED OPEN SPACE AREA
BLOCK 1290.1 LOTS 2D, 2E, 14H, 14J and 16A.99
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY

A Parcel of land described herein located in Block 1290.1, Lots 2D, 2E, 14H, 14J and 16A.99, City of Jersey City, Hudson County, New Jersey, and being more particularly described as follows:

Beginning at the intersection of the westerly sideline of New Jersey State Highway Route 440 and the division line between Block 1290.1, Lots 14D and 16A.99, and running; thence,

1. Along said division line, North 49 degrees 06 minutes 05 seconds West, 257.00 feet to the division line between Lots 14D and 14H; thence,

2. Along said division line, South 24 degrees 46 minutes 55 seconds West 6 feet more or less to the southerly face of an existing Hydraulic Barrier Wall; thence,

Running through Lots 14H and 14J in Block 1290.1, along said southerly wall face, the following two (2) courses:

3. North 49 degrees 06 minutes 05 seconds West, 232.64 feet; thence,

4. North 59 degrees 39 minutes 05 seconds West, 1584.08 feet to the westerly line of said Lot 14J; thence,

5. Along said westerly line, and along the westerly line of Lot 2D in Block 1290.1, North 45 degrees 52 minutes 45 seconds East, 70.6 feet more or less to the intersection of the same with the southerly building line as extended, of an outfall structure building; thence,

6. Running through Lot 2D along said line, South 45 degrees 40 minutes 26 seconds East, 60.73 feet; thence,

7. Along the same, North 44 degrees 19 minutes 34 seconds East, 22.58 feet; thence,

8. Along the same, North 45 degrees 40 minutes 26 seconds West, 7.05 feet; thence,

9. Along the same, North 44 degrees 19 minutes 34 seconds East, 5.38 feet; thence,

10. Along the same, North 45 degrees 40 minutes 26 seconds West, 1.44 feet; thence,

11. Along the same, North 44 degrees 19 minutes 34 seconds East, 5.24 feet to the intersection of the same with the outer wall of an existing JCMUA 72" underground sanitary sewer force main pipe (being the side facing the herein described open space lands); thence,

12. Along said outer pipe wall, North 68 degrees 14 minutes 24 seconds East, 110.05 feet; thence,

13. Along the same, North 26 degrees 00 minutes 52 seconds East, 5.35 feet to the southerly building line of another outfall structure building; thence,

14. Along said building line, South 63 degrees 59 minutes 08 seconds East, 3.40 feet; thence,

15. Along the same, North 26 degrees 00 minutes 52 seconds East, 5.26 feet to the aforementioned outer wall of an existing JCMUA 72" underground sanitary sewer force main pipe; thence,

16. Along said outer pipe wall, South 64 degrees 15 minutes 52 seconds East, 298.76 feet; thence,

17. Along the same, South 63 degrees 39 minutes 08 seconds East, 195.65 feet; thence

18. Along the same, South 65 degrees 19 minutes 16 seconds East, 113.04 feet; thence,

19. Along the same, South 67 degrees 09 minutes 18 seconds East, 103.49 feet; thence,

20. Along the same, North 23 degrees 08 minutes 40 seconds East, 53.16 feet to a point of non-tangent curvature in the northerly curb line of a proposed road to be known as Stegman Boulevard, as shown on Exhibit 7 of the "Bayfront I Development Plan" prepared for the City of Jersey City by A. Nelessen Associates, Inc, dated February 13, 2008; thence,

Running through Lots 2D, 2E, and 16A.99, along said proposed northerly curb line the following five (5) courses:

20. Along a non-tangent curve to the right having a radius of 1036.00 feet, a central angle of 06 degrees 49 minutes 53 seconds and an arc length of 123.52 feet and a chord bearing of South 66 degrees 53 minutes 53 seconds East, a chord distance of 123.45 feet to a point of compound curvature; thence,

21. Along a curve to the right having a radius of 1458.00 feet, a central angle of 09 degrees 39 minutes 52 seconds and an arc length of 245.93 feet to a point of tangency; thence,

22. South 53 degrees 49 minutes 05 seconds East, 74.81 feet to a point of curvature; thence,

23. Along a curve to the right having a radius of 6213.00 feet, a central angle of 04 degrees 27 minutes 15.8 seconds and an arc length of 483.02 feet to a point of tangency; thence,

24. South 49 degrees 21 minutes 50 seconds East, 272.98 feet to the aforementioned Route 440 westerly sideline; thence,

25. Along said westerly sideline, South 24 degrees 46 minutes 55 seconds West, 274.45 feet to the point and place of beginning.

Containing 11.8 acres of land more or less as described herein.

Subject to a field survey of the proposed hydraulic barrier walls upon completion of their installation.

Subject to all existing easements, rights-of-way and reservations of record.

The above described premises being also depicted on the diagram included as part of this Exhibit A.

Glen J. Lloyd, P.L.S.
N.J. Professional Land Surveyor
New Jersey License No. GS37598

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NUMBER OF PAGES : 34
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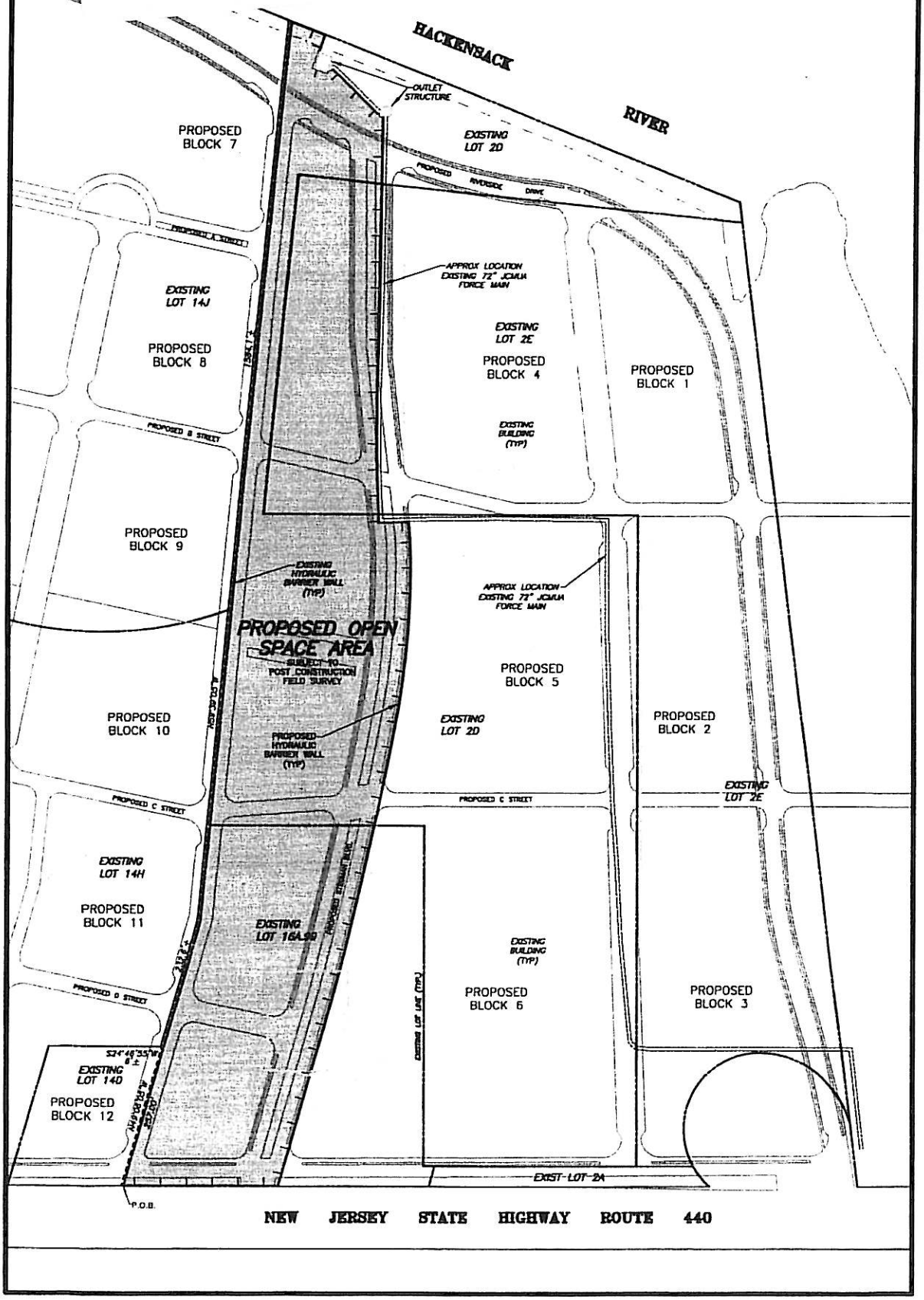
(HIBIT A

SCALE 1"=200'



DRAFT DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Bayfront Redevelopment, LLC]

Recorded by:

_____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE CONCERNING CONTROLS INSTALLED FOR CHROMIUM CONTAMINATION UNDERLYING THE PROPERTY

This Deed Notice is made as of the __ day of _____, 2017, ***Bayfront Redevelopment LLC, whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950***. Owner shall mean Bayfront Redevelopment, LLC together with its successors and assigns, including all successors in interest in the Property which is the subject of this Deed Notice as described fully below. Block 21901 Lot 5 is currently owned by Bayfront Redevelopment, LLC.

1. THE PROPERTY. Bayfront Redevelopment, LLC is the current owner in fee simple of certain real property designated as a portion of ***Block 21901, Lot 5 on the tax map of the City of Jersey City, Hudson County, New Jersey[1].*** The New Jersey Department of Environmental Protection (NJDEP) Program Interest Number for the contaminated site which includes this property is ***Hudson County Chromate Site No. 088 Program Interest (PI) # G000008711*** [NJDEP PI# for non-chromium-related contaminants at the Property is #745719]. The Property is the Deferred Area which is part of Site 088. Remediation of hexavalent chromium is pursuant to the First Amended Consent Decree Regarding the Remediation and Redevelopment of Study Area 6 North ("Consent Decree") which is attached hereto and is entered as an order of the Court in the following consolidated actions *JCMUA v. Honeywell International, Inc.,* D.N.J., Civ. No. 05-

[1] All references to Block 21901 Lot 5 in this Deed Notice shall mean those portions of Block 21901 Lot 5 regardless of whether the word "portion(s)" is specifically called out or not.

05955; *JCIA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-5993; and *Hackensack Riverkeeper, Inc. v. Honeywell International, Inc.*, D.N.J., Civ. No. 06-22. The Consent Decree restricts transfer, use and development of the Property. To the extent that there is any conflict or inconsistency between the terms of this Deed Notice and the terms of the Consent Decree, the Consent Decree shall govern.

2. REMEDIATION.

i. The Department's Bureau of State Case Management (BCM) is the entity within the Department that is responsible for the oversight of the chromium remediation of SA-6 North and the Property. The matter is Case No. Hudson County Chromate Site No. 088 PI# G000008711. The Department has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26-C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL AND GROUNDWATER CONTAMINATION. Honeywell International Inc. ("Honeywell") a corporation of the State of Delaware, licensed to do business in the State of New Jersey whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950, has remediated the Property to address chromium-related soil contamination. The Remedial Action Work Plan (RAWP) was approved by the Department on February 19, 2009 for Hudson County Chromate Site No. 088, which included portions of the Property. Remedial actions were further approved pursuant to the Consent Decree. Under both the Consent Decree and the RAWP soil contamination remains in the Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Property.

Deed Notice Area #6 is an approximately 4,000 square foot strip of land on SA-6 North adjacent to the Route 440 ROW where a Public Service Electric & Gas (PSE&G) gas main is located north of the SA-6 North Open Space Area. PSE&G owns and operates a 24-inch high pressure gas main within the ROW in this area. In the 100% Design Report, Honeywell indicated its intention of deferring excavation of chromium-impacted soil within the Deed Notice Area #6 footprint until such time that the gas main is relocated during the future Route 440 Road Widening Project. Excavation of residual chromium-impacted soil along the eastern edge of the SA-6 North property line in this area will be coordinated with the relocation of the gas main during the Route 440 Road Widening Project. Once the remediation of this area is complete in accordance with the RAR, Honeywell will terminate the deed notice.

The soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result of the contamination, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13. Under the terms of the Consent Decree and this Deed Notice, Honeywell is responsible for monitoring and maintaining the soil remediation for the Property in perpetuity or until remediation is implemented that renders this Deed Notice unnecessary.

4. CONSIDERATION. In accordance with the Department's approval of the chromium RAWP for the remediation of Hudson County Chromate Site Nos. 087 and 088 which includes the Property, and in consideration of the terms and conditions of that approval, and in accordance with the Consent Decree, and other good and valuable considerations, Owner has agreed to subject the Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of these contaminants, Owner has agreed, as part of the remedial action for the Property, to restrict the use of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property. A narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C. Honeywell shall be responsible for monitoring and maintenance of engineering controls and biennial certification requirements as specified in Paragraphs 8A and 8B.

5D. LONG TERM MONITORING PLAN. Honeywell has prepared a Long Term Monitoring Plan (LTMP) which sets forth requirements for monitoring of the chromium remedial measures including engineering controls within the Property and shallow groundwater, and requirements for notification and reporting pursuant to the Consent Decree, Deed Notice and Soil Remedial Action Permit. A copy of the LTMP is maintained by Honeywell at 115 Mount Tabor Road, Morris Plains, NJ 07950. This Deed Notice is appended to the LTMP.

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person of whom it has knowledge, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of known contamination in the Restricted Areas, and, of the precautions necessary to protect the engineering controls and minimize potential human exposure to contaminants.

ii. Except as provided in the Consent Decree and Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property except as (a) permitted in the Consent Decree and (b) without first obtaining the express written consent of the Department. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

iii. Notwithstanding subparagraph 7A.ii., above, a Soil Remedial Action Permit modification is not required for any alteration, improvement, or disturbance provided that:

(A) Takes such action in conformance with the Consent Decree; and

(B) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance; and

(C) Notifies Honeywell of the activity by calling 855-727-2658; and

(D) Honeywell and/or the owner, lessee or operator restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance; and

(E) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration; and

(F) Ensures that human exposure to contamination in excess of the applicable remediation standards does not occur; and

(G) The next biennial certification includes a description of the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Immediately notifies Honeywell of the emergency by calling 855-727-2658;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

vi. Notifies Honeywell when the emergency has ended by calling 855-727-2658; and

vii. Honeywell restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within sixty (60) calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent recurrence of such conditions in the future. Honeywell shall submit the report to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

8A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the persons responsible for conducting the remediation, Honeywell, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. Honeywell shall certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and

consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

8B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. Honeywell shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

9. ACCESS. The Owner agrees to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the persons responsible for monitoring the protectiveness of the remedial action, as described in Paragraph 8, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. NOTICES.

i. Owner shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner shall notify any person intending to conduct invasive work or excavate within the Property on its behalf of the nature and location of contamination and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. Owner shall provide written notice to the Department of Environmental Protection at least thirty (30) calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area. Any such conveyance, grant or gift must be consistent with the terms of the Consent Decree.

iv. Owner shall provide written notice to the Department within thirty (30) calendar days following the Owner's receiving notice of any petition for a rezoning of the Property. Any such rezoning must be consistent with the terms of the Consent Decree. The Owner shall submit the written notice to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413.

11. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this Property.

ii. The restrictions provided herein may be enforceable by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

12. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as if the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. Any person seeking a modification or termination of this Deed Notice must also have such modification approved by the United States District Court for the District of New Jersey pursuant to the Consent Decree until such time as the Consent Decree terminates with regard to the Property pursuant to the Consent Decree.

iv. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the Hudson County Register, New Jersey, expressly modifying or terminating this Deed Notice.

v. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

14A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property;

ii. Exhibit A-2: Metes and Bounds Description - A metes and bounds description of the Property, including reference to tax lot and block numbers for the Property and a Tax Map;

iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; the map(s) shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1: Restricted Area Map - Maps for the Property that include, as applicable:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, ground water monitoring wells, and ground water pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and/or sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described below.

ii. Exhibit B-2 (Table B-2): Restricted Area Data Tables - Table for the Property that includes:

(A) Sample location designation from Restricted Area maps (Exhibit B-1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E-4.6, Table 4-2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1A through C-1C. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control (attached); Exhibit C-1C: Zoning as Intuitional Control; includes a narrative description of the restrictions and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:
(1) Description and estimated size of the Restricted Areas as described above;
(2) Description of the restrictions on the Property by operation of this Deed Notice and the other Institutional Controls; and
(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:
(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;
(2) There have been any land use changes subsequent to the filing of this Deed Notice and the other Institutional Controls or the most recent biennial certification, whichever is more recent;
(3) The current land use on the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls;
(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the Property; and
(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice and the other Institutional Controls, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of

the remedial action that includes this Deed Notice and the other Institutional Controls;
(2) Land use at the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls; and
(3) The remedial action that includes this Deed Notice and the other Institutional Controls continues to be protective of the public health and safety and of the environment.

ii. Exhibit C-2. Exhibit C-2: Engineering Controls: Asphalt Cover;

Exhibit C-2 includes a narrative description of the engineering controls as follows:

(A) General Description of the engineering control:
(1) Description of the engineering control;
(2) The objective of the engineering control; and
(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:
(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;
(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
(4) The engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering control; and
(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;
(2) The engineering control continues to operate as designed; and
(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 2017, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 2017

_____, Notary Public

_____
[Print name and title]

16. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

EXHIBIT A
Deed Notice #6 SA-6 North Route 440 Deferred Area

A-1 Vicinity Map

A-2 Metes and Bounds Description and tax map

A-3 Property Map A portion of Block 21901, Lot 5, City of Jersey City, New Jersey

Exhibit A-1 Vicinity Map consists of a road map for the vicinity of the Property.

Exhibit A-2 consists of a metes and bounds and tax map for the Property.

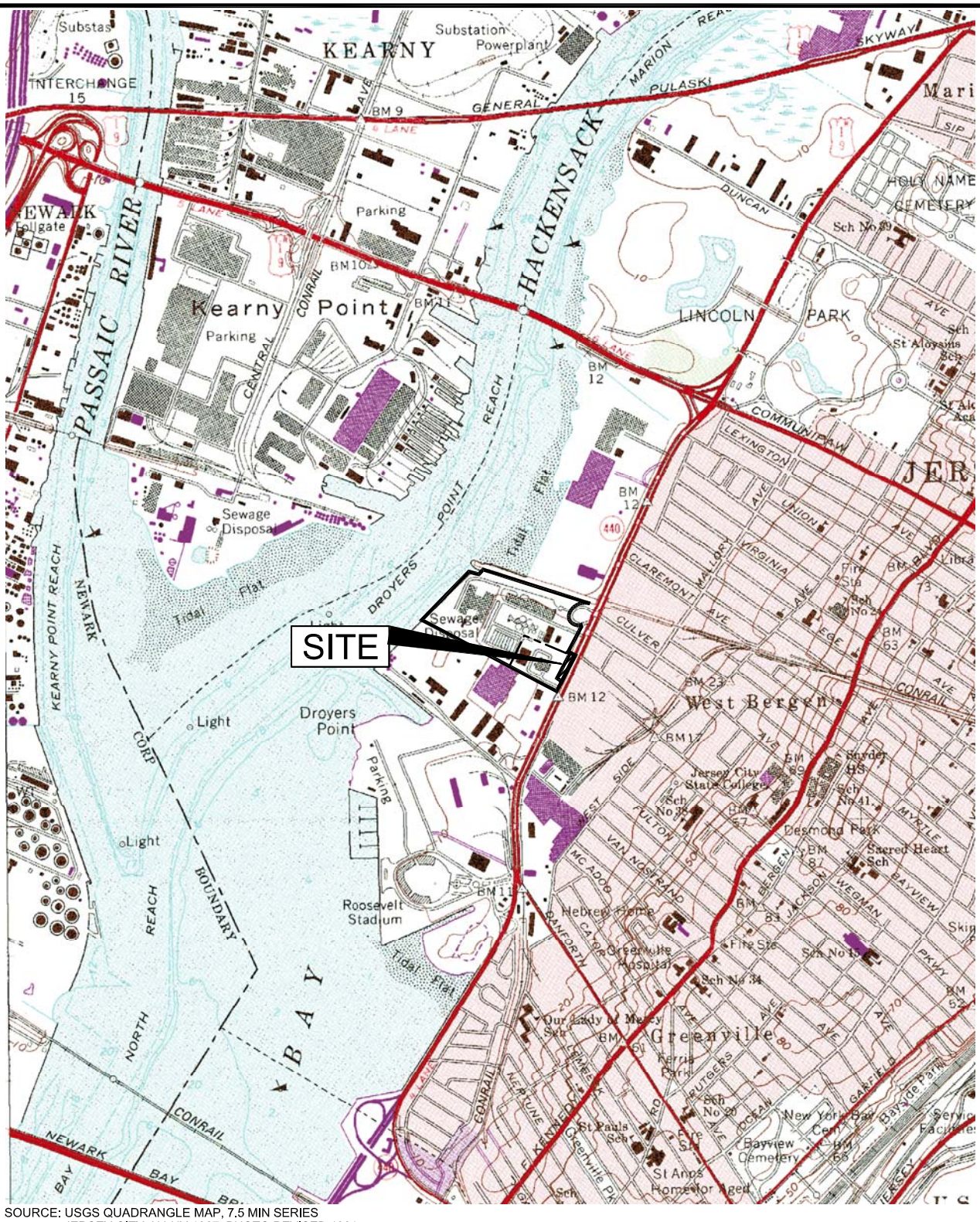
Exhibit A-3 Property Map consists of a figure indicating major surface features and engineering control for the Property.

Exhibit A-1
Site Vicinity Map
Jersey City, New Jersey

EXHIBIT A-1
SITE VICINITY MAP
PORTIONS OF STUDY AREA 6 NORTH SITE 088
JERSEY CITY, NEW JERSEY

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 6\3480150487-6100-A106-0000.dwg Wed, 01 Feb 2017 - 10:54am vandana.muddu



SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

RESTRICTED AREA

0 1000 2000 4000
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A106-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE, Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-1
VICINITY MAP
BLOCK 21901 LOT 5
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #6

Exhibit A-2
Deed Notice #6 SA-6 North Route 440 Deferred Area

Metes and Bounds Description of Property: See Attached
Tax Map: See Attached

A-2 Metes and Bounds Description of Property A portion of Block 21901, Lot 5
City of Jersey City, New Jersey

If there is any discrepancy between the Metes and Bounds and the tax map; the Metes and Bounds prevails.

The Property is identified as a portion of Block 21901, Lot 5 on the City of Jersey City tax maps, the Property being presently owned by Bayfront Redevelopment, LLC. A copy of the current tax map showing the Property is included as Exhibit A-2.

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners ▪ Surveyors ▪ Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 ▪ Fax: 732.383.1984

DESCRIPTION OF PROPERTY
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY
PROJECT NO. 10000292R

DEED NOTICE AREA 6
BLOCK 21901, LOT 5
MAY 18, 2016
REVISED OCTOBER 13, 2016

All that certain lot, tract or parcel of land situate lying and being in the City of Jersey, in the County of Hudson and State of New Jersey, and being a portion of Lot 5 in Block 21901, designated as Deed Notice Area 6 as shown on an exhibit entitled, "Deed Notice Area 6, SA6 North, Block 21901, Lot 5, City of Jersey City, Hudson County, New Jersey," prepared by Maser Consulting P.A., dated April 12, 2016, revised October 7, 2016 and being more particularly bounded and described as follows, to wit:

BEGINNING at the intersection of the westerly line of New Jersey State Highway Route 440 (112 foot wide right of way), with the division line between Lots 4 and 5 in Block 21901 and running; thence–

1. Along said westerly line of Route 440, **S 24° 46' 55" W, 302.60 feet**; thence-

Running through a portion of Lot 5 in Block 21601, the following four (4) courses:

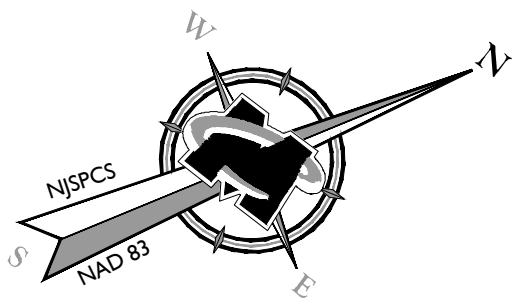
2. **N 49° 22' 28" W, 10.39 feet**; thence-
3. **N 24° 46' 55" E, 90.73 feet**; thence-
4. **N 20° 13' 05" W, 7.07 feet**; thence -
5. **N 24° 46' 55" E, 208.35 feet,** to the aforesaid division line between Lots 4 and 5 in Block 21901; thence –
6. Along said division line, **S 49° 08' 25" E, 15.61 feet**, to the point and place of **BEGINNING.**

CONTAINING: 4,077 S.F. of land more or less or 0.094 acre of land more or less.

10/13/16

GLEN J. LLOYD, P.L.S. DATE SIGNED
NEW JERSEY PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS037598

\\HQFAS1\General\Projects\2010\10000292R\Survey\Description\Metes & Bounds-Deed Notice 6_REV.docx



BLOCK 21901
LOT 10
(BAYFRONT REDEVELOPMENT, LLC)

LIMIT OF PROPERTY OWNERSHIP

BLOCK LIMIT LINE

BLOCK 21901
LOT 9
(BAYFRONT REDEVELOPMENT, LLC)

BLOCK 21901
LOT 5
(BAYFRONT REDEVELOPMENT, LLC)

LIMIT OF PROPERTY OWNERSHIP

BLOCK LIMIT LINE

PREVIOUS DEVELOPMENT
BLOCK 6

BLOCK LIMIT LINE

LIMIT OF PROPERTY OWNERSHIP

CULVER CIRCLE

BLOCK LIMIT LINE

LIMIT OF PROPERTY OWNERSHIP

N 49°22'28" W 10.39'

N 24°46'55" E 90.73'

N 20°13'05" W 7.07'

N 24°46'55" E 208.35'

S 49°08'25" E 15.61'

S 24°46'55" W 302.60'

DEED NOTICE AREA 6
(HATCH AREA)
AREA=4,077± S.F.
0.094Ac.

POINT OF BEGINNING

BLOCK 21901
LOT 4
N/F PAUL TRENK

496.08'
(AREA 6 TIE)

61'

51'

NEW JERSEY STATE
HIGHWAY ROUTE 440
(112' WIDE R.O.W.)

CENTERLINE

100 80 60 40 20 0 50 100 200

SCALE : 1" = 100'

MASER CONSULTING P.A.

Customer Loyalty *through* Client Satisfaction
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Engineers ✖ Planners ✖ Surveyors
Landscape Architects ✖ Environmental Scientists

State of N.J. Cert. of Authorization: 24GA27986500

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- Clinton, NJ
- Hamilton, NJ
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REV	DATE	DRAWN BY	DESCRIPTION
1	10/7/16	KAN	EXCLUDE PORTION WITHIN TRENK PROPERTY AS REQUESTED
2	12/22/16	KAN	BLOCK 6
3	1/10/17	KAN	BLOCK 6
4	1/13/17	KAN	BLOCK 6
5	2/2/17	KAN	BLOCK 6
.	.	.	.

DEED NOTICE AREA 6
SA6 NORTH

BLOCK 21901
LOT 5

CITY OF JERSEY CITY
HUDSON COUNTY
NEW JERSEY

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/12/2016	KAN	CJK

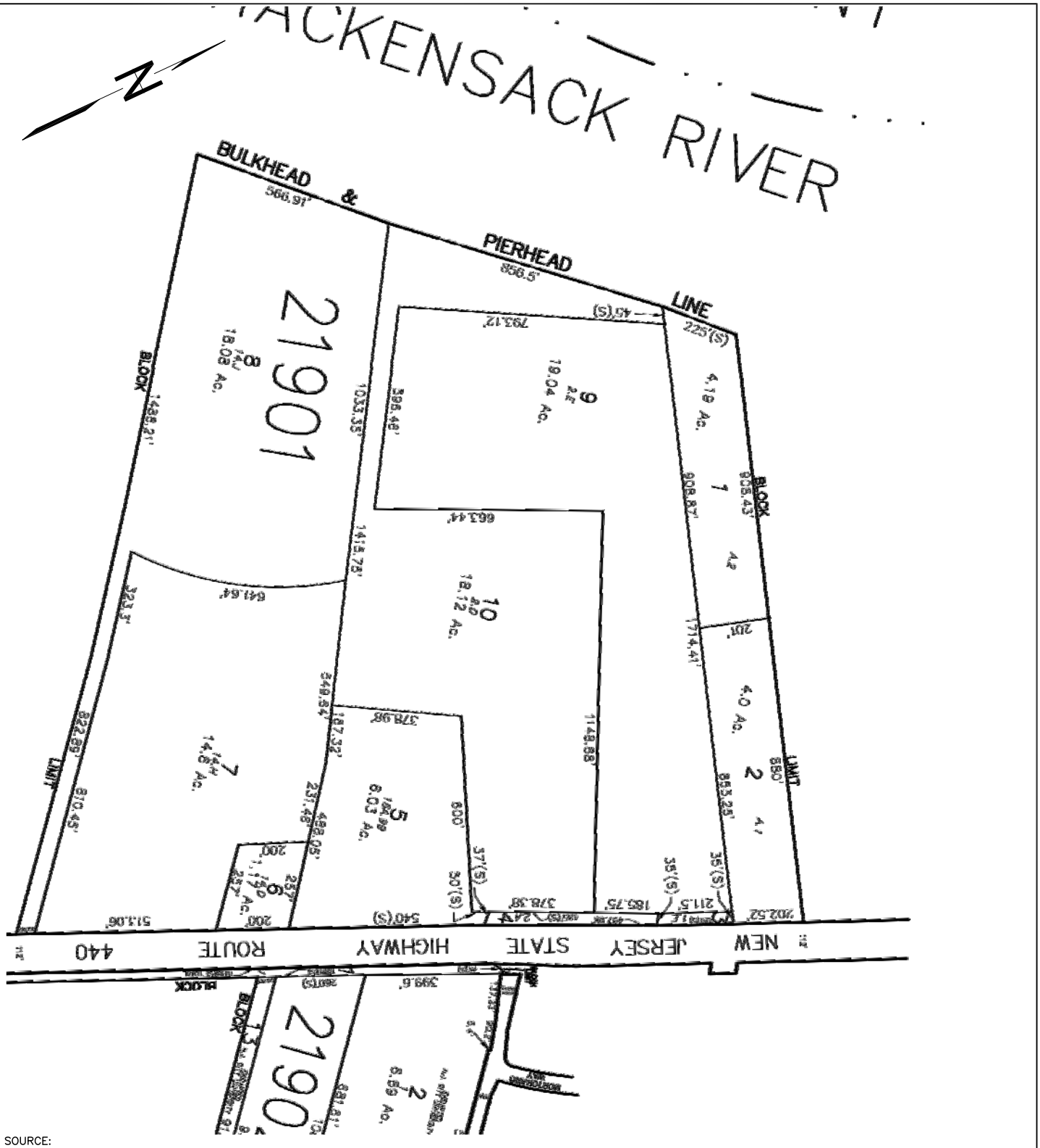
PROJECT NUMBER: 2010\1000
DRAWING NAME: V-EXBT-DN-6_REV

SHEET TITLE: DEED NOTICE EXHIBIT

SHEET NUMBER: 1 of 1

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (i) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

W:\CADD\HONEYWELL_JERSEY CITY\SA 6 NORTH\3480150487\6100\61001\DEED NOTICE\ON 6\3480150487-6100-A206-0000.dwg Wed, 01 Feb 2017 - 11:26am vandana.muddu



SOURCE:
DRAWING TITLED: "TAX MAP CITY OF JERSEY CITY", PREPARED BY T&M ASSOCIATED, MIDDLETOWN TWP., NJ SHEET 219, DATED AUGUST, 2006; NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF TAXATION PROPERTY ADMINISTRATION DATED MAY 8, 2009 SERIAL NO.: 934.

DRAFT

0 150 300 600
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A206-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	

EXHIBIT A-2
TAX MAP
BLOCK 21901, LOT 5
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #6

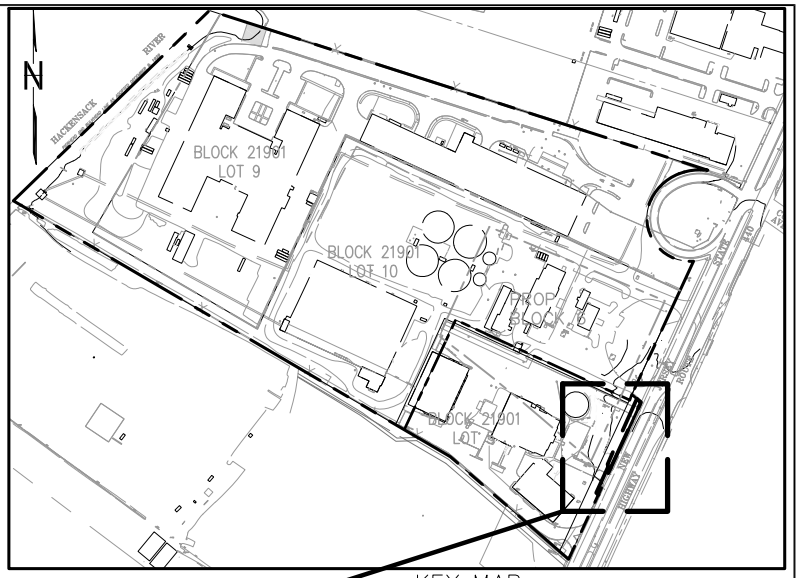
Exhibit A-3
Property Map

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

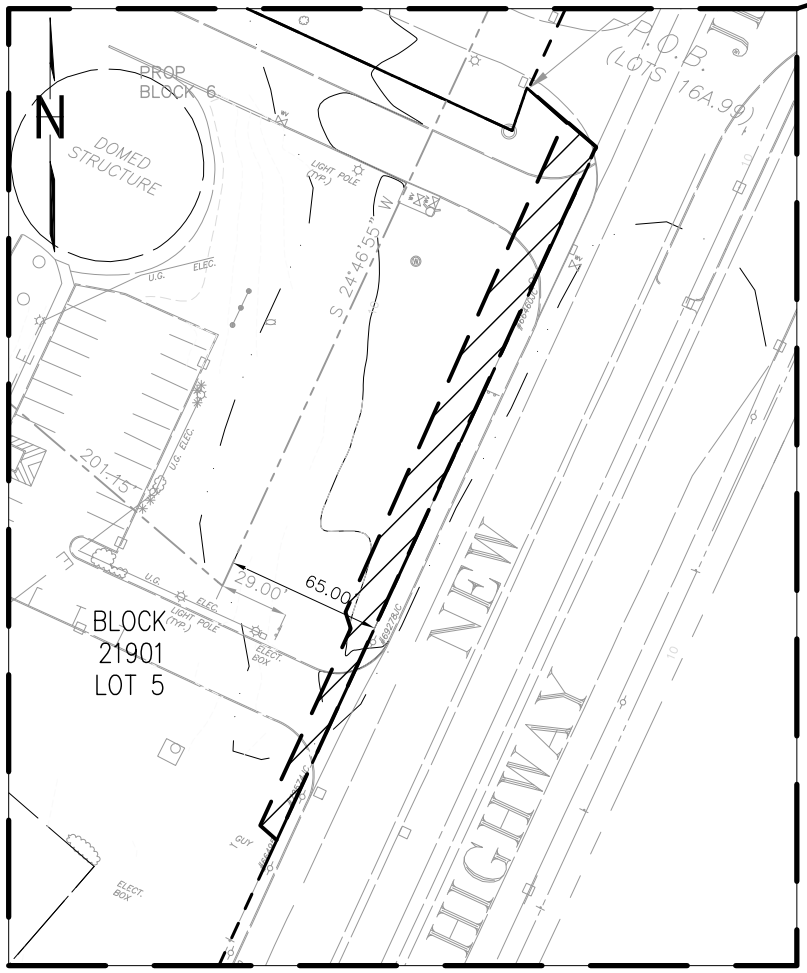
LEGEND

PROPERTY BOUNDARY

RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

0 40 80 160
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A306-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE, Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT A-3** PROPERTY AREA MAP BLOCK 21901, LOT 5 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE #6
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17		

W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\61000\DEED NOTICE\DN 6\3480150487-6100-A306-0000.dwg Wed, 01 Feb 2017 - 11:12am vandana.muddu Layout: Layout1

EXHIBIT B
Deed Notice #6 SA-6 North Route 440 Deferred Area

B-1 Restricted Area Map
B-2 Restricted Area Data Table
A portion of Block 21901, Lot 5
City of Jersey City, New Jersey

Exhibit B-1 Restricted Area Map includes Exhibit B-1 (Restricted Area and Soil Sample Locations).

Exhibit B-2 is a Restricted Area Data Table indicating soil sample locations with concentrations remaining above the New Jersey Department of Environmental Protection's (NJDEP) Chromium Policy.

Restricted Area Map Notes:

Exhibit B-1 indicates engineering controls. For soils with hexavalent chromium concentrations above 20 mg/kg, the engineering control includes a cap consisting of a geotextile demarcation fabric overlain by 6-inches of gravel.

Exhibit B-1
Restricted Area Map

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT: (I) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (II) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

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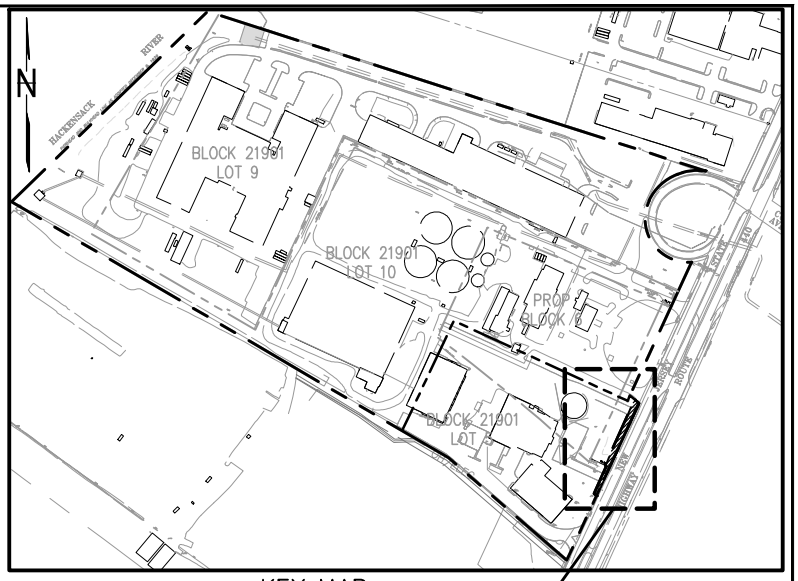
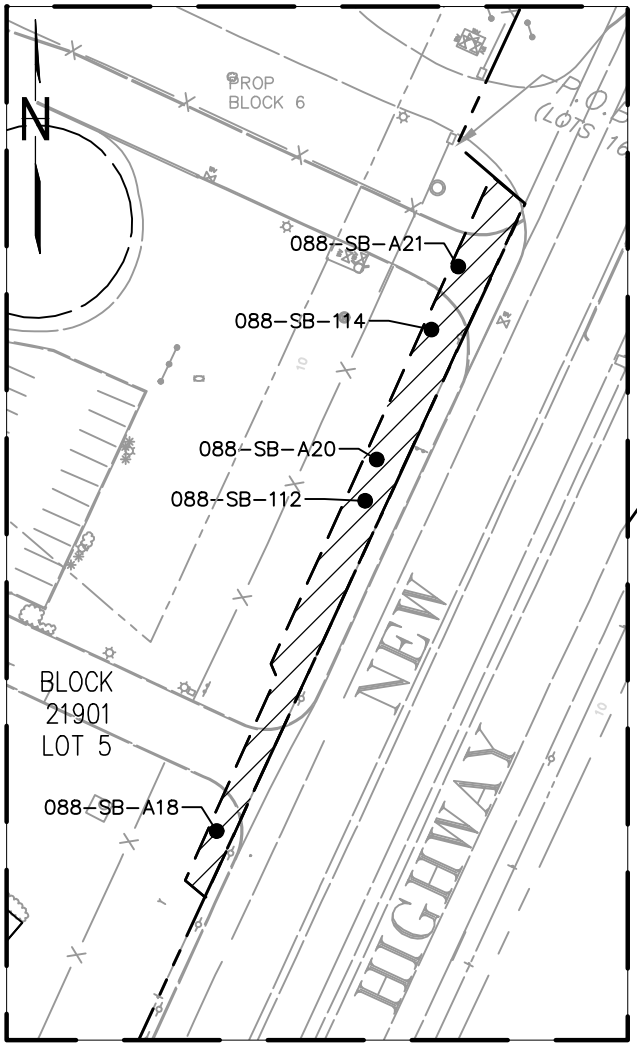
LEGEND

- SOIL SAMPLE LOCATION HEXAVALENT CHROMIUM > 20mg/kg (SEE EXHIBIT B-2)
- PROPERTY BOUNDARY
- RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

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SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-B106-0000		
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619

EXHIBIT B-1A
RESTRICTED AREA AND
EN□INEERIN□ CONTROL
BLOCK 21901; LOT 5
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE □6

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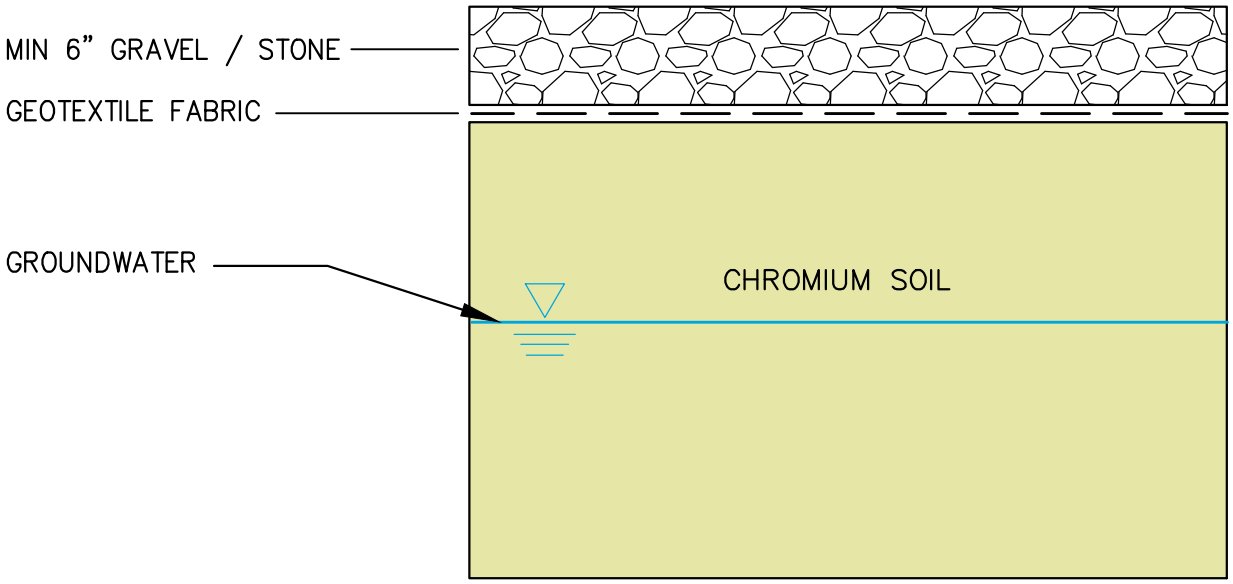

CAP SYSTEM DETAIL

NTS

DRAFT

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150450-6100-B206-0000	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1B** CAP SYSTEM DETAIL BLOCK 21901; LOT 5 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □6
PREPARED/DATE: STR 01/25/17 *CHECKED/DATE:* NW 01/31/17		

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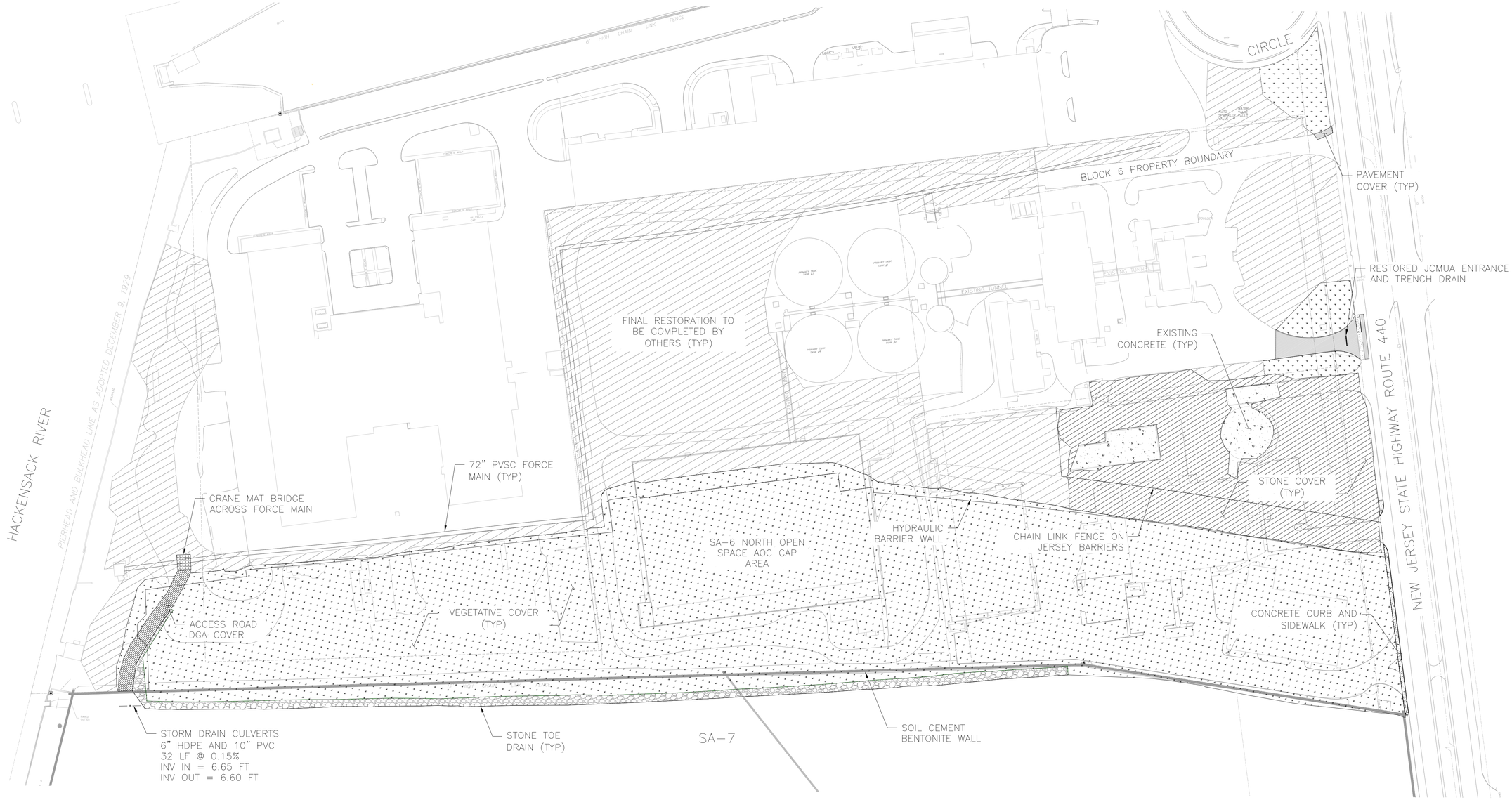

NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
DGA COVER
VEGETATED COVER
RESTORATION BY OTHERS
PAVEMENT COVER
STONE TOE DRAIN
CONCRETE COVER
SD — STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH – SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Exhibit B-2: Table B-2
Soil Sample Data Table (Hexavalent Chromium)

EXHIBIT B-2
Restricted Area Data Table
Study Area 6 North
Portions of Block 21901, Lot 5
Deed Notice #6 Route 440 Deferred Area
Jersey City, New Jersey

Location ID	Sample Date	Sample Depth (feet bgs)	Sample Elevation (feet msl NAVD88)	Contaminant	CASR#	NJDEP Chromium SCC (mg/kg)	Concentration (mg/kg)	Q
088-SB-A18	05/15/1997	0 - 2	11.37	Hexavalent Chromium	18540-29-9	20	**49.3**	J
088-SB-A18	05/15/1997	10 - 12	1.37	Hexavalent Chromium	18540-29-9	20	**106**	
088-SB-A18	05/15/1997	2 - 4	9.37	Hexavalent Chromium	18540-29-9	20	**57.8**	J
088-SB-A20	05/15/1997	10 - 12	-0.2	Hexavalent Chromium	18540-29-9	20	**28.3**	J
088-SB-A20	05/15/1997	2 - 4	7.8	Hexavalent Chromium	18540-29-9	20	**45.7**	J
088-SB-A20	05/15/1997	6 - 8	3.8	Hexavalent Chromium	18540-29-9	20	**287**	J
088-SB-A20	05/15/1997	8 - 10	1.8	Hexavalent Chromium	18540-29-9	20	**26.6**	J
088-SB-A21	08/20/1997	0 - 2	9.5	Hexavalent Chromium	18540-29-9	20	**27.8**	J
088-SB-A21	08/20/1997	10 - 12	-0.5	Hexavalent Chromium	18540-29-9	20	**1150**	J
088-SB-A21	08/20/1997	4 - 6	5.5	Hexavalent Chromium	18540-29-9	20	**42.5**	J
088-SB-A21	08/20/1997	6 - 8	3.5	Hexavalent Chromium	18540-29-9	20	**4690**	J
088-SB-112	05/21/2008	6.5 - 7	3.3	Hexavalent Chromium	18540-29-9	20	**1640**	
088-SB-114	05/21/2008	6.5 - 7	3	Hexavalent Chromium	18540-29-9	20	**4270**	

Notes:
Results reported in milligrams per kilogram (mg/kg).

Data Qualifiers:
J - Data indicates the presence of a compound that meets the identification criteria. The concentration given is an approximate value.

Abbreviations:
Feet bgs - Feet below ground surface
mg/kg - milligrams per kilogram
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP Chromium SCC - New Jersey Department of Environmental Protection Chromium Soil Cleanup Criteria, revised April 2010
CASR# - Chemical Abstract Service Number

EXHIBIT C
Deed Notice #6 SA-6 North Route 440 Deferred Area

C-1 Institutional Controls
C-2 Engineering Controls
A portion of Block 21901, Lot 5
City of Jersey City, New Jersey

C-1 Institutional Controls

C-1 Deed Notice, Consent Decree, Zoning as Institutional Controls: Exhibit C-1 (A through C) for that portion of Block 21901, Lot 5, City of Jersey City, New Jersey known as the Deferred Area.

Exhibits C-1A through C-1C. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control: Exhibit C-1C Zoning as Institutional Control: Exhibits C-1A through C-1C include a narrative description of the restrictions and obligations of this Deed Notice and the other Institutional Controls that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;

The Property constitutes a portion of Block 21901, Lot 5. The estimated size of the Area containing chromium-impacted soils (hexavalent chromium above 20 mg/kg) as identified on Exhibit B-1 is estimated at approximately 4,000 square feet or approximately 0.09 acres.

(2) Description of the restrictions on the Property by operation of the Institutional Control;

The Property shall only be used for activities consistent with this Deed Notice, the Consent Decree, including, but not limited to, Paragraphs 60(j) and 60(k) of the Consent Decree, and the applicable zoning standards. Intrusive activities (i.e., excavation or digging) that breach the engineering controls (as described in Exhibit C-2) will not be permitted on the Property except in compliance with the terms of the Consent Decree, and this Deed Notice. See Deed Notice for additional information; subsections 7A Alterations, Improvements, Disturbances, and 7B, Emergencies.

(3) The objective of the restrictions;

The restrictions will prohibit contact with soils above the NJDEP Soil Cleanup Criteria for hexavalent chromium.

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

Visual inspections of the Property and other monitoring as set forth in the Consent Decree.

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

Same as (B)(1).

(3) The current land use on the Property is consistent with the restrictions in this Deed Notice;

Same as (B)(1).

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

Review of newly promulgated or modified requirements of applicable regulations or laws that potentially may apply to the site.

(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

Same as (B)(4).

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Property is consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including evaluation of any available documents as a result of changes in land use or incidents.***
- ***A report that determines whether or not the land use at the Property has remained consistent with the restrictions in the Consent Decree, this Deed Notice,* and *the applicable zoning standards.***
- ***A report that determines whether or not the Deed Notice continues to be protective of the public health and safety and the environment.***

C-2 Engineering Controls
Deed Notice #6 SA-6 North Route 440 Deferred Area

A portion of Block 21901, Lot 5
City of Jersey City, New Jersey

Exhibits C-2A through C: Narrative description of the Engineering Controls including Clean Fill as follows:

(A) General Description of the engineering controls:

(1) Description of the engineering controls;

The Engineering Control consists of a cap consisting of a geotextile demarcation fabric overlain by 6-inches of gravel.

(2) The objective of the engineering controls; and

The objective of the controls is to prevent contact with soils above the NJDEP Chromium Policy for hexavalent chromium.

(3) How the engineering controls are intended to function.

The soil engineering controls are intended to function as a barrier to underlying and adjacent soils that exceed the NJDEP Chromium Policy Criteria within the Property.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

Honeywell will perform monitoring by visual inspection of the Property pursuant to the Consent Decree.

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

Same as (B)(1) above.

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering controls;

Same as (B)(1) above. Also, see the Consent Decree and the Deed Notice for additional information: subsections 7A Alterations, Improvements, Disturbances, and 7B Emergencies.

(4) The engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

Same as (B)(1) above.

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering controls. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering controls; and

Records of the inspections are to be maintained as listed in (5).

(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

A review of any new standards, regulations, or laws will be conducted. Should the review indicate that other activities are necessary, those activities will be listed and executed.

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including an evaluation to determine whether or not the engineering controls are continuing to meet the original objective and intended function.***
- ***A report to determine whether or not the engineering controls continue to operate as designed.***
- ***A report to determine whether or not the engineering controls continue to be protective of the public health and safety and of the environment.***

APPENDIX III

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

JERSEY CITY MUNICIPAL UTILITIES AUTHORITY, Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5955 Consolidated under Docket No. 95-2097 (DMC)
JERSEY CITY INCINERATOR AUTHORITY Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5993 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)
HACKENSACK RIVERKEEPER, INC., *et al.* Plaintiffs, v. HONEYWELL INTERNATIONAL INC., *et al.* Defendants.	Civil Action No. 06-22 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)

FIRST AMENDED CONSENT DECREE REGARDING REMEDIATION AND REDEVELOPMENT OF STUDY AREA 6 NORTH

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RECITALS

Whereas, on June 30, 2003, the district court for the District of New Jersey issued a Final Judgment in *Interfaith Community Organization v. Honeywell International Inc.*, Civ. No. 95-2097 (DMC) ("*ICO v. Honeywell*"), ordering the remediation of an area designated by the New Jersey Department of Environmental Protection ("NJDEP") as Study Area 7 by excavation of all chromium contamination on the property, under the oversight of a court-appointed Special Master;

Whereas, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property owned by JCMUA and other relief;

Whereas, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property owned by JCIA and other relief;

Whereas, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., Captain William Sheehan, Reverend Winston Clarke, and Lawrence Baker ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater, surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

Whereas, Study Areas 6 North and South are directly adjacent to Study Area 7 on the north and south sides, respectively;

Whereas, Study Area 5 is comprised of properties to the east of Study Areas 6 North, 6 South, and 7 across Route 440;

Whereas, the property owned by JCIA and JCMUA and collectively the subject of *JCMUA v. Honeywell* and *JCIA v. Honeywell* comprises a part of Study Area 6 North;

Whereas, the City of Jersey City ("Jersey City") also owns property that comprises a part of Study Area 6 North;

Whereas, Riverkeeper also named as defendants in *Riverkeeper v. Honeywell* Jersey City, JCMUA, and JCIA (collectively the "Jersey City Entities");

Whereas, the Jersey City Entities and Honeywell also asserted cross-claims against each other in *Riverkeeper v. Honeywell*;

Whereas, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation");

Whereas, in the Consolidated Litigation, the Jersey City Entities and Riverkeeper have alleged that Honeywell bears responsibility for the presence and remediation of chromite ore processing residue ("COPR") and chromium in soils and groundwater on the Study Area 6 North property;

Whereas, in the Consolidated Litigation, Honeywell has alleged that the Jersey City Entities bear full responsibility for lead and other contamination on the Study Area 6 North property, and also bear an equitable share of liability for the presence and remediation of COPR and chromium in soils and groundwater on the Study Area 6 North property and for chromium and other contamination in Hackensack River sediments in the vicinity of Study Area 6 North;

Whereas, on October 9, 2007, Honeywell and Riverkeeper submitted the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"), resolving issues related to the remediation of chromium contaminated sediments in the Hackensack River in the vicinity of Study Areas 5, 6, and 7;

Whereas, the Parties to this Consent Decree each believe that it is in their mutual interest to move forward productively to resolve their differences so that they can implement environmental remediation at Study Area 6 North that ensures the continued protection of human health and the environment and so that Study Area 6 and Study Area 7 can be redeveloped in keeping with Jersey City's vision for a revitalized West Side;

Whereas, the Local Redevelopment and Housing Law, N.J.S.A. 40A:12A-1, *et seq*., as amended and supplemented (the "Redevelopment Law") provides for municipalities to participate in the redevelopment and improvement of areas in need of redevelopment;

Whereas, the portions of Study Area 6 and Study Area 7 (i) which are owned by the Jersey City Entities, (ii) which are owned by Honeywell, (iii) as to which Honeywell has a purchase and sale agreement with the current owner, or (iv) which hereafter will be acquired by a Jersey City Entity and/or Honeywell are parcels which by ordinance adopted by the City Council of Jersey City on February 27, 2008, have been determined to be "areas in need of redevelopment" under the criteria of the Redevelopment Law because of conditions prevalent on those parcels;

Whereas, the settlement which is the subject matter of this Consent Decree contemplates the environmental remediation of Study Area 6 North and redevelopment of the parcels that comprise Study Areas 6 and 7 to create a major mixed use project in an important section of Jersey City;

Whereas, each of the actions to implement this Consent Decree have been fully considered by the Parties as a means to accomplish the aforesaid purposes of this settlement;

Whereas, the consent of each of the Jersey City Entities to this Consent Decree was considered at a duly noticed and appropriate meeting of their respective governing bodies, open to the public, at which members of the public were provided an opportunity to comment on all aspects of the settlement, including, without limitation, the commitments made by the Jersey City Entities herein; and

Whereas, Honeywell and the Jersey City Entities are settling their claims, cross-claims, or counter-claims in the Consolidated Litigation against each other in the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* (hereafter "Jersey City/Honeywell Consent Order"), filed in the Consolidated Litigation simultaneously with this Consent Decree and attached as Exhibit A to this Consent Decree:

NOW, THEREFORE, IT IS HEREBY ORDERED AND DECREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For purposes of this Consent Decree, the following terms shall have the meanings set forth in this Article:

1. **AOC 1** shall mean that area of Study Area 6 North in which the hexavalent chromium concentration in the top 20 feet of soil below existing ground surfaces exceeds concentrations of 20 mg/kg and the Chromium Remedy will be implemented pursuant to Article III. AOC 1 is shown on Exhibit B.

2. **AOC 1 Additional Excavation Areas** shall mean those areas of Study Area 6 North which require excavation pursuant to paragraph 57. The AOC 1 Additional Excavation Areas are not contiguous to AOC 1. The AOC 1 Additional Excavation Areas are shown on Exhibit B.

3. **AOC 1 Open Space Area** shall mean the AOC 1 Open Space Area, as defined by paragraph 53, consisting of approximately 11 acres enclosed by the hydraulic barrier walls constructed under the Chromium Remedy, and which shall be subject to paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B.

4. **AOC 2** shall mean that area of Study Area 6 North on which the Historic Fill Remedy will be implemented pursuant to Article II.B of the Jersey City/Honeywell Consent Order. AOC 2 is shown on Exhibit B.

5. **Bayfront Redevelopment LLC** shall have the meaning set forth in paragraph 4.1 of the Jersey City/Honeywell Consent Order.

6. **COPR** shall mean Chromite Ore Processing Residue.

7. **Chromium Remedy** or **Chromium Remediation** shall mean the remedy set forth in Article III.

8. **Consolidated Litigation** shall mean *Jersey City Municipal Utility Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC).

9. The **Court** shall mean the United States District Court of the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

10. **Deep Groundwater Remedy** shall mean the deep overburden and bedrock groundwater pump and treat remedy as required by the Order Approving the Deep Overburden Groundwater Remediation, entered on October 6, 2006, and the Stipulation on Consent Regarding the Schedule for Implementation of Deep Groundwater Remedial Actions, currently pending before the Special Master in *ICO v. Honeywell.* In the event that Riverkeeper and Honeywell reach a settlement on source control issues, the Deep Groundwater Remedy shall

include the remedy to which Riverkeeper and Honeywell have agreed. In the event that Riverkeeper and Honeywell do not reach a settlement on source control issues, the Deep Groundwater Remedy shall include the remedy ordered by the Special Master or the Court in *ICO v. Honeywell* for source control.

11. **Hackensack River Watershed Land Trust** shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

12. **Historic Fill** shall have the definition provided in the NJDEP Technical Requirements for Site Remediation.

13. **Historic Fill Remedy or Historic Fill Remediation** shall mean the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order, except that the Historic Fill Remedy shall not be limited to the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order if NJDEP requires a more stringent remedy.

14. **Honeywell** shall mean Honeywell International Inc. and its affiliates, including Kellogg Street 80 Property LLC, Kellogg Street 60 Property LLC, and Kellogg Street/440 Property LLC.

15. **Honeywell's Treatment Plant** shall mean the treatment plant currently located at 80 Kellogg Street that is used to treat, *inter alia*, chromium contaminated groundwater.

16. ***ICO v. Honeywell*** shall mean *Interfaith Community Organization v. Honeywell International Inc.,* D.N.J., Civ. No. 95-2097 (DMC).

17. **Including** shall mean including, but not limited to.

18. **JCIA** shall mean the Jersey City Incinerator Authority.

19. **JCMUA** shall mean the Jersey City Municipal Utilities Authority.

20. **JCRA** shall mean the Jersey City Redevelopment Agency.

21. **Jersey City Entities** shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

22. **Jersey City/Honeywell Consent Order** shall mean the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* entered in the Consolidated Litigation simultaneously with this Consent Decree.

23. **NJDEP** shall mean the New Jersey Department of Environmental Protection.

24. **NJDEP Chromium Directive** shall mean the Chromium Directive issued by NJDEP on February 8, 2007, and attached as Exhibit C.

25. **Party or Parties** shall mean any one or all of the signatories to this Consent Decree.

26. **RCRA** shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*, as amended.

27. **Redevelopment Agreement** shall have the meaning set forth in paragraph 4.11(e) of the Jersey City/Honeywell Consent Order.

28. **Redevelopment Area** shall mean Study Area 6 North, Study Area 6 South, and Study Area 7, collectively.

29. **Redevelopment Law** shall mean the New Jersey Local Redevelopment and Housing Law, N.J.S.A. 40A:12A1, *et seq.*, as amended and supplemented.

30. **Redevelopment Plan** shall mean the Bayfront I Redevelopment Plan as adopted by Jersey City on March 12, 2008.

31. **Riverkeeper** shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

32. **Sediment Consent Order** shall mean the Consent Order on Sediment Remediation and Financial Assurances, which the Parties expect will be entered by the Court in *ICO v. Honeywell* and this Consolidated Litigation.

33. **Shallow Groundwater** or **Shallow Level of Groundwater** shall mean groundwater above the meadow mat, groundwater at stratigraphically equivalent depths in locations where there is no meadow mat, and groundwater that is contaminated by recent contact with COPR or other chromium soil contamination above the meadow mat and subsequently flows downward through or past the meadow mat into the upper portion of the lacustrine sediments. This does not include groundwater found in the bedrock, the deep zone, or any plume of contamination that is in both the intermediate and deep zones, as those zones are defined in the Final Groundwater Investigation Report, prepared in *ICO v. Honeywell*, dated February 2007, p. 1-2.

34. **Site** shall mean Study Area 6 North.

35. **Site Preparation Activities** shall have the meaning set forth in paragraph 3.1 of the Jersey City/Honeywell Consent Order.

36. **Site Preparation Plan** shall have the meaning set forth in paragraph 3.2 of the Jersey City/Honeywell Consent Order.

37. **Soil** shall mean soils, historic fill, and/or COPR.

38. The **Special Master** shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

39. **Stratum O** shall mean the layer composed of soft brown silty fine sand interlayered with soft gray silty clay and fine sandy to clayey silt generally located above the meadow mat below the Historic Fill and/or COPR.

40. **Study Area 6 North** shall mean that property comprising Sites 87 and 88 of the Chromate Chemical Production Waste Sites designated by NJDEP, comprising approximately 41.58 acres and including: (a) all such property owned by JCMUA located at 555 Route 440, Jersey City, New Jersey, (b) all such property owned by JCIA located at 501 Route 440, Jersey City, New Jersey; (c) all such property owned by Jersey City or its Department of Public Works and located at 575 Route 440, Jersey City, New Jersey; and (d) all such property owned by Paul Trenk consisting of Block 1290.1, Lot 2A, Jersey City, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

41. **Study Area 6 South** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC consisting of Site 73, located at 200 Kellogg Street Jersey City, Hudson County, New Jersey; (b) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 134, located at 100 Kellogg Street Jersey City, Hudson County, New Jersey; (c) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 140 located at 80 Kellogg Street Jersey City, Hudson County, New Jersey; (d) that property currently owned by Kellogg Street 60 LLC consisting of Site 125, located at 60 Kellogg Street Jersey City, Hudson County, New Jersey; (e) that property currently owned by Kellogg Street/440 Property LLC consisting of Site 124, Jersey City, Hudson County, New Jersey; (f) that property currently owned by Kellogg St/Harsimus Cove Realty located at 150 Kellogg Street, Jersey City, Hudson County, New Jersey, (g) that property currently owned by Cordova Enterprises Ltd located at 38 Kellogg Street, Jersey City, Hudson County, New Jersey, and (g) that property currently owned by Cordova Enterprises Ltd located at 28 Kellogg Street, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

42. **Study Area 6** shall mean Study Area 6 North and Study Area 6 South, collectively.

43. **Study Area 7** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC located at 425 and 445 Route 440, Jersey City, Hudson County, New Jersey, and (b) that property currently owned by Roned Realty/Edward Navlen located at 465 Route 440, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

44. **Technical Requirements for Site Remediation** shall mean the NJDEP Technical Requirements for Site Remediation, N.J.A.C. Chapter 26E, as duly and properly promulgated and amended.

45. **Unrestricted Use** shall mean that the contaminated medium is restored to a condition or quality suitable for all uses.

ARTICLE II: SCOPE OF THE CONSENT DECREE, JURISDICTION, AND CLAIMS RESOLVED

46. Except as provided in this paragraph, the terms of the Jersey City/Honeywell Consent Order shall remain in full force and effect. To the extent that any provision in the Jersey City/Honeywell Consent Order refers to the Chromium Remedy or Chromium Remediation, it shall be construed as referring to Article III of this Decree. In the event of any conflict or inconsistency between the terms of this Decree and the Jersey City/Honeywell Consent Order, the terms of this Decree govern. In the event that any action taken pursuant to the Jersey City/Honeywell Consent Order is in conflict with or inconsistent with the terms of this Decree, the terms of this Decree shall govern.

47. This Court has jurisdiction over the Parties and subject matter of the Consolidated Litigation pursuant to Section 6972 of RCRA.

48. For purposes of this Consent Decree, the Complaints in the Consolidated Litigation each state claims upon which relief may be granted against Honeywell.

49. In the event that this Decree is not terminated by one or more Parties pursuant to paragraph 100, this Consent Decree resolves, settles, and satisfies all claims by Riverkeeper against Honeywell with respect to soils and shallow groundwater at Study Area 6 North. This Consent Decree does not resolve any claims by Riverkeeper against Honeywell with respect to Study Area 6 South, Study Area 5, or groundwater at Study Area 6 North other than shallow groundwater.

50. Nothing in this Consent Decree shall be construed or interpreted to waive any claim or defense any Party has asserted or may assert against any third party in the Consolidated Litigation except as explicitly stated herein.

51. This Consent Decree does not constitute an admission of liability on the part of any Party with respect to any claims, cross-claims, or counter-claims in the Consolidated Litigation.

ARTICLE III: CHROMIUM REMEDIATION

A. Chromium Remedy

52. **Responsibility for Implementation of Chromium Remediation.** As between the Parties, Honeywell shall be responsible for and shall undertake remediation of COPR and chromium present in Study Area 6 North at Honeywell's sole cost and expense. Remediation of COPR and chromium present in Study Area 6 North shall be undertaken in accordance with the terms of this Consent Decree.

53. **AOC 1 and AOC 2.** For the purposes of remediation, Study Area 6 North shall consist of two Areas of Concern ("AOCs"), designated as AOC 1 and AOC 2 as shown on Exhibit B. AOC 1 is set forth on Exhibit B and consists of that portion of Study Area 6 North for which chromium remediation is required pursuant to paragraphs 55, 56, and 57. AOC 2 consists of the entirety of Study Area 6 North, including AOC 1, to the extent that historic fill is present in any area of Study Area 6 North. For AOC 1, the intended land use will determine the types

of remedial measures taken in the Chromium Remedy. There are two distinct land uses for AOC 1: open space and residential. As a result, AOC 1 will be further subdivided into:

(a) The AOC 1 Open Space Area, which shall comprise that portion of AOC 1 for which future use shall be restricted as provided in paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B;

(b) The AOC 1 Residential Area, which shall comprise that portion of AOC 1 for which future use shall allow for residential and/or commercial and retail uses, but for which the remedial measures shall assume only a residential use . The AOC 1 Residential Area is shown on Exhibit B; and

(c) The AOC 1 Additional Excavation Areas, which consist of those portions of Study Area 6 North that require remediation pursuant to paragraph 57. The planned land use for the AOC 1 Additional Excavation Areas is residential and/or commercial and retail uses, but the remedial measures shall assume only a residential use.

54. **Scope and General Requirements of the Chromium Remedy.** The Chromium Remedy shall address shallow groundwater and soil containing hexavalent chromium in AOC 1, and shall be consistent with the requirements set forth in this Article. The Chromium Remedy set forth in this Consent Decree addresses only the shallow level of groundwater (see paragraph 58). The deep overburden and bedrock groundwater remediation, including source control, shall be addressed in a separate consent order, which shall place these issues within the jurisdiction of the Special Master in conjunction with the groundwater remedies for Study Area 7.

(a) The Chromium Remedy shall be consistent with the NJDEP Technical Requirements for Site Remediation, the Chromium Directive as issued by NJDEP on February 8, 2007 ("the NJDEP Chromium Directive"), and the Remedial Action Work Plan (with addenda) approved by NJDEP on or about February 19, 2008. This Consent Decree shall have precedence

over the Remedial Action Work Plan in the event of any inconsistency.

(b) The Chromium Remedy shall be carried out diligently, and the development and implementation of the Historic Fill Remedy shall not delay satisfaction of the milestones in the Schedule established pursuant to this paragraph. Honeywell shall propose a master Schedule for the implementation of the Chromium Remedy within 90 days of the entry of this Consent Decree, which shall include, at a minimum, the following milestones:

(i) Submission to the Special Master for all documents subject to review by the Special Master pursuant to paragraph 72(c);

(ii) Relocation of the Jersey City Entities' Study Area 6 North Operations as shall be required prior to the implementation of the Chromium Remedy;

(iii) Completion of those Site Preparation Activities necessary for the implementation of the Chromium Remedy, including remediation of the AOC 1 Additional Excavation Areas;

(iv) A final date for Honeywell's proposal of *in situ* treatment for any part of the AOC 1 Residential Area pursuant to paragraph 55(d) and a date for the final decision as to whether excavation or *in situ* treatment shall be used in the event of such a proposal;

(v) The initiation of work related to the Chromium Remedy;

(vi) The date for completion of the installation of the Chromium Remedy;

(vii) Implementation of the long-term protections of the AOC 1 Open Space Area established pursuant to paragraph 60; and

(viii) Transfer of the AOC 1 Open Space Area to Jersey City pursuant to paragraph 60(a)(iii).

(c) **Demolition and Grading Activities.** During demolition and grading activities, adequate protective measures shall be taken to protect site workers and the community

from airborne dusts and exposures to contaminated soils.

(d) **Vegetation of Clean Fill.** All clean soil fill in areas that will not involve paved roads, sidewalks, paths, walkways, or building structures shall be vegetated in such a manner to protect and maintain the required depth of clean soil fill.

55. **AOC 1 Residential Area Soil Remedy.** In the AOC 1 Residential Area, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive.

(a) Those soils excavated from the AOC 1 Residential Area in which hexavalent chromium concentrations exceed 240 mg/kg shall be disposed of off-site at a waste disposal facility licensed to accept such waste.

(b) Those soils excavated from the AOC 1 Residential Area in which the hexavalent chromium concentration is less than 240 mg/kg, but greater than 20 mg/kg, shall be consolidated within the AOC 1 Open Space Area. However, any such soils which would require venting of gases shall be disposed of off-site.

(c) Soils excavated from the AOC 1 Residential Area shall be replaced with existing soils from AOC 2 or backfill soil. Any backfill soil brought to the Site shall either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master.

(d) In the AOC 1 Residential Area, excavation of soils containing hexavalent chromium greater than 20 mg/kg shall be the presumptive remedy. Around remaining active underground utilities or other structures, such as the bulkhead, *in situ* treatment may be considered in lieu of excavation only if Honeywell demonstrates, and all Parties, the Special

Master, and NJDEP agree that (1) excavation is technically impracticable and (2) treatment will result in hexavalent chromium concentrations of 20 mg/kg or less and no rebound will occur. If no treatment option is available, Honeywell shall propose an alternative remedial approach, subject to review and comment by the Parties and approval by the Special Master.

(e) Honeywell shall excavate all soils containing hexavalent chromium greater than 20 mg/kg in conjunction with the placement of the piping for the Deep Groundwater Remedy. Honeywell shall not propose treatment in lieu of excavation based on the location of the pipes for the Deep Groundwater Remedy or any apparent impracticability of excavating in conjunction with their installation.

56. **AOC 1 Open Space Area Soil Remedy.** In the AOC 1 Open Space Area, the soil remedy shall consist of an engineered RCRA cap to isolate contaminated soils, with gas venting, if necessary, to address the generation of methane and other naturally occurring gases in the Stratum O and/or Stratum D in the Open Space AOC. Soils consolidated under the cap, shall not require gas venting and shall not be the basis for the inclusion of gas venting as a component of the cap. The cap shall be designed and constructed so that:

(a) The cap shall consist of gas collection system, if gas venting is necessary, a base protective layer, an impervious geomembrane liner with a minimum thickness of 40 mil; a geocomposite drainage layer; a filter fabric; and a distinctive colored warning layer with markings in English and Spanish that would deter penetration of the cap in the event that digging occurred in the vicinity of the cap;

(b) All utilities, including those supporting the pump-and-treat system for groundwater remediation, with the exception of any extraction wells or collection trenches, shall be placed above the cap (but may be below the ground surface and/or contained within utility corridors). In the event that above-cap-grade gas collection and treatment is selected or is

needed to meet current or future regulatory requirements, such collection and treatment facilities are prohibited in the Open Space AOC, except for piping to connect the sub-liner collection system with the treatment facilities. Honeywell shall configure the cap so that all active piping for the wastewater treatment system operated by JCMUA, including all force mains and any connections to the emergency outfall, shall be outside the capped area. Honeywell may propose, subject to the review process in paragraph 72, to use treatment in lieu of excavation in the vicinity of the emergency outfall line if the criteria of paragraph 55(d) are satisfied; and

(c) Exclusive of roadways, the cap shall be overlain by layers of clean fill, backfill and/or overburden with an average depth of at least three feet and a minimum depth of at least two feet provided that any layer that incorporates overburden shall be below at least two feet of clean fill. Any clean fill or backfill soil brought to the Site will either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master. One foot of clean fill, covered with bituminous blacktop, shall be sufficient cover where roads, walkways, or other paved surfaces are located within the AOC 1 Open Space Area. All clean soil fill in areas that will not involve paved roads, walkways, or other paved surfaces shall be vegetated in such a manner as to protect and maintain the required depth of the clean soil fill and to ensure that such vegetation shall not cause any interference with or penetration of the cap.

(d) The existing overburden soils in the AOC 1 Open Space Area shall first be stripped off and set aside for use. If hexavalent chromium concentrations in the overburden exceed 20 mg/kg, the overburden shall be placed under the cap. If hexavalent chromium concentrations in the overburden do not exceed 20 mg/kg, the overburden may be placed above the cap but below the two feet of clean fill required by paragraph 56(c). Excavated hexavalent

chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the AOC 1 Residential Area shall be placed and spread in the AOC 1 Open Space Area under the cap. Excavated hexavalent chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the Study Area 6 South Development AOC (as defined in the First Amended Consent Decree Regarding Remediation and Redevelopment of Study Area 6 South and including only those portions of Study Area 6 South for which the future uses of the property may include commercial or residential development) may be placed and spread in the AOC 1 Open Space Area under the cap, provided that such soils do not require venting of gases and shall not serve as the basis for the inclusion of gas venting as part of the Study Area 6 North AOC 1 Open Space Area remedy. Both the chromium impacted soils and the previously stripped overburden shall be suitably compacted according to design specifications. Debris, to the extent it would interfere with the compaction specification requirements of the 100% Design, shall not be placed under the cap. The engineered cap shall be installed over the chromium-impacted soils exceeding 20 mg/kg hexavalent chromium.

57. **AOC 1 Additional Excavation Areas Remedy.** For those AOC 1 Additional Excavation Areas, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive. Excavation of those areas comprising the AOC 1 Additional Excavation Areas shall initially be conducted in the 50-foot by 50-foot area planned in the RAWP but shall not be so limited in the event that confirmation sampling indicates that hexavalent chromium concentrations continue to exceed 20 mg/kg. Honeywell shall excavate laterally and vertically (to depths of up to 20 feet below current ground surface) until the hexavalent chromium is less than 20 mg/kg based on the results of confirmation sampling. Confirmation sampling for the AOC 1 Additional Excavation Areas shall be taken from the side

walls and bottom of the excavation, in accordance with the Technical Requirements for Site Remediation, to confirm complete removal of contaminated soils.

58. **Shallow Groundwater Remedy.** The shallow groundwater remedy shall consist of hydraulic barriers with a pump-and-treat system designed to isolate shallow groundwater and to intercept and treat shallow groundwater flowing above the meadow mat in the AOC 1 Open Space Area. The shallow groundwater remedy shall consist of the following:

(a) The existing soil/cement/bentonite wall on the boundary of Study Area 6 North and Study Area 7 shall be incorporated into the other engineering controls;

(b) Subterranean slurry walls or other hydraulic barriers shall be installed along the northern, eastern and western sides of the AOC 1 Open Space Area and keyed into the meadow mat or Stratum O or to comparable depths below ground surface;

(c) A groundwater extraction system shall be established that will consist of (i) one or more shallow extraction wells, sumps, or french drains within the AOC 1 Open Space Area; (ii) pumps; and (iii) underground piping to convey any extracted water to Honeywell's Treatment Plant;

(d) The capture zone for the shallow groundwater remedy shall include at least the entire area of contaminated shallow groundwater (except for shallow groundwater that penetrates the meadow mat and is captured by the Deep Groundwater Remedy);

(e) A plan for control of water levels shall be developed;

(f) In the event that underground structures are demolished, the plans shall address the need for special attention for structures that extend below the meadow mat in order to control needed water levels; and

(g) Honeywell shall submit such information as is required to allow NJDEP to establish a classification exception area for groundwater at the Site, in accordance with NJDEP

regulations.

59. **Permits and Authorizations.** Honeywell shall obtain all necessary federal, state, and local permits and authorizations to carry out the Chromium Remedy as set forth in this Article. The Jersey City Entities agree to cooperate with Honeywell in the applications for any such permits, authorizations, or approvals. Such cooperation shall include providing information or data with respect to permit applications, co-signing permit applications, and allowing access to Study Area 6 North to obtain information necessary for the permits.

B. Long-Term Monitoring, Maintenance, and Protection of Engineering and Institutional Controls

60. **Protection of the AOC 1 Open Space Area.** Except as provided in paragraphs 60(j) and 60(k), development in the AOC 1 Open Space Area shall be prohibited. The AOC 1 Open Space Area shall be protected against activities that may jeopardize the integrity of the cap and/or the groundwater remedial measures that shall be installed in the AOC 1 Open Space Area pursuant to the Chromium Remedy or that may impede the long-term monitoring and maintenance of the cap and/or groundwater remedial measures. It is the intention of the Parties to implement different layers of protection, which alone or in concert, impose restrictions on development, run with the land, and survive all parties. Accordingly, the following actions shall be taken pursuant to the Schedule provided in paragraph 54(b):

(a) **Ownership of and Access to the AOC 1 Open Space Area.** Ownership of and access to the AOC 1 Open Space Area shall be in accordance with the following:

(i) Pursuant to the terms of this Consent Decree and paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall become the owner in fee simple absolute of all of the property that comprises the AOC 1 Open Space Area and shall not convey any rights or interests in such property except as provided in this Decree. At the time

of the conveyance from JCRA to Bayfront Redevelopment LLC, Bayfront Redevelopment LLC shall give Jersey City an option to buy AOC 1 Open Space Area prior to the planned transfer pursuant to paragraph 60(a)(iii). Such option to buy shall be subject to the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall exercise the option to buy the AOC 1 Open Space Area in the event that the conditions allowing for withdrawal of funds from the financial assurance mechanisms under paragraphs 84(c) or 84(d) are met;

(ii) At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall grant a conservation restriction for the AOC 1 Open Space Area pursuant to the requirements of paragraph 60(b);

(iii) Upon the final construction of all roads and utility corridors within the AOC 1 Open Space Area, Bayfront Development LLC shall donate good and marketable title to all the land comprising the AOC 1 Open Space Area to Jersey City. In conjunction with such donation, Bayfront Redevelopment LLC shall petition to subdivide the properties within Study Area 6 North to create a new parcel(s) comprising the AOC 1 Open Space Area. At the time of the donation, Jersey City shall grant Honeywell an easement for the purpose of monitoring and maintaining the Chromium Remedy. Jersey City shall also grant Honeywell all necessary access to the AOC 1 Open Space Area by license or such other mechanisms as may be appropriate for purposes of monitoring and maintaining the Chromium Remedy. After it acquires title pursuant to this paragraph, Jersey City shall retain ownership of the AOC 1 Open Space Area unless and until it shall have complied with the requirements of paragraph 60(a)(iv);

(iv) After it acquires title pursuant to this paragraph, Jersey City shall not convey or enter into any lease of the AOC 1 Open Space Area to any other person or entity unless it has first satisfied either of the following conditions:

(1) Jersey City has obtained the Special Master's (or if the Special Master's appointment has expired, the Court's) approval to convey the AOC 1 Open Space Area to a government entity that has the capacity and willingness to fulfill Jersey City's obligations under the Consent Decree with respect to the AOC 1 Open Space Area and such entity agrees to submit to the Court's jurisdiction and to be bound by the requirements of the Consent Decree that Jersey City has committed to fulfill with respect to protection of the AOC 1 Open Space Area pursuant to this paragraph and routine maintenance of the permissible development in the AOC 1 Open Space Area pursuant to paragraph 64(d); or

(2) The AOC 1 Open Space Area has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(b) **Conservation Restriction.** At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, but prior to the grant of the option to buy pursuant to paragraph 60(a)(i), Bayfront Redevelopment LLC shall grant an open space conservation restriction, pursuant to N.J.S.A. 13:8-B-1, *et seq.*, over the AOC 1 Open Space Area substantially in the form set forth in Exhibit D. Exhibit D is a conservation restriction that is consistent with the terms of this paragraph and this Consent Decree. The conservation restriction shall allow for the implementation, maintenance, monitoring, repair and replacement of the Chromium Remedy and development consistent with paragraphs 60(j) and 60(k), including the construction and

placement of roads and utilities. The Hackensack River Watershed Land Trust shall be the primary holder of the conservation restriction, with all rights of monitoring and enforcement. Riverkeeper shall propose an entity to serve as the secondary holder of the conservation restriction subject to comment by the Parties and review by the Special Master. The secondary holder shall have secondary rights of monitoring and enforcement.

(i) The conservation restriction shall be incorporated into this Consent Decree and made part of this Consent Decree. The final, executed conservation restriction shall be lodged with the Court and entered as an order of the Court. The conservation restriction shall be enforceable in this Court, in the same manner as this Consent Decree.

(ii) The conservation restrictions provided under this Consent Decree shall be consistent with the prohibited and permitted development of the AOC 1 Open Space Area as set forth in paragraphs 60(j) and 60(k) below.

(iii) Jersey City shall not take any action, whether through exercise of any power of eminent domain, application to the State of New Jersey for approval of a diversion of public park or recreation land, legal challenge to the validity or enforceability of the conservation restriction, or otherwise, the effect of which would be to in any way terminate, abrogate, or diminish the terms, conditions, or purposes of the conservation restriction. If, notwithstanding the preceding sentence, Jersey City proceeds with a condemnation or other action, the result of which would be to terminate, abrogate, or otherwise diminish the terms, conditions, or purposes of the conservation restriction, Jersey City shall, before taking any such action satisfy all of the conditions set forth in paragraph60(a)(iv)(2).

(iv) Notwithstanding the foregoing, the conservation restriction may be terminated upon application of any Party when no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the

levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive.

(c) **Deed Notice.** Upon completion of the Chromium Remedy, the AOC 1 Open Space Area shall be subjected to the deed notice substantially in the form set forth in Exhibit E that restricts future activities on the AOC 1 Open Space Area. Nothing in the deed notice shall be construed as preventing the imposition of more stringent restrictions on the development allowed in the AOC 1 Open Space Area pursuant to this paragraph and, in particular, the conservation restriction provided for in paragraph 60(b).

(d) **Recording of the Consent Decree, Conservation Restriction, and Deed Notice.** This Consent Decree, the conservation restriction imposed pursuant to paragraph 60(b), and the deed notice imposed pursuant to paragraph 60(c) shall be recorded, pursuant to N.J.S.A. 46:15-1.1, 46:16-1.1, and 46:16-2, in the office of the Hudson County Register and a conspicuous reference to the Consent Decree, conservation restriction, and deed notice shall be included in all instruments concerning title to the AOC 1 Open Space Area. Any Party shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Consent Decree, the conservation restriction, the deed notice, and/or any further orders of the Court related to the AOC 1 Open Space Area in the real estate records related to the AOC 1 Open Space Area.

(e) **Zoning.** Pursuant to the Redevelopment Plan, the AOC 1 Open Space Area is designated for open space and park. Jersey City shall not amend or change this designation unless it first satisfies the requirements of paragraph 60(a)(iv)(2).

(f) **Recreation and Open Space Inventory.** Upon acquiring fee simple absolute title to the AOC 1 Open Space, Jersey City shall add those portions of the AOC 1 Open Space Area not covered by roads, the pedestrian thoroughfare, and utility corridors adjacent to

roads onto its Green Acres Program Recreation and Open Space Inventory ("ROSI") pursuant to N.J.A.C. 7:36 and shall specify in such listing that it is subject to (i) Honeywell's prior easement to monitor, maintain, repair, and replace the Chromium Remedy; (ii) the actions necessary to implement, monitor, maintain, repair, and replace the Chromium Remedy; (iii) the actions necessary to install any development permissible under paragraphs 60(j) and 60(k); and (iv) the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall also take all steps necessary or appropriate to notify the New Jersey Green Acres Program that such portions of the AOC 1 Open Space Area have been added to its ROSI, such that those portions of the AOC 1 Open Space Area shall thereafter be subject to all procedural and regulatory requirements applicable under the Green Acres Program, including prohibitions against diversion.

(g) **Eminent Domain.** If all or part of the AOC 1 Open Space Area is taken in exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, by any public, corporate, or other authority so as to terminate, abrogate, or limit the restrictions created by this Consent Decree or the conservation restriction imposed pursuant to paragraph 60(b), in whole or in part, any Party may take appropriate actions to challenge such taking if there is a reasonable legal basis for doing so. In the event that the Parties are unable to prevent a taking notwithstanding their reasonable and appropriate efforts, any Party may take appropriate actions to recover the full value of the interests in the AOC 1 Open Space Area subject to the taking or in lieu purchase, and all direct and incidental damages, costs, and fees occasioned thereby.

(h) **Environmental Covenant.** In the event that New Jersey enacts the Uniform Environmental Covenants Act or its substantial equivalent, the Parties shall address the issue of whether an environmental covenant shall be established for the AOC 1 Open Space Area under the statute. If the Parties are unable to reach agreement on establishment of an environmental

covenant, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of an environmental covenant if it would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(i) **Future Protections.** Any Party shall have the right to propose consideration of additional or substitute protections for the AOC 1 Open Space Area. If the Parties are unable to reach agreement with regard to the proposal, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of additional or substitute protections for the AOC 1 Open Space Area if they would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(j) **Prohibited Development in AOC 1 Open Space Area.** Only development satisfying the requirements of this paragraph and paragraph 60(k) shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(i) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Area regardless of when the construction or installation of permissible development occurs. The Open Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy.

(ii) The Initial Development in the AOC 1 Open Space Area shall be the

development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Area. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii).

(iii) The Special Master shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(iv) Honeywell shall ensure that the requirements of this paragraph and paragraph 60(k) are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy.

(v) Any development undertaken in the AOC 1 Open Space Area, regardless of when undertaken, shall satisfy each of the following requirements:

(1) It shall not jeopardize the integrity of the Chromium Remedy;

(2) It shall be limited to the types of development permitted under paragraph 60(k);

(3) It shall be consistent with this Consent Decree, including the conservation restriction imposed pursuant to paragraph 60(b), and the Redevelopment Plan;

however, in the event of any conflict or inconsistency between this Decree and the Redevelopment Plan, this Decree shall govern;

(4) In total, at least 75% of the AOC 1 Open Space Area, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi);

(5) The portion of the Open Space Design Standards necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy;

(6) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(7) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(8) No permanent concession facilities shall be permitted.

(vi) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c), except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) shall apply, except that the Special Master need not provide notice to NJDEP.

(vii) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant

to paragraph 60(j)(vi) and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii).

(viii) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(ix) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, and paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement).

(x) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(1) Jersey City satisfies the conditions set forth in paragraph 60(a)(iv)(2);

(2) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, and paragraph 60(j)(v); or

(3) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi), and Jersey City provides notice of its intention to alter or add to the

development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of the conservation restriction shall have the right to move the Court to prohibit such alteration or addition.

(xi) If any of the development features or facilities that Jersey City seeks to add pursuant to paragraph 60(j)(x) require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(xii) Jersey City shall provide Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2), to the development undertaken during the Initial Development Period.

(xiii) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy.

(k) **Permissible Development in the AOC 1 Open Space Area.** The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v):

(i) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Area, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(ii) Curbing and fences;

(iii) Sidewalks, paths, walkways, and nature trails;

(iv) Utilities and utility corridors, lighting, and restrooms;

(v) Irrigation or sprinkler components or systems;

(vi) Water features;

(vii) Above-ground storm water cisterns;

(viii) Signs, including the signs or display required by paragraph 60(l);

(ix) Benches, trash receptacles, and bicycle racks;

(x) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(xi) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4).

(l) **Signs or Displays.** Honeywell shall develop a permanent plan for informing visitors to the AOC 1 Open Space Area of the history of the chromium production, contamination, and its remediation. Such plan shall provide for appropriate signs or displays that communicate this information. Such plan shall be subject to review and comment by the Parties and approval by the Special Master.

61. **Honeywell's Ongoing Responsibility.** Honeywell shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy in perpetuity. Honeywell shall satisfy this responsibility through establishment and implementation of a Long-Term Monitoring Plan. In the event that Honeywell ceases to exist without a

successor-in-interest or its obligations under this Consent Decree are stayed or limited due to a bankruptcy petition, the Court shall appoint an independent third-party fiduciary who shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy pursuant to the requirements of this Consent Decree and the Long-Term Monitoring Plan, unless Jersey City volunteers to assume these responsibilities for the Chromium Remedy.

62. **Long-Term Monitoring Plan.** In consultation with the Parties, and subject to approval by the Special Master and NJDEP, Honeywell shall develop a Long-Term Monitoring Plan to ensure the ongoing effectiveness of the Chromium Remedy to meet the objectives set forth in paragraphs 56, 58, and 63. The Long-Term Monitoring Plan shall be consistent with the applicable EPA policies and guidance, including, among others, EPA's Comprehensive Five Year Review Guidance (2001) (or any subsequent revision) and with NJDEP's Technical Requirements for Site Remediation (or any subsequent revision).

63. **Long-Term Monitoring Plan Objectives.** Honeywell shall design the Long-Term Monitoring Plan to satisfy each of the following objectives:

(a) Provide monitoring to ensure that the integrity and effectiveness of the Chromium Remedy are maintained; and

(b) Provide monitoring to ensure that the restrictions of the institutional controls are being satisfied, including the prohibition on development in the AOC 1 Open Space Area.

64. **Monitoring and Remediation Under the Long-Term Monitoring Plan.** The Long-Term Monitoring Plan shall include the monitoring and remediation activities set forth in this paragraph and other monitoring and remediation activities, if necessary, to meet the objectives of paragraph 63. Honeywell shall provide Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP with annual reports on activities conducted under the Long-Term Monitoring Plan.

(a) **Monitoring Activities in the Long-Term Monitoring Plan.** Honeywell shall undertake the following monitoring activities at intervals to be specified in the Long-Term Monitoring Plan, but no less frequently than set forth below, and, if the monitoring shows it is necessary, Honeywell shall also undertake the remediation activities as set forth below:

(i) Quarterly visual inspection monitoring of the AOC 1 Open Space Area to ensure that it is not being put to any use that is inconsistent with paragraphs 60(j) and 60(k) or any use that may compromise the integrity of the Chromium Remedy. The Long-Term Monitoring Plan shall include an inventory of the prohibited and permissible uses pursuant to paragraph 60 and a corresponding checklist to be used by the individuals conducting the monitoring. If Honeywell determines that the AOC 1 Open Space Area is being used in a manner inconsistent with the protections or the integrity and effectiveness of the Chromium Remedy, Honeywell shall act as soon as possible to cause such use to cease and, if there has been damage to the Chromium Remedy, to repair or replace it to original specifications or to a level of protection equivalent to the original Chromium Remedy;

(ii) Quarterly visual inspection monitoring of the AOC 1 Open Space Area grade and slope to identify whether erosion has occurred or is occurring. Honeywell shall remediate any significant erosion.

(iii) Quarterly visual inspection monitoring to determine whether noticeable differential settlement or subsidence has occurred or is occurring in the AOC 1 Open Space Area such that the integrity of the Chromium Remedy may be materially impaired. If evidence of differential settlement or subsidence is found, Honeywell shall propose further investigative measures. Honeywell shall remediate any differential settlement or subsidence that is beyond the degree of differential settlement/subsidence allowed for in the 100% Design

and repair the cap and/or the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(iv) A baseline topographic survey at the completion of the Chromium Remedy and three additional surveys conducted at five-year intervals beginning five years after the conduct of the baseline survey. The topographic survey shall be of sufficient precision and accuracy to present the results as one-foot contours;

(v) Quarterly visual inspection monitoring to determine whether the Chromium Remedy in the AOC 1 Open Space Area has been disturbed. Any evidence of the distinctive warning layer materials or any other cap materials as described in paragraph 56(a) at the surface is an indication that the cap has been disturbed. In such an event, Honeywell shall propose further investigative measures to evaluate whether the integrity of the cap has been compromised. In the event that the investigative measures show that the cap integrity has been compromised, Honeywell shall repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vi) Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy. If evidence of burrowing animals is found, Honeywell shall follow humane removal procedures and repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vii) Quarterly visual inspection monitoring of the vegetative cover in the AOC 1 Open Space Area to ensure that vegetative cover is in conformance with the landscaping provisions of the 100% Design and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy. Maintenance of the vegetative cover shall include, at a

minimum, mowing to ensure that tree species cannot become established and removal of any other vegetation with the potential to damage the Chromium Remedy;

(viii) Quarterly groundwater monitoring to ensure that groundwater levels are maintained in accordance with the requirement to maintain an outward gradient from Study Area 7 and in accordance with the water level control plan developed pursuant to paragraph 58(e);

(ix) Monitoring of vented gases and the gas venting system to ensure proper operation of the system, to evaluate any degradation of the system, to assess the need for treatment of vented gases, either initial, subsequent, or further depending on whether treatment has been previously provided, and to detect any condition that might endanger public health or safety. Such monitoring shall be conducted on a monthly basis for at least one year and, if the readings are stable, such monitoring may be conducted thereafter on a quarterly basis; and

(x) Any additional monitoring as required by specific details added in the design phase of the AOC 1 Open Space Area.

(b) **Procedures for Proposing Changes to the Long-Term Monitoring Plan.** Any Party may, from time to time, propose changes to the scope of the monitoring activities under the Long-Term Monitoring Plan. If the Parties agree, the Long-Monitoring Plan shall be so changed subject to approval by NJDEP and by the Special Master, if his appointment has not terminated, or otherwise, by the Court. If the Parties are unable to reach agreement over alterations to the monitoring and the Special Master's appointment has not terminated under this Consent Decree, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation. In the event that the dispute arises after the Special Master's appointment has terminated, any Party may file a motion seeking a resolution of the dispute by

the Court.

(c) **Contingency Plan.** As part of the Long-Term Monitoring Plan, Honeywell shall develop a contingency plan to ensure the integrity of the remediation in the event of any planned penetration of the cap or otherwise planned activity that compromises the cap or any unplanned event or accident that penetrates the cap or otherwise compromises the integrity of the Chromium Remedy. The contingency plan shall include, at a minimum, an annually updated plan to notify the relevant persons, including the Special Master, NJDEP, and the Parties, of (i) the event penetrating the cap, compromising the cap, or compromising the integrity of the Chromium Remedy; (ii) the general steps to be taken to identify the extent of the problem; and (iii) the standards for remedying the problem.

(d) **Routine Maintenance.** The title owner of the AOC 1 Open Space Area shall conduct maintenance of the AOC 1 Open Space Area features or facilities that are permissible under paragraphs 60(j) and 60(k). The maintenance workers shall be trained in maintenance procedures that do not jeopardize the integrity of the Chromium Remedy. The training shall include the identification and reporting of any uses or features that are not permissible in the AOC 1 Open Space Area or that may jeopardize the integrity of the Chromium Remedy. Honeywell shall provide all training materials. The title owner of AOC 1 Open Space Area shall annually provide to the other Parties and the Special Master a report describing the training which has been provided to its maintenance workers. The title owner of the AOC 1 Open Space Area shall also provide to the Parties and the Special Master notice of any violations of the restrictions relating to the AOC 1 Open Space Area identified by its workers during routine maintenance.

(e) **Recordkeeping.** Honeywell shall maintain written logs or other records of those monitoring and remediation activities undertaken pursuant to the Long-Term Monitoring

Plan. Such logs shall be provided to Riverkeeper and the Jersey City Entities on a quarterly basis.

65. **Monitoring and Reporting to Riverkeeper and Jersey City Entities.** Riverkeeper and Jersey City Entities shall be provided with all documents submitted to NJDEP and/or the Special Master with respect to the Chromium Remedy, including the documents identified in paragraph 72(c).

66. **Notice to Stakeholders.** All residents, regardless of whether they are owners or lessees, and all commercial tenants on Study Areas 6 and 7 are hereby deemed stakeholders. Honeywell shall ensure that all stakeholders shall be provided at the time of their purchase or lease with notice of the contamination, the remedial actions that have been undertaken or are planned, and the importance of reporting activities that may appear to jeopardize the integrity of the engineering controls. Notice shall be accomplished in the following manner:

(a) Bold or otherwise conspicuous language on the first page of the deed provided to all purchasers in the Residential Area;

(b) A summary notice of the Chromium Remedy which:

(i) Has been subject to review and comment by the Parties and approval by the Special Master; and

(ii) Provides a reference to public websites and libraries and/or the future equivalents thereof, where the following can be found:

(1) Zoning and other Jersey City maps showing the AOC 1 Open Space Area; and

(2) Documents describing the contamination and the remediation, including:

(a) This Consent Decree;

(b) The Remedial Investigation Report and the Final Remedial Action Report,

(c) The annual reports on long-term monitoring and maintenance and repair activities as required by paragraph 64 and annual reports on changes to the Initial Development as required by paragraph 60(j)(xii); and

(d) The Long-Term Monitoring Plan.

(c) The provision of the maps and documents referred to in paragraph 66(b)(ii) to the public via websites and libraries and/or the future equivalents thereof; and

(d) Notices to lessees and commercial tenants in all lease documents.

67. **Annual Letter to Riverkeeper and Jersey City Entities on Notice to Stakeholders.** Each year beginning one year after the issuance of the first notice in a deed or lease pursuant to paragraph 66, Honeywell shall provide a letter to the Riverkeeper and the Jersey City Entities documenting its compliance with paragraph 66.

68. **Future Notice to Stakeholders.** Honeywell shall ensure that all stakeholders are provided with notice, at least annually, of long-term monitoring activities and any additional remediation activities undertaken with respect to the Chromium Remedy. Such notice shall be accomplished by notices on websites or future equivalents thereof, including Jersey City websites, any websites created to provide information about the Chromium Remediation or redevelopment of the Redevelopment Area, and one or more of the following:

(a) Any community message board or other similar site used and/or maintained by stakeholders or the manager(s) of the Redevelopment Area;

(b) Mailings to all stakeholders; and

(c) Posters and flyers throughout the Redevelopment Area.

69. **Stakeholder Enforcement.** Any stakeholder shall have the right to enforce the

remedial obligations of this Consent Decree in the Court, including post-implementation monitoring and maintenance obligations, and the terms of any deed notice or use restriction.

C. Oversight and Enforcement by the Special Master and NJDEP

70. **Federal Court Jurisdiction.** The Court shall retain jurisdiction for the purpose of overseeing and enforcing this Consent Decree and to review any issue or dispute which is not resolved through the oversight process described in Article III.C.

71. **Appointment and Jurisdiction of the Special Master.** The Chromium Remedy provided for in this Consent Decree is hereby referred to a Special Master pursuant to Rule 53 of the Federal Rules of Civil Procedure. The Special Master is appointed in the Consolidated Litigation for the purpose of overseeing and enforcing the Chromium Remedy, the first five years of long-term monitoring of the Chromium Remedy, financial assurances for the Chromium Remedy, and the Initial Development Period for each phase of development in the AOC 1 Open Space Area. The Special Master is also appointed in the Consolidated Litigation for the limited purpose of ensuring that the scheduling and implementation of the Historic Fill Remedy, the site preparation activities, and the site redevelopment activities described in the Jersey City/Honeywell Consent Order, Articles II.B, III, and IV, do not undermine the integrity of, unreasonably interfere with, or unnecessarily delay the effectuation of the Chromium Remedy, the Study Area 7 remedies, and other remedies within his jurisdiction as of the date of entry of this Consent Decree. The Special Master shall have jurisdiction over all matters for which he is appointed.

72. **Oversight of the Chromium Remedy.**

(a) **NJDEP Authority.** NJDEP shall retain its full statutory and regulatory authority with respect to the Study Area 6 North site, including (i) permitting authority; (ii) authority to review and approve the Remedial Action Work Plan, 100% Design, and final

Remedial Action Report for the Chromium Remedy; and (iii) authority to issue a no further action letter.

(b) **Special Master Responsibilities.** The Special Master shall have the following responsibilities:

(i) Ensuring that Honeywell's implementation of the Chromium Remedy satisfies the requirements of this Consent Decree;

(ii) Ensuring that Honeywell's implementation of the Chromium Remedy conforms with federal, state, and local permit requirements;

(iii) Establishing a reasonable schedule for the implementation of the Chromium Remedy and monitoring conformance with it;

(iv) Reviewing monthly progress reports and conducting periodic meetings with the Parties to review the progress of the implementation of the Chromium Remedy. NJDEP shall be invited, but not required, to participate in these meetings and the decision as to whether to participate shall be left to NJDEP's sole discretion;

(v) Submitting quarterly progress reports to the Court;

(vi) Overseeing the financial assurances established pursuant to paragraphs 77 through 86, and, until the expiration of his term pursuant to paragraph 76, overseeing the financial assurances established pursuant to paragraphs 87 through 98;

(vii) Coordinating review of the documents as provided in paragraphs 72(c) through 72(f);

(viii) Overseeing all development undertaken in the AOC 1 Open Space Area during the Initial Development Period pursuant to paragraph 60(j)(iii); and

(ix) To the extent that, in matters within the jurisdiction of the Special Master as set forth herein, a dispute arises between the Parties with respect to implementation of the Chromium Remedy, issuing a recommendation to the Court with respect to the dispute.

(c) **Submission of Documents by Honeywell.** Honeywell shall submit the following documents to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP:

(i) An overall schedule with milestones for the design and implementation of the remedy ("Schedule");

(ii) Design drawings and specifications at the 50% level;

(iii) Design drawings and specifications at the 100% level (after selection of the contractor) (hereafter "100% Design");

(iv) The data validation plan, including quality control and quality assurance protocols;

(v) The site-wide master health and safety plan;

(vi) The Long-Term Monitoring Plan;

(vii) The final Remedial Action Report or final construction report (including as-built drawings and such other reports as may be prepared of the remedy as implemented);

(viii) A report reviewing measured groundwater levels for the groundwater remedy;

(ix) Documents required during the Initial Development Period pursuant to paragraphs 60(j)(vi), 60(j)(vii), and 60(j)(viii) ; and

(x) Other post-implementation monitoring reports as required by the Long-Term Monitoring Plan.

(d) **Comment on Submitted Documents.** For each of the documents submitted by Honeywell pursuant to paragraph 72(c), the Special Master shall establish a schedule for the submission of comments and responses to comments. For each of the documents submitted, Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP shall have the right to submit comments to Honeywell. Honeywell shall address all received comments and submit a revised document. The revised document shall be submitted by Honeywell to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP. The revised document shall be subject to review and approval pursuant to paragraph 72(e).

(e) **Review and Approval of the Submitted/Revised Document**

(i) **Scope of Review.** All documents submitted by Honeywell, pursuant to paragraph 72(c) and 72(d), shall be subject to review and approval by the Special Master in accordance with the following procedure. All such documents, except the Schedule and the 100% Design, shall be subject to the review and approval process and shall not require an order of the Court. The Schedule and 100% Design documents shall be subject to the review and approval process, but shall also require an order of the Court as provided in paragraph 72(f). A document shall be approved if the document (1) complies with this Consent Decree; (2) complies with the Remedial Action Work Plan for the Chromium Remedy; and (3) complies with the Schedule and 100% Design.

(ii) **Procedure.** Prior to making a decision on a document, the Special Master shall notify NJDEP of his intention to rule on the document or make a recommendation to the Court on the document. Such notice shall notify NJDEP that the Special Master will consider any comments NJDEP wishes to submit on the document if such comments are submitted within 30 days of NJDEP's receipt of the notice. NJDEP shall in its sole discretion determine whether to submit comments to the Special Master.

(iii) **Court Review.** If any Party objects to the Special Master's recommendation to the Court or approval of any document pursuant to this paragraph, that Party may seek further relief from the Court with respect to the document.

(f) **Schedule and 100% Design Documents.** As to the Schedule and the 100% Design documents, Honeywell shall have the responsibility, within 30 days of the Special Master's approval of each document, of (i) moving for entry of an order by the Court approving the document as approved by the Special Master; or (ii) filing objections with the Court to the Special Master's approval (and any recommendations contained therein) and moving for entry of the Schedule or 100% Design (including any such recommendations of the Special Master to which Honeywell agrees). Riverkeeper and the Jersey City Entities shall have the right in these proceedings to raise any objections they might have to the Schedule or 100% Design as approved by the Special Master or to the submission by Honeywell to the Court. NJDEP shall receive notice of any motion filed with respect to the Schedule or the 100% Design.

(g) **Flexibility in 50% and 100% Design Documents**. The Parties recognize that work conducted to implement the Chromium Remedy may be conducted by Honeywell contractors and that Honeywell may establish performance-based criteria or specifications for its contractors. As a result, the Parties recognize that the 50% Design and 100% Design documents for the Chromium Remedy may include performance-based standards, criteria, and specifications. These documents shall be sufficiently prescriptive to enable the Parties and the Special Master to evaluate their conformance with the Remedial Action Work Plan and this Consent Decree. The Parties also recognize that the 100% Design will be completed after Honeywell has selected a contractor. The Parties further recognize that completing the 100% Design after the selection of the contractor(s) shall not make the 100% Design subject to any less

stringent or more deferential review. Honeywell's commitment to the contractor(s) shall not be cause to limit review by the Parties and the Special Master.

(h) **Changes to the Schedule**. The Parties recognize that changes to individual line items in the Schedule will occur. To the extent that (i) the Parties and the Special Master agree that such changes do not have a material impact on satisfaction of the Schedule milestones established for items set forth in paragraph 54(b); and (ii) such changes do not require modifications to any necessary permits or authorizations for the Chromium Remedy, such changes may be made upon agreement of the Parties and the Special Master without further order of the Court.

73. **Retention of Professionals.** The Special Master may retain the services of professionals and/or other technical personnel, as reasonably needed, to fulfill his obligations under this Consent Decree, and for which he will be reimbursed pursuant to paragraph 75.

74. **Insurance for the Special Master.** The Special Master shall obtain insurance coverage relating to the performance of the Special Master's duties and responsibilities under this Consent Decree. Such coverage shall be similar to the Special Master's existing coverage in *ICO v. Honeywell*, procured pursuant to the Court's November 11, 2005 Stipulation and Order Regarding Special Master's Application to Procure Insurance Coverage, and as extended to the Consolidated Litigation by the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"). The insurance coverage shall be sufficiently extended in duration and scope to cover all additional duties and responsibilities as set forth hereunder. Honeywell shall pay the premiums and other administrative costs of the Special Master's insurance.

75. **Reimbursement of Special Master Fees and Expenses.** The Special Master shall submit fee applications to the Court for approval of reasonable fees and expenses incurred in the

oversight of matters referred to him pursuant to this Consent Decree. Any Party may raise with the Court objections to such fee applications. Upon approval of a fee application by the Court, the reimbursement of the Special Master's fees and expenses shall be made from the escrow fund previously established by Honeywell for the purpose of paying the Special Master's fees and expenses in *ICO v. Honeywell* pursuant to this Court's September 15, 2003 Order Setting Financial Assurances and extended to the Consolidated Litigation by the Sediment Consent Order.

76. **Expiration of Special Master's Appointment.** The Special Master's appointment under this Consent Decree shall expire after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy and the Initial Development Period for each phase of development has been concluded as provided in paragraph 60(j)(ii). However, solely to the extent that the Special Master is still supervising other portions of the Consolidated Litigation or *ICO v. Honeywell* after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy or the Initial Development Period for each phase of development as provided in paragraph 60(j)(ii), whichever is later, the Special Master shall continue to have jurisdiction under this Consent Decree until he has completed his specifically enumerated responsibilities under the Final Judgment in *ICO v. Honeywell*, the Sediment Consent Order, the Deep Groundwater Consent Order, and any other future orders, decrees, or judgments in *ICO v. Honeywell* and the Consolidated Litigation. Enumerated responsibilities under any order, decree, or judgment shall include only those tasks specifically assigned to the Special Master in the order, decree, or judgment. Enumerated responsibilities shall not include any continued jurisdiction exercised over long-term monitoring beyond the initial period specified in the order, decree, or judgment. For example, the Special Master has jurisdiction over the first five years of long-term monitoring under the Sediment Consent Order. Oversight during these five years shall

be an enumerated responsibility, but any continued oversight of long-term monitoring, pursuant to the extension of the Special Master's jurisdiction beyond the first five years, as provided in paragraph 60 of the Sediment Consent Order, shall not be an enumerated responsibility. Such extensions of jurisdiction shall be effective only so long as specific enumerated responsibilities in any order, decree, or judgment have not been fulfilled.

D. Initial Financial Assurances

77. **Chromium Remedy Letter of Credit.** Honeywell shall obtain a one-year, irrevocable letter of credit (the "Chromium Remedy Letter of Credit") to be automatically renewed annually in an amount equal to the "Remedial Costs Subject to Financial Assurance."

(a) Remedial Costs Subject to Financial Assurance shall mean:

(i) The costs of implementing the Chromium Remedy;

(ii) The costs of monitoring and maintenance activities, as required by the Long-Term Monitoring Plan, for five years; and

(iii) A contingency of 25% with respect to those costs listed in paragraphs 77(a)(i) and 77(a)(ii).

(b) The Chromium Remedy Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution, provided that in either case, the financial institution shall be acceptable to the Special Master.

78. **Procedures for Review of the Proposed Chromium Remedy Letter of Credit.** No later than 60 days after entry by the Court of this Consent Decree, Honeywell shall submit to Riverkeeper, Jersey City Entities, and the Special Master for their review the proposed (a) amount of the Chromium Remedy Letter of Credit; (b) form of the Chromium Remedy Letter of Credit; and (c) name of the institution that will issue the Chromium Remedy Letter of Credit. If

Riverkeeper or the Jersey City Entities do not agree to the terms of the Chromium Remedy Letter of Credit, the Parties shall meet and confer in an effort to resolve their differences. If the Parties are unable to reach agreement over the terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the Chromium Remedy Letter of Credit.

79. **Automatic Renewal.** The Chromium Remedy Letter of Credit shall be automatically renewed annually unless (a) no later than 120 days prior to the anniversary of the Chromium Remedy Letter of Credit issue date, the issuer provides notice of nonrenewal or (b) Honeywell seeks a reduction in the Chromium Remedy Letter of Credit, pursuant to paragraph 80, to correspond to the reduced estimate of Remedial Costs Subject to Financial Assurances. If the issuer provides notice of nonrenewal, Honeywell shall obtain a replacement irrevocable Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit. If Honeywell is not otherwise in default as provided in Article III.D, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit within 91 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit. In the event that the Special Master is entitled to draw upon a Chromium Remedy Letter of Credit because there are two Chromium Remedy Letters of Credit currently in place, the Special Master shall not draw an aggregate amount in excess of the highest valued Chromium Remedy Letter of Credit. Upon Honeywell's request, the Special Master may, at his option, decide not to require overlapping letters of credit in any year based on Honeywell's financial strength in that year, provided that Honeywell has submitted all necessary information so that the Special Master can make his determination at least 150 days prior to the expiration of the Chromium Remedy Letter of Credit.

80. **Annual Right to Seek Reduction in Amount of Chromium Remedy Letter of Credit.** Honeywell shall have the right annually to seek a reduction in the Chromium Remedy Letter of Credit. At the time of seeking such reduction, Honeywell shall submit to the Riverkeeper, the Jersey City Entities, and the Special Master an estimate of the remaining Remedial Costs Subject to Financial Assurance, including the contingency as described in paragraph 77(a)(iii), and shall seek adjustment of the Chromium Remedy Letter of Credit so that the total estimated amount of remaining Remedial Costs Subject to Financial Assurance are covered by the Chromium Remedy Letter of Credit. However, the adjustment shall not result in reducing the Chromium Remedy Letter of Credit to an amount below the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), plus a contingency of 25% of the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), and shall not result in reducing the Chromium Remedy Letter of Credit to an amount less than $20,000,000 as expressed in 2008 dollars unless long-term financial assurances are in place pursuant to Article III.E. Before making any request to reduce the amount or modify the terms of the Chromium Remedy Letter of Credit, Honeywell shall first confer with the Riverkeeper and the Jersey City Entities in an effort to reach agreement on the modified amount or terms of the Chromium Remedy Letter of Credit. If the Parties are unable to reach agreement over the modified amount or terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall resolve the dispute. Any Party shall have the right to seek review by the Court of the Special Master's decision regarding the modified amount or terms of the Chromium Remedy Letter of Credit. Upon agreement on the amount of the reduction or modified terms of the Chromium Remedy Letter of Credit (or upon order of the Court directing that the Chromium Remedy Letter of Credit be reduced to an identified amount or otherwise modified), Honeywell shall obtain a replacement Chromium Remedy Letter of Credit in such amount and with such

terms. If Honeywell is not otherwise in default as provided in Article III.D and the issuer of the primary Chromium Remedy Letter of Credit has not provided notice of non-renewal, within 30 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit.

81. **Bankruptcy Protection.** Neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy. The Chromium Remedy Letter of Credit shall contain the language necessary to assure that neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

82. **Exclusive Court Jurisdiction.** The Chromium Remedy Letter of Credit shall recite that the issuer submits to the exclusive jurisdiction of this Court for any and all disputes arising under the Letter of Credit.

83. **Application of New York Law.** The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Chromium Remedy Letter of Credit.

84. **Procedures upon Honeywell's Material Default of Its Obligations.** During the period in which the Special Master has jurisdiction pursuant to paragraph 71, the Chromium Remedy Letter of Credit shall be payable to the Special Master and shall not, prior to its expiration date, be revoked or terminated except consistent with this Consent Decree and with the consent of the Special Master and approval by the Court. The Special Master's ability to draw upon the Chromium Remedy Letter of Credit shall not be limited by any agreement between Honeywell and the issuer. The Special Master may, without further order or notice to

this Court, draw upon the Chromium Remedy Letter of Credit upon the occurrence of default by Honeywell, which shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 79 to deliver a replacement Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 15 days after written notice to Honeywell thereof and either (i) Honeywell, in the opinion of the Special Master without further input from the Parties, shall have failed to cure the breach; (ii) during the 15-day period, the Court has not entered an order to prevent the Special Master from drawing on the Chromium Remedy Letter of Credit; or (iii) the Court or the Special Master has not granted Honeywell additional time to cure the breach;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if involuntary filing has not been dismissed within 60 days; the appointment of a custodian, receiver, liquidator, or trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under paragraph 84(c) above, and the failure of Honeywell to provide assurance to the Special Master, within 15 days after written notice, that such an event will not impair Honeywell's ability to

carry out the terms of this Consent Decree.

85. **Placement of Proceeds in Court Registry Investment System Account.** In the event that the Special Master draws upon the Chromium Remedy Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Chromium Remedy Letter of Credit which represent the remaining estimated Chromium Remedy costs under paragraphs 77(a)(i), plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), in an account with the Court Registry Investment System in accordance with Local Civil Rule 67.1 and not expend the proceeds of the Letter of Credit without further order of this Court. The Special Master shall place all additional proceeds of the Chromium Remedy Letter of Credit in a trust fund pursuant to paragraph 90(b)(v).

86. **Termination of Chromium Remedy Letter of Credit.** The Chromium Remedy Letter of Credit may be withdrawn in its entirety upon the satisfaction of all of the following:

(a) The implementation of the Chromium Remedy; and

(b) Establishment of long-term financial assurance pursuant to Article III.E.

E. Long-Term Financial Assurances

87. **Long-Term Financial Assurances.** Honeywell shall fund long-term financial assurances to ensure that the activities set forth in paragraph 89(a) are carried out regardless of whether Honeywell is financially able to carry out such activities in perpetuity.

88. **Resolution of the Amount of Long-Term Financial Assurances.** The Parties have agreed to the following options with regard to how the long-term financial assurances shall be determined:

(a) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less,

and agree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E.

(b) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, but disagree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E except that the dispute as to the amount of the long-term financial assurances shall be submitted to the Special Master pursuant to paragraph 91.

(c) If the Parties do not agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, or the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is greater than $10,000,000, the Parties shall seek resolution by the Court of the long-term financial assurances issues, including (i) the type of financial assurances to be provided; (ii) the scope of the financial assurances; (iii) the amount of the financial assurances; and (iv) the duration of the financial assurances. In the event that the Parties seek resolution by the Court, the provisions of paragraphs 90 through 98 shall not apply.

(d) Within 60 days of the entry of this Consent Decree, the Parties shall determine which option under this paragraph shall apply. In the event that the Parties determine that paragraph 88(c) applies, Riverkeeper shall initiate the proceedings by moving the Court for the imposition of long-term financial assurances.

(e) If the Parties determine that they are proceeding under paragraph 88(c), Honeywell shall maintain the Chromium Remedy Letter of Credit required by paragraph 77 in an amount equal to at least $20,000,000 in 2008 dollars until such time as the long-term financial assurances ordered by the Court are in place. In the event of any default by Honeywell pursuant

to paragraph 84 while the Chromium Remedy Letter of Credit is in place, the provisions of paragraph 90(b)(v) for the placement of the proceeds that exceed the remaining estimated Chromium Remedy costs under paragraph 77(a)(i) plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), shall apply.

89. **Costs Subject to Long-Term Financial Assurances.**

(a) Long-term financial assurances shall provide enough funds to cover the costs of the following activities:

(i) Perpetual monitoring and maintenance of the Chromium Remedy, including installation, operation and monitoring of any above-cap-grade gas collection and/or treatment system as may be necessary, but such system is not part of the 100% Design;

(ii) Perpetual operation of the shallow groundwater pump-and-treat remedy;

(iii) Perpetual repair of the cap;

(iv) Perpetual replacement of the cap on a 75-year replacement interval; and

(v) In the event that Honeywell selects a trust fund pursuant to paragraph 90(a), the perpetual administration of the trust fund.

(b) The costs that shall be subject to financial assurances is an amount that will provide the full payment for each of the activities set forth in paragraphs 89(a)(i) through 89(a)(v) plus a 25% contingency when the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to be performed. The costs subject to financial assurances are forward looking because they state an amount valued at the time the funds are needed. As such, they shall be stated in contemporary time as the present value (calculated on the basis of a discount rate of 4.75%) of

the estimated future costs of the activities specified in paragraphs 89(a)(i) through 89(a)(v), plus a 25% contingency on those costs.

90. **Long-Term Financial Assurance Mechanisms.** Honeywell shall provide long-term financial assurances in the amount of the costs subject to long-term financial assurances in the form of a trust fund, a letter of credit, or some combination of the two. The selected mechanism(s) shall satisfy the following requirements:

(a) **Trust Fund.** In the event that Honeywell selects a trust fund, Honeywell shall create a trust fund such that it can provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(i) The trust fund shall be at arm's length from Honeywell and shall not be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The trust fund agreement shall contain the language necessary to assure that neither the trust fund nor the earnings of the trust fund shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The trust fund shall be managed by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution managing the trust fund declares bankruptcy, the Court shall withdraw the funds and appoint another financial institution meeting the requirements of this paragraph to manage the trust.

(iii) No more frequently than once per year, Honeywell may apply to the Court for an order directing the trust manager to reimburse Honeywell for any costs that it has incurred to carry out the activities set forth in paragraphs 89(a)(i) through 89(a)(iv).

(b) **Long-Term Letter of Credit.** In the event that Honeywell selects a letter of credit, Honeywell shall obtain a one-year irrevocable letter of credit (the "Long-Term Letter of Credit") to be automatically renewed annually in an amount that provides sufficient funds such that a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a), could be created. The Long-Term Letter of Credit-funded trust, plus any trust fund established under paragraph 90(a), shall provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The amount of any Long-Term Letter of Credit shall therefore be adjusted periodically as the cap replacement interval is approached because, for example, the money needed in the 10th year to fund a trust that can provide for replacement of the cap in the 75th year is much less than the money that would be needed in the 40th year. Such periodic adjustments shall be proposed and approved by the Court in conjunction with the adjustments under paragraph 92.

(i) Neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The Long-Term Letter of Credit shall contain the language necessary to assure that neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The Long-Term Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution issuing the Long-Term Letter of Credit declares bankruptcy, the Court shall authorize the drawing of funds from the Long-Term Letter of Credit

and shall deposit those funds in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(iii) The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Long-Term Letter of Credit.

(iv) The Long-Term Letter of Credit shall be automatically renewed annually, unless, no later than 120 days prior to the anniversary of the Long-Term Letter of Credit issue date, the issuer provides notice of non-renewal. If the issuer provides notice of non-renewal, Honeywell shall obtain a replacement irrevocable Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit. If Honeywell is not otherwise in default as provided in this Article, the Court shall direct the cancellation of the prior Long-Term Letter of Credit within 91 days after delivery to the Court of any replacement of a Long-Term Letter of Credit. In the event that the Court is entitled to draw upon a Long-Term Letter of Credit when there are two Letters of Credit currently in place, the Court shall not draw an aggregate amount in excess of the highest valued Long-Term Letter of Credit.

(v) Prior to the expiration of the Special Master's appointment pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Special Master. During the time the Long-Term Letter of Credit is payable to the Special Master, the Special Master may draw on the Long-Term Letter of Credit as provided in paragraph 84. In the event that the Special Master draws upon the Long-Term Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a). After the Special Master's appointment expires pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Court and, in the event that the Court draws

on the Long-Term Letter of Credit, the Court shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(vi) Whether the Long-Term Letter of Credit is payable to the Special Master or the Court, it shall not, prior to its expiration date, be revoked or terminated by Honeywell except consistent with this Consent Decree and with the approval of the Court. The ability of the Special Master or the Court to draw upon the Long-Term Letter of Credit shall not be limited by any agreement between Honeywell and the issuer.

(vii) In the event that the Long-Term Letter of Credit is drawn upon and invested pursuant to paragraph 90(b)(ii), 90(b)(v) or 95 and Honeywell has also selected a trust fund pursuant to paragraph 90(a), resulting in the existence of two trust funds, the two trust funds shall be managed so as to ensure that the combined amount of the trust funds is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(c) **Combination.** Honeywell may use some combination of a trust fund and a letter of credit to achieve the requirements of this paragraph. However, if a combination is used, Honeywell shall ensure that the combined amount of financial assurances is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The trust fund and the letter of credit shall otherwise satisfy all the requirements of paragraphs 90(a) and 90(b).

91. **Procedures for Review of the Proposed Long-Term Financial Assurances.** In the event that the Parties have determined that they are proceeding pursuant to paragraph 88(a) or 88(b), no later than 120 days after the determination under paragraph 88(d), Honeywell shall submit to Riverkeeper, the Jersey City Entities, and the Special Master, for their review (a) the

amount of the proposed long-term financial assurances; (b) the form(s) of the proposed long-term financial assurance mechanisms; and (c) the name(s) of the institution proposed to manage or issue the long-term financial assurances. If Riverkeeper and the Jersey City Entities agree to the terms of the proposed long-term financial assurances, within 60 days of such agreement, Honeywell shall create a trust fund and/or secure a Long-Term Letter of Credit on those terms. If the Parties are unable to reach agreement over the terms of the long-term financial assurances, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the financial assurances. In any event, until the long-term financial assurances have been put into place, Honeywell shall maintain the Chromium Remedy Letter of Credit and the requirements of paragraphs 88(e) and 90(b)(v) shall apply to the Chromium Remedy Letter of Credit.

92. **Adjustment of Amount Held in Long-Term Financial Assurances.** Every five years as marked from the establishment of the first long-term financial assurances pursuant to paragraph 90, the Parties shall report to the Court whether the long-term financial assurances are adequately funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. At such time as the Parties report to the Court, any Party may seek an adjustment in the amount of the long-term financial assurances. The Party seeking an adjustment must demonstrate that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Such demonstration shall reflect the actual costs of implementing the remedy and/or any replacement of the remedy, once such actual costs are available. The demonstration shall also reflect the costs of work completed to date and the actual lifetime of the cap, once the

cap has been replaced or has passed a replacement interval without requiring replacement. The demonstration shall further reflect the actual performance of the fund and its ability to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Any demonstration shall be forward looking and shall be based upon estimates of what the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to cost at the time they must be performed and the amount of funding projected to be available to undertake such activities at the time they must be performed. If, after reviewing the submission(s) received from the Parties, the Court determines that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary, the Court shall order an adjustment in the amount held in the long-term financial assurances to overcome the shortage or overage. In the event that the Court determines that the long-term financial assurances are under-funded, it shall order Honeywell to increase the amount held in the long-term financial assurances. In the event that the Court determines that any trust fund established pursuant to paragraph 90(a) is over-funded, the Court shall issue an order directing the trust manager to pay the overage to Honeywell. In the event that the Court determines that the Long-Term Letter of Credit is over-funded, the Court shall issue an order permitting Honeywell to reduce the amount covered during the next annual renewal of the Long-Term Letter of Credit pursuant to paragraph 90(b)(iv). Any adjustment to the amount of the Long-Term Letter of Credit pursuant to this paragraph shall be in addition to any adjustment of the amount of the Long-Term Letter of Credit required pursuant to paragraph 90(b).

93. **Exclusive Court Jurisdiction.** The trust fund agreement and/or the Long-Term Letter of Credit shall recite that the trust fund manager and/or issuer of the Long-Term Letter of Credit submit to the exclusive jurisdiction of this Court for any and all disputes arising under the

trust fund or the Long-Term Letter of Credit. The requirements of this paragraph shall apply whether the trust fund is established pursuant to paragraph 90(a), 90(b)(ii), 90(b)(v), or 95.

94. **Procedures upon Honeywell's Material Default of Its Obligations after the Special Master's Appointment Has Expired.** Upon the occurrence of default by Honeywell, after the Special Master's appointment has expired, Riverkeeper or the Jersey City Entities may move the Court on an expedited basis for an order to withdraw funds from the trust fund or to draw on the Long-Term Letter of Credit. Default shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 90(b)(iv) to deliver a replacement Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 30 days after written notice by Riverkeeper or the Jersey City Entities to Honeywell of the alleged material failure, unless Honeywell cures the alleged breach within the 30-day notice period or such longer period as the Parties may agree to or the Court may order;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if the involuntary filing is not dismissed within 60 days; the appointment of a custodian, receiver, liquidator, trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under

paragraph 94(c), if Honeywell fails to provide assurance to Riverkeeper, the Jersey City Entities, and the Court, within 15 days after written notice, that such an event will not impair Honeywell's ability to carry out the terms of this Consent Decree.

95. **Drawing on the Long-Term Letter of Credit in the Event of Honeywell's Default.** If the Court grants any motion by Riverkeeper or the Jersey City Entities pursuant to paragraph 94 to draw on the Long-Term Letter of Credit, the sum approved by the Court's order granting the motion shall be paid from the Long-Term Letter of Credit into a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

96. **Use of the Trust Fund in the Event of Honeywell's Default**. In the event of Honeywell's default, the money in the trust fund established pursuant to paragraph 90(a) shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

97. **Use of a Trust Fund Established Pursuant to Paragraph 85, 90(b)(ii), 90(b)(v), or 95.** In the event that a trust fund is established pursuant to paragraph 85, 90(b)(ii), 90(b)(v), or 95, the money in the trust fund shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

98. **Termination of the Long-Term Financial Assurances.** Honeywell's obligations

under Article III.E shall be terminated and the long-term financial assurance mechanisms shall be terminated when the Court finds that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area or on the Site, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon determining that long-term financial assurances may be terminated, the Court shall order that any Long-Term Letter of Credit may be withdrawn in its entirety and any trust fund may be terminated. In conjunction with its order terminating any trust fund, the Court in its discretion shall designate a recipient(s) of any remaining trust funds.

ARTICLE IV: IMPLEMENTATION SCHEDULE AND TERMINATION

99. **Schedule for Remedy and Site Preparation Implementation Activities.** The Chromium Remedy under Article III and the Historic Fill Remedy under Article II.B of the Jersey City/Honeywell Consent Order and Site Preparation Activities under Article III of the Jersey City/Honeywell Consent Order shall be undertaken by the Parties in accordance with the following anticipated schedule, recognizing that this schedule may be further modified in writing by agreement of the Parties and with the approval of the Court:

(a) By October 1, 2008, the Jersey City Entities and Honeywell shall develop a Site Preparation Plan, pursuant to paragraph 3.2 of the Jersey City/Honeywell Consent Order, for all Site Preparation Activities necessary to undertake the Chromium Remedy;

(b) No later than June 18, 2009, Honeywell shall submit to NJDEP a remedial design document for the Chromium Remedy;

(c) No later than September 1, 2009, Honeywell shall submit all applications for permits and authorizations for the performance of the Chromium Remedy to all appropriate local, state, and federal government entities;

(d) Honeywell shall use its best efforts to complete the Chromium Remedy no later than four years after all appropriate applications and authorizations for the performance of the Chromium Remedy have been obtained;

(e) By May 1, 2008, Honeywell and the Jersey City Entities shall submit a work plan for further Remedial Investigation for AOC 2 to NJDEP; and

(f) By December 1, 2008, Honeywell and the Jersey City Entities shall submit a Remedial Action Selection Report and Remedial Action Workplan for the Historic Fill Remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order. The Workplan shall contain a schedule for implementation of the Historic Fill Remedy.

100. **Termination of this Consent Decree.** This Consent Decree shall terminate upon the withdrawal of any Party as provided for in this paragraph. Any Party may elect to withdraw from this Consent Decree due to the occurrence of one or more of the following events, provided that such Party provides written notice of withdrawal to the other Parties pursuant to paragraph 108:

(a) The Court fails to enter the Jersey City/Honeywell Consent Order or this Consent Decree or either the Jersey City/Honeywell Consent Order or this Consent Decree is determined to be invalid on appeal;

(b) JCRA fails to take those actions required under paragraphs 4.11(a), (b), and (c) of the Jersey City/Honeywell Consent Order within nine months of entry of this Consent Decree; or

(c) JCRA fails to approve a Redevelopment Agreement between Bayfront Redevelopment LLC and JCRA pursuant to paragraph 4.11(e) of the Jersey City/Honeywell Consent Order within 12 months of entry of this Consent Decree.

101. **Procedures for Withdrawal and Termination.** Any Party electing to withdraw pursuant to paragraph 100 and thereby terminate this Consent Decree shall provide written notice of such withdrawal and termination to all other Parties within 30 days of the occurrence giving rise to the decision to withdraw. If any Party objects to termination of the Consent Decree, or believes that the conditions set forth in paragraph 100 have not been met, such objecting Party may move the Court for an expedited hearing on the issue of whether the conditions for termination have been effectuated.

102. **Good-Faith Obligation to Avoid Termination.** The Parties agree that they will each endeavor to fulfill the terms of this Consent Decree, that they will work diligently and in good faith to meet their obligations hereunder, and that they will promptly and timely take all reasonable steps to give effect to this Consent Decree and to avoid termination under paragraph 100.

103. **Effect of Termination.** If this Consent Decree is terminated pursuant to paragraph 100, the Consent Decree shall no longer be binding on the Parties and shall be of no further effect. In the event that this Consent Decree is terminated by one or more Parties pursuant to paragraph 100, each Party to this Consent Decree reserves all of its rights, claims, and defenses (both legal and factual) against the other Parties with respect to the matters at issue in the Consolidated Litigation and each Party remains free to pursue such rights, claims, and defenses.

ARTICLE V: ADDITIONAL PROVISIONS RELATED TO HISTORIC FILL AND SITE PREPARATION AND REDEVELOPMENT

104. **Historic Fill Remedy**. This Consent Decree shall adopt and incorporate the terms of Article II.B of the Jersey City/Honeywell Consent Order with respect to the Historic Fill Remedy. The Historic Fill Remedy shall not be limited to the activities set forth in Article II.B of the Jersey City/Honeywell Consent Order in the event that NJDEP requires a more extensive remedy. The Historic Fill Remedy shall be compatible with the Chromium Remedy such that no

part of the Historic Fill Remedy shall interfere with the installation, maintenance, and monitoring of the Chromium Remedy. In addition, the Historic Fill Remedy for any discharge of non-chromium contaminants to the Hackensack River shall not interfere with the remedies under the Sediment Consent Order, including the source control remedies. In the event that Jersey City conducts the Historic Fill Remedy instead of Honeywell, the terms of this paragraph shall still apply.

105. **Oversight of Historic Fill Remedy**. Paragraph 2.11 of the Jersey City/Honeywell Consent Order shall apply only to the Historic Fill Remedy, not the Chromium Remedy. The Progress Reports provided for in paragraphs 2.12 and 3.7 of the Jersey City/Honeywell Consent Order shall be provided to Riverkeeper and the Special Master at the time they are submitted.

106. **Transfer of Title of Study Areas 6 North and 7 to and from Bayfront Redevelopment LLC**. The transfer of title of Study Area 6 North and Study Area 7 properties to Bayfront Redevelopment LLC pursuant to the Jersey City/Honeywell Consent Order and any subsequent transfers shall not impede Honeywell's obligations to (a) complete the remediation of Study Area 7 and implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or (b) complete the Chromium Remedy and conduct long-term monitoring and fulfill its other obligations set forth in this Consent Decree. Such transfers of Study Areas 6 North and Study Area 7 shall not include a transfer of Honeywell's obligations to implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or a transfer of Honeywell's obligations under this Consent Decree, but shall include a right of access or any other right required by Honeywell to complete the remediation. Any subsequent transfer of Study Area 6 North or Study Area 7 from Bayfront Redevelopment LLC to a redeveloper or other party shall provide all necessary agreements to allow Honeywell all necessary access to Study Area 6 North and Study Area 7 for purposes of completing Honeywell's obligations with respect to Study Area 6 North under this

Consent Decree and completing the Study Area 7 remediation and implementing the Final Judgment and subsequent orders in *ICO v. Honeywell*.

107. **Dispute Resolution Procedures.** The provisions of Article VIII of the Jersey City/Honeywell Consent Order do not apply to any disputes regarding or impacting the Chromium Remedy, which shall be resolved as provided in paragraph 72. The provisions of Article VIII of the Jersey City/Honeywell Consent Order shall apply to disputes between the Jersey City Entities and Honeywell regarding the Historic Fill Remedy and other obligations provided in the Jersey City/Honeywell Consent Order, except to the extent that such disputes may affect the Chromium Remedy. If any such dispute may affect the Chromium Remedy, it shall be resolved as provided in paragraph 72. Honeywell shall provide Riverkeeper with a copy of each notice of any breach provided under paragraph 8.1 of the Jersey City/Honeywell Consent Order within 10 days of Honeywell's receipt or issuance of such notice. Honeywell shall provide Riverkeeper with a copy of any written resolution of a dispute pursuant to paragraph 8.2 within 10 days of the resolution.

ARTICLE XI: NOTICE

108. **Notice.** Any and all notices given in connection with this Consent Decree shall be deemed adequately given only if in writing and addressed to the Party for whom such notices are intended at the addresses set forth in this paragraph. All notices shall be sent by Federal Express or other nationally recognized overnight messenger service or by first-class registered or certified mail, postage prepaid, return receipt requested. A written notice shall be deemed to have been given to the recipient party on the earlier of (a) the date it shall be delivered to the address set forth in this paragraph; (b) the date delivery shall have been refused at the address set forth in this paragraph; or (c) with respect to notices sent by mail, the date as of which the postal service shall have indicated such notice to be undeliverable at the address set forth in this paragraph.

Any and all notices referred to in this Consent Decree, or which any Party desires to give to the other, shall be addressed as follows:

If to Honeywell and/or
Bayfront Redevelopment LLC :

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

If to Riverkeeper:

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th St., N.W.
Washington, DC 20005-4632
(202) 682-2100

With copies to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-4003

If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

If to JCIA:

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

If to JCMUA:

Sam Della Fera Jr.
Trenk, DiPasquale, Webster,
Della Ferra & Sodono, P.C.
347 Mount Pleasant Ave.
West Orange, NJ 07052
(973) 243-8600

If to JCRA:

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Any party may change its designated recipients or addresses for notice in this paragraph by providing written notice of such change to all other Parties.

ARTICLE XII: RIVERKEEPER'S ATTORNEYS' FEES

109. **Payment of Past Fees and Expenses.** Within 30 days of the entry of this Consent Decree, Honeywell shall pay Terris, Pravlik & Millian, LLP the sum of $1,513,217.15 which represents the following:

(a) A compromise of the attorneys' fees incurred by Riverkeeper in the litigation of Study Area 6 North portion of *Riverkeeper v. Honeywell* through March 27, 2008; and

(b) $187,862.27 in out-of-pocket expenses representing 50% of the expenses incurred by Riverkeeper in *Riverkeeper v. Honeywell* from the inception of the litigation after deducting the expenses to be paid pursuant to the Sediment Consent Order.

Payment of the sum of $1,513,217.15 shall be in full satisfaction of all obligations, duties, and responsibilities of Honeywell with respect to the $1,556,747.46 in fees and expenses that Riverkeeper claimed with regard to the above described fees and expenses.

110. **Future Fees and Expenses.** Honeywell shall reimburse Riverkeeper's attorneys for reasonable fees and expenses incurred: (a) in negotiating this Consent Decree after March 27, 2008; (b) in the monitoring and enforcement of this Consent Decree; and (c) in participation in the Special Master process established pursuant to this Consent Decree. Honeywell shall also reimburse Riverkeeper for reasonable attorneys' fees and expenses for Riverkeeper's review of and participation in the Long-Term Monitoring Plan and monitoring and enforcement of this Consent Decree following the term of the Special Master. In the event that any dispute arises between the Parties under this Consent Decree that must be resolved by the Court, Riverkeeper shall be entitled to recover its attorneys' fees and expenses for litigation of the dispute to the extent allowed by federal law. Riverkeeper and Honeywell shall use the same informal procedure for attempting to settle fees issues as has been used for post-judgment monitoring fees in *ICO v. Honeywell*. In the event that Riverkeeper and Honeywell are unable to reach a

settlement on fees, Riverkeeper shall apply to the Court for an award of attorneys' fees and expenses. If Honeywell objects to only a portion of the Riverkeeper's statement of attorneys' fees and expenses, Honeywell shall pay the undisputed portion within 60 days of Riverkeeper's submittal of the statement to Honeywell. The Court shall resolve any objections to Riverkeeper's statement of attorneys' fees and expenses and shall enter an appropriate Order.

ARTICLE XIII: MISCELLANEOUS PROVISIONS

111. **Force Majeure.** Force Majeure, for the purposes of this Consent Decree, is defined as an event arising from causes beyond the control of any Party or Parties (or their agents, contractors, subcontractors, representatives, or assigns) which could not have been overcome by reasonable diligence and which delays or prevents the performance of any obligation under this Consent Decree. Examples of events which may constitute force majeure include the refusal of any federal or state governmental authority to grant a permit or authorization necessary for the completion of actions required by this Consent Decree, floods, hurricanes, tornadoes, and other extraordinary weather events, earthquakes and other natural disasters, terrorist attacks, war, and other national emergencies. Examples of events that are not force majeure events include normal inclement weather, increased costs or expense, the failure to timely and fully apply for a permit or authorization necessary for the completion of actions required by this Consent Decree, or financial difficulty of any Party. The Party claiming force majeure shall bear the burden of showing an event was a force majeure event.

112. **JCRA and Bayfront Redevelopment LLC as Parties.** As signatories to this Consent Decree, JCRA and Bayfront Redevelopment LLC subject themselves to the Court's jurisdiction for the purpose of enforcing this Consent Decree and agree to be bound by this Consent Decree. This Consent Decree shall be fully enforceable against JCRA and Bayfront Redevelopment LLC.

113. **Successors and Assigns.** This Consent Decree shall be binding upon and shall inure to the benefit of the successors, assigns, heirs, corporate parents, subsidiaries, and affiliates of each Party. No assignment or delegation of the obligations hereunder shall release the assigning Party from its obligations under this Consent Decree.

114. **Successors to Hackensack Riverkeeper, Inc.** In the event that Hackensack Riverkeeper, Inc. disbands or otherwise ceases operations, it shall assign its rights under this Consent Decree to another qualified nonprofit organization. A nonprofit organization shall be qualified for assignment under this Consent Decree if it is a charitable organization under Section 501(c)(3) of the Internal Revenue Code or its substantial equivalent and has an established record of working to enhance or preserve the ecology, natural habitat, or environment. Any such assignment shall be subject to approval by the Court and Honeywell shall have the right to object to any proposed assignment. Any successor organization shall have the duty to assign its rights under this Consent Decree to another qualified nonprofit organization in the event that the successor disbands or otherwise ceases operations. In the event that a successor is not appointed at any given time, the New Jersey Attorney General or equivalent officer shall appoint a successor subject to approval by the Court and objection by Honeywell.

115. **Reservation of Rights and Claims**. Except as set forth expressly herein, this Consent Decree does not affect in any way any of the Parties' claims or defenses against third parties who have not signed the Consent Decree.

116. **Governing Law and Continuing Jurisdiction.** The Court shall retain jurisdiction over the matters addressed in this Consent Decree for purposes of enabling the Parties to apply to the Court for any further order as may be necessary to construe, carry out, or enforce the terms of this Consent Decree. This Consent Decree shall be interpreted and enforced under the laws of

the United States and the State of New Jersey by the United States District Court for the District of New Jersey.

117. **Construction.** Questions regarding the interpretation of this Consent Decree shall not be resolved against any Party on the ground that this Consent Decree has been drafted by that Party. This Consent Decree is the result of review, negotiation, and compromise by each Party.

118. **Authority to Enter into Agreement.** The undersigned representative for each Party represents, certifies, and warrants that he or she is duly authorized by the Party whom he or she represents to enter into the terms of this Consent Decree and bind such Party legally to this Consent Decree.

119. **Measures to Effectuate This Consent Decree.** The Jersey City Entities and JCRA shall take all appropriate steps to ensure that this Consent Decree has been (and that actions required hereunder will be) duly considered, ratified, and approved. Such steps include consideration of this Consent Decree at a meeting of the City Council, open to the public, at which members of the public have the opportunity to comment on all aspects of the Settlement, including the commitments made by Jersey City; and consideration by and approval of the commissioners of the JCIA, JCMUA, and JCRA.

120. **Modifications.** This Consent Decree may be modified by mutual agreement of the Parties but such agreement must be in writing, duly and properly signed by all Parties, and shall be submitted to the Court for approval.

121. **Severability.** Each of the provisions in paragraph 60 of this Consent Decree shall be deemed severable and, in the event that one or more of such provisions is deemed invalid or unenforceable, it shall not affect the validity or enforceability of the other provisions of the Consent Decree.

122. **Signatures.** This Consent Decree may be signed simultaneously or in counterparts by the respective signatories, which shall be as fully valid and binding as if a single document was signed by all of the signatories. This Consent Decree may be signed electronically by any or all signatories, and such electronic signature shall be as fully valid and binding as a hand-written signature.

Consented to and approved for entry:

s/Aurelio Vincitore

William Matsikoudis
Aurelio Vincitore
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NY 07305
(201) 547-4667

Counsel for the City of Jersey City

s/David L. Isabel

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

Counsel for Jersey City Incinerator Authority

s/ Joni Noble McDonnell

Joni Noble McDonnell
Genova, Bruns & Giantomasi
4974 Broad Street
Newark, NJ 07102
973-535-4435

Counsel for Jersey City Municipal Utilities Authority

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Executive Director of Jersey City Redevelopment Agency

s/ David Sheehan

David Sheehan
Baker Hostetler
45 Rockefeller Plaza
11th Floor
New York, NY 10111
(212) 589-4200

Michael D. Daneker
Arnold & Porter LLP
555 12th Street N.W.
Washington, DC 20004
(202) 942-5000

Counsel for Honeywell International Inc. and Bayfront Redevelopment LLC

s/ Edward Lloyd

Edward Lloyd
Columbia Law School
435 West 116th Street, Room 831
New York, NY 10027
(212) 854-4376

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th Street N.W.
Washington, DC 20005-4632
(202) 682-2100

Counsel for the Hackensack Riverkeeper, William Sheehan, Reverend Winston Clarke, and Lawrence Baker

APPROVED AND ENTERED as an Order of this Court this ___ day of _____, 2012.

_____
Hon. Dennis M. Cavanaugh
United States District Judge

EXHIBITS

Exhibit A: Jersey City/Honeywell Consent Order

Exhibit B: Remedial AOC's and Remedial Approach Map

Exhibit C: NJDEP Chromium Policy

Exhibit D: Conservation Restriction

Exhibit E: Deed Notice

DRAFT DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Bayfront Redevelopment, LLC]

Recorded by:

_____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE CONCERNING CONTROLS INSTALLED FOR CHROMIUM CONTAMINATION UNDERLYING THE PROPERTY

This Deed Notice is made as of the __ day of _____, 2017, by ***Bayfront Redevelopment LLC, whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950***. Owner shall mean Bayfront Redevelopment LLC together with its successors and assigns, including all successors in interest in the Property which is the subject of this Deed Notice as described fully below.

1. THE PROPERTY. Bayfront Redevelopment, LLC is the current owner in fee simple of certain real property designated as portions of ***Block 21901, Lots 9 and 10 on the tax map of the City of Jersey City, Hudson County, New Jersey[1].*** The New Jersey Department of Environmental Protection (NJDEP) Program Interest Number for the contaminated site which includes this property is ***Hudson County Chromate Site No. 087 PI # G000008710*** [NJDEP PI# for non-chromium-related contaminants at the Property is #745719]. The Property is also part of the as Site 087 pursuant to the First Amended Consent Decree Regarding the Remediation and Redevelopment of Study Area 6 North ("Consent Decree") which is attached hereto as Exhibit D and is entered as an order of the Court in the following consolidated actions *JCMUA v. Honeywell International*,

[1] All references to Block 21901 Lots 9 and 10 in this Deed Notice shall mean those portions of Block 21901 Lots 9 and 10 regardless of whether the word "portion(s)" is specifically called out or not.

Inc., D.N.J., Civ. No. 05-05955; *JCIA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-5993; and *Hackensack Riverkeeper, Inc. v. Honeywell International, Inc.*, D.N.J., Civ. No. 06-22. The Consent Decree restricts transfer, use and development of the Property. To the extent that there is any conflict or inconsistency between the terms of this Deed Notice and the terms of the Consent Decree, the Consent Decree shall govern.

2. REMEDIATION.

i. The Department's Bureau of State Case Management (BCM) is the entity within the Department that is responsible for the oversight of the remediation of the SA-6 North. The matter is Case No. Hudson County Chromate Site No. 087 PI# G000008710. The Department has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26-C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL AND GROUNDWATER CONTAMINATION. Honeywell International Inc. ("Honeywell") a corporation of the State of Delaware, licensed to do business in the State of New Jersey whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950, has remediated the Property to address chromium-related soil and shallow groundwater contamination. The Remedial Action Work Plan (RAWP) was approved by the Department on February 19, 2009 for Hudson County Chromate Site Nos. 087 and 088, which included portions of the Property. Remedial actions were further approved pursuant to the Consent Decree. Under both the Consent Decree and the RAWP soil contamination remains in the Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Property.

Deed Notice #7 is the in-situ treatment area 10 (TA-10) located immediately north of the SA-6 North Open Space Area hydraulic barrier and overlies a section of the 72-inch force main. Due to the proximity of the force main, excavation of impacted soils in TA-10 is technically impracticable. Therefore, Honeywell implemented an in-situ treatment in this area in lieu of excavation. A portion of this area, subarea TA-10-1, is still under in-situ treatment and post-remedy soil sampling. This area is approximately 800 square feet. The remainder of the TA-10, the portion of subarea TA-10-1 that lies south of the northern curbline of the future Stegman Boulevard and subareas TA-10-2 and TA-10-3, will be capped by Stegman Boulevard and is an approximately 7,600 square foot area. Deed Notice Area #7 is comprised of two tracts of land; Tract 1 is south of the northern curbline of the future Stegman Boulevard and Tract 2 is north of this curbline and is the portion of TA-10 where in-situ treatment was implemented. Once the remedial objectives for soils are met in Tract 2, the Tract 2 portion of Deed Notice #7 will be terminated. Additionally, the existing Conservation Restriction for the SA-6 North Open Space Area will be expanded to encompass the Tract 1 portion of the Deed Notice Area #7. Because of its proximity to the SA-6 North Open Space Area, this area could be incidentally impacted by Open Space Development, therefore, some provisions of the LTMP may apply and on-site oversight during Open Space Development may be appropriate.

The soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result of the contamination, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13. Under the terms of the Consent Decree and this Deed Notice, Honeywell is responsible for monitoring and maintaining the soil remediation for the Property in perpetuity or until remediation is implemented that renders this Deed Notice unnecessary.

4. CONSIDERATION. In accordance with the Department's approval of the chromium RAWP for the remediation for the Hudson County Chromate Site Nos. 087 and 088 which includes the Property, and in consideration of the terms and conditions of that approval, and in accordance with the Consent Decree, and other good and valuable considerations, Owner has agreed to subject the Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of these contaminants, Owner has agreed, as part of the remedial action for the Property, to restrict the use of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property. A narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C. Honeywell shall be responsible for monitoring and maintenance of engineering controls and biennial certification requirements as specified in Paragraphs 8A and 8B.

5D. LONG TERM MONITORING PLAN. Honeywell has prepared a Long Term Monitoring Plan (LTMP) which sets forth requirements for monitoring of the chromium remedial measures including engineering controls within the Property and shallow groundwater, and requirements for

notification and reporting pursuant to the Consent Decree, Deed Notice and Soil Remedial Action Permit. A copy of the LTMP is maintained by Honeywell at 115 Mount Tabor Road, Morris Plains, NJ 07950. This Deed Notice is appended to the LTMP.

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person of whom it has knowledge, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of known contamination in the Restricted Areas, and, of the precautions necessary to protect the engineering controls and minimize potential human exposure to contaminants.

ii. Except as provided in the Consent Decree and Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property except as (a) permitted in the Consent Decree and (b) without first obtaining the express written consent of the Department. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

iii. Notwithstanding subparagraph 7A.ii., above, a Soil Remedial Action Permit modification is not required for any alteration, improvement, or disturbance provided that:

(A) Takes such action in conformance with the Consent Decree; and

(B) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance; and

(C) Notifies Honeywell of the activity by calling 855-727-2658; and

(D) Honeywell and/or the owner, lessee or operator restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance; and

(E) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration; and

(F) Ensures that human exposure to contamination in excess of the applicable remediation standards does not occur; and

(G) The next biennial certification includes a description of the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Immediately notifies Honeywell of the emergency by calling 855-727-2658;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

vi. Notifies Honeywell when the emergency has ended by calling 855-727-2658; and

vii. Honeywell restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within sixty (60) calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent recurrence of such conditions in the future. Honeywell shall submit the report to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

8A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the persons responsible for conducting the remediation, Honeywell, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. Honeywell shall certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

8B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. Honeywell shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

9. ACCESS. The Owner agrees to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the persons responsible for monitoring the protectiveness of the remedial action, as described in Paragraph 8, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. NOTICES.

i. Owner shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner shall notify any person intending to conduct invasive work or excavate within the Property on its behalf of the nature and location of contamination and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. Owner shall provide written notice to the Department of Environmental Protection at least thirty (30) calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area. Any such conveyance, grant or gift must be consistent with the terms of the Consent Decree.

iv. Owner shall provide written notice to the Department within thirty (30) calendar days following the Owner's receiving notice of any petition for a rezoning of the Property. Any such rezoning must be consistent with the terms of the Consent Decree. The Owner shall submit the written notice to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413.

11. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this Property.

ii. The restrictions provided herein may be enforceable by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

12. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature

that it cannot be modified, the provision shall be deemed deleted from this instrument as if the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. Any person seeking a modification or termination of this Deed Notice must also have such modification approved by the United States District Court for the District of New Jersey pursuant to the Consent Decree until such time as the Consent Decree terminates with regard to the Property pursuant to the Consent Decree.

iv. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the Hudson County Register, New Jersey, expressly modifying or terminating this Deed Notice.

v. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

14A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property;

ii. Exhibit A-2: Metes and Bounds Description - A metes and bounds description of the Property, including reference to tax lot and block numbers for the Property and a Tax Map;

iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; the map(s) shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1: Restricted Area Map - Maps for the Property that include, as applicable:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, ground water monitoring wells, and ground water pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and/or sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described below.

ii. Exhibit B-2 (Table B-2): Restricted Area Data Tables - Table for the Property that includes:

(A) Sample location designation from Restricted Area maps (Exhibit B-1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E-4.6, Table 4-2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1A through C-1C. Exhibit C-1-A: Deed Notice as Institutional Control; Exhibit C-1-B: Consent Decree as Institutional Control; and Exhibit C-1C Zoning as Institutional Control: Exhibit C-1 includes a narrative description of the restrictions and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:
(1) Description and estimated size of the Restricted Areas as described above;
(2) Description of the restrictions on the Property by operation of this Deed Notice and the other Institutional Controls; and
(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:
(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;
(2) There have been any land use changes subsequent to the filing of this Deed Notice and the other Institutional Controls or the most recent biennial certification, whichever is more recent;
(3) The current land use on the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls;

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the Property; and
(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice and the other Institutional Controls, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice and the other Institutional Controls;
(2) Land use at the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls; and
(3) The remedial action that includes this Deed Notice and the other Institutional Controls continues to be protective of the public health and safety and of the environment.

ii. Exhibit C-2. Exhibit C-2: Engineering Controls: Asphalt Cover;

Exhibit C-2 includes a narrative description of the engineering controls as follows:

(A) General Description of the engineering control:
(1) Description of the engineering control;
(2) The objective of the engineering control; and
(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:
(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;
(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
(4) The engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering control; and
(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering control continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 2017, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 2017

_____, Notary Public

_____
[Print name and title]

16. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

EXHIBIT A
Deed Notice #7 TA-10

A-1 Vicinity Map

A-2 Metes and Bounds Description and Tax Map

A-3 Property Map Portions of Block 21901, Lots 9 and 10, City of Jersey City, New Jersey

Exhibit A-1 Vicinity Map consists of a road map for the vicinity of the Property.

Exhibit A-2 consists of metes and bounds and a tax map for the Property.

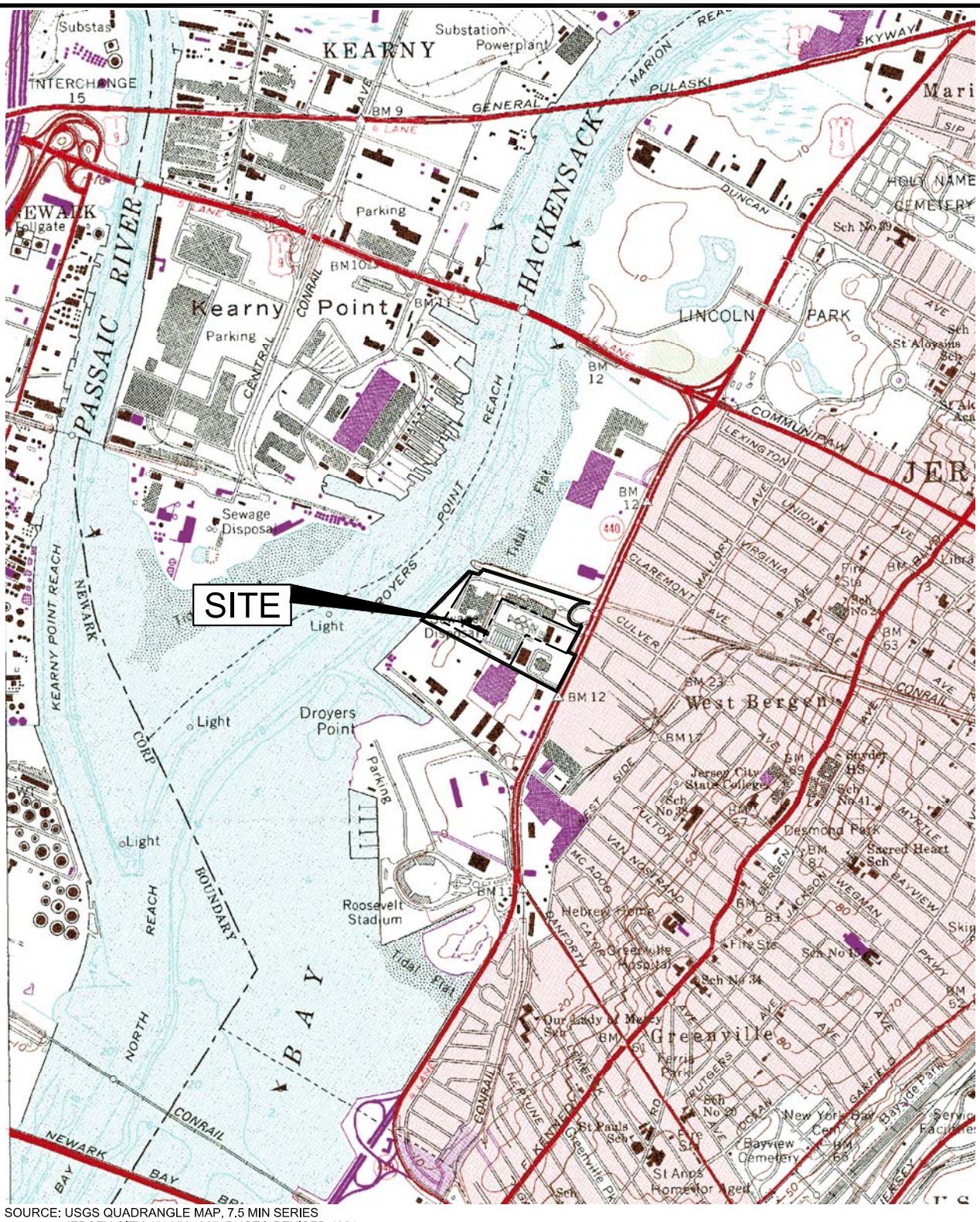
Exhibit A-3 Property Map consists of a figure indicating major surface features and engineering control for the Property.

Exhibit A-1
Site Vicinity Map
Jersey City, New Jersey

EXHIBIT A-1
SITE VICINITY MAP
PORTIONS OF STUDY AREA 6 NORTH SITE 087
JERSEY CITY, NEW JERSEY

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 7\3480150487-6100-A107-0000.dwg Wed, 01 Feb 2017 - 11:46am vandana.muddu



SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

RESTRICTED AREA

0 1000 2000 4000
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150450 *DRAWING:* 3480150487-6100-A107-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE, Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-1
VICINITY MAP
BLOCK 21901 LOTS 9 & 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #7

Exhibit A-2
Deed Notice #7 TA-10

Metes and Bounds Description of Property: See Attached
Tax Map: See Attached

A-2 Metes and Bounds Description of Property Portions of Block 21901, Lots 9 and 10
City of Jersey City, New Jersey

If there is any discrepancy between the Metes and Bounds and the tax map; the Metes and Bounds prevails.

The Property is identified as portions of Block 21901, Lots 9 and 10 on the City of Jersey City tax maps, the Property being presently owned by Bayfront Redevelopment, LLC. A copy of the current tax map showing the TA-10 Property is included as Exhibit A-2.

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners ▪ Surveyors ▪ Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 ▪ Fax: 732.383.1984

DESCRIPTION OF PROPERTY
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY
PROJECT NO. 10000292C

DEED NOTICE AREA 7
BLOCK 21901 LOTS 9 AND 10
MAY 18, 2016
REVISED: DECEMBER 7, 2016

All that certain lot, tract or parcel of land situate lying and being in the City of Jersey, in the County of Hudson and State of New Jersey, and being a portion of Lots 9 and 10 Block 21901, designated as Deed Notice Area 7 as shown on an exhibit entitled, "Deed Notice Area 7, SA6 North, Block 21901, Lots 9 And 10, City of Jersey City, Hudson County, New Jersey," prepared by Maser Consulting P.A., dated April 12, 2016, revised December 7, 2016 and being more particularly bounded and described as follows, to wit:

TRACT I:

COMENCING at the intersection of the westerly line of Lots 8 and 10, in Block 21901 with the division line between said lots as shown on the aforesaid exhibit; thence-

A. **S59° 39'05"E, 176.32 feet**, along said division line to the intersection of the same with the third course of an area designated as Deed Notice Area 5; thence-

Running along the westerly and northerly lines of said Deed Notice Area 5, the following ten (10) courses:

B. **N28° 37' 00"E, 19.46 feet**; thence-
C. **N30° 01' 01"E, 48.06 feet**; thence -
D. **N19° 17' 57"W, 17.97 feet**; thence –
E. **N31° 55' 37"E, 23.15 feet**; thence –
F. **N76° 06' 19"E, 18.87 feet**; thence –
G. **N29° 16' 27"E, 36.41 feet**; thence –
H. **S65° 27' 42"E, 153.93 feet**, through said Lot 10 and beyond, to a point in Lot 9; thence –

Running through said Lot 9 the following three (3) courses:

I. **N24° 46' 55"E, 9.39 feet**; thence -
J. **S63° 20' 43"E, 154.05 feet**; thence –
K. **S64° 10' 53"E, 3.13 feet**, to the True Point of **BEGINNING**, and running; thence-

Continuing through said Lot 9 the following thirteen (13) courses:

1. **N89° 06' 30"E, 10.85 feet**; thence-

2. **S71° 33' 46"E, 49.04 feet**; thence-

3. **N64° 44' 16"E, 48.64 feet**; thence -

4. **S71° 27' 06"E, 29.23 feet**; thence –

5. **S20° 45' 38"W, 20.55 feet** ; thence –
6. **S06° 10' 50"W, 25.40 feet**; thence –
7. **S43° 02' 17"E, 20.42 feet**; thence –
8. **S75° 55' 23"E, 91.65 feet**; thence -
9. **N69° 31' 56"E, 18.75 feet**; thence –
10. **S73° 19' 46"E, 15.58 feet**; thence –
11. **S31° 22' 02"E, 27.50 feet**; thence –
12. **S63° 54' 38"E, 73.11 feet** to a point in Lot 10; thence –
13. **S53° 29' 05"E, 36.52 feet,** through Lot 10 to a point in the sixteenth (16th) course of the aforesaid Deed Notice Area 5; thence-

Running along the northerly line of said Deed Notice Area 5, the following five (5) courses:

14. **S21° 49' 22"W, 2.06 feet**; thence-
15. **S17° 56' 34"W, 11.36 feet**; thence-
16. **N63° 47' 42"W, 79.47 feet,** thence -
17. **N64° 26' 24"W, 187.04 feet,** thence –
18. **N64° 10' 53"W, 132.62 feet** to the Point and Place of BEGINNING.

CONTAINING: 7,594 S.F. of land more or less or 0.174 acres of land more or less.

TRACT II:

COMENCING at the intersection of the westerly line of Lots 8 and 10, in Block 21901 with the division line between said lots as shown on the aforesaid exhibit; thence-

A. **S59° 39'05"E, 176.32 feet**, along said division line to the intersection of the same with the third course of an area designated as Deed Notice Area 5; thence-

Running along the westerly and northerly lines of said Deed Notice Area 5, the following thirteen (13) courses:

B. **N28° 37' 00"E, 19.46 feet**; thence-
C. **N30° 01' 01"E, 48.06 feet**; thence -
D. **N19° 17' 57"W, 17.97 feet**; thence –
E. **N31° 55' 37"E, 23.15 feet**; thence –
F. **N76° 06' 19"E, 18.87 feet**; thence –
G. **N29° 16' 27"E, 36.41 feet**; thence –
H. **S65° 27' 42"E, 153.93 feet**, through said Lot 10 and beyond, to a point in Lot 9; thence –

Running through said Lot 9 the following six (6) courses:

I. **N24° 46' 55"E, 9.39 feet**; thence -
J. **S63° 20' 43"E, 154.05 feet**; thence –
K. **S64° 10' 53"E, 3.13 feet**; thence –
L. **N89° 06' 30"E, 10.85 feet**; thence-
M. **S71° 33' 46"E, 49.04 feet**; thence-
N. **N64° 44' 16"E, 48.64 feet**, to the 4th corner of Tract I, as described herein, and True Point of **BEGINNING**, and running; thence-

Continuing through said Lot 9 the following five (5) courses:

19. **N64° 44' 16"E, 2.98 feet**; thence –

20. **S06° 31' 46"E, 21.50 feet**; thence –

21. **S79° 41' 26"E, 32.97 feet**; thence –

22. **S20° 45' 38"W, 27.84 feet** ; thence –

23. **S71° 27' 06"E, 29.23 feet** to the Point and Place of **BEGINNING**.

CONTAINING: 762 S.F. of land more or less or 0.017 acres of land more or less.

12/02/16

GLEN J. LLOYD, P.L.S. DATE SIGNED
NEW JERSEY PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS037598

\\HQFAS1\General\Projects\2010\10000292R\Survey\Description\Metes & Bounds-Deed Notice 7_REV.docx

TRACT I TIE LINE TABLE		
SEGMENT	DIRECTION	LENGTH
TL1	N 28° 37' 00" E	19.46'
TL2	N 30° 01' 01" E	48.06'
TL3	N 19° 17' 57" W	17.97'
TL4	N 31° 55' 37" E	23.15'
TL5	N 76° 06' 19" E	18.87'
TL6	N 29° 16' 27" E	36.41'
TL7	S 65° 27' 42" E	153.93'
TL8	N 24° 46' 55" E	9.39'
TL9	S 63° 20' 43" E	154.05'
TL10	S 64° 10' 53" E	3.13'

DEED NOTICE 7 TRACT I LINE TABLE		
SEGMENT	DIRECTION	LENGTH
L1	N 89° 06' 30" E	10.85'
L2	S 71° 33' 46" E	49.04'
L3	N 64° 44' 16" E	48.64'
L4	S 71° 27' 06" E	29.23'
L5	S 20° 45' 38" W	20.55'
L6	S 6° 10' 50" W	25.40'
L7	S 43° 02' 17" E	20.42'
L8	S 75° 55' 23" E	91.65'
L9	N 69° 31' 56" E	18.75'
L10	S 73° 19' 46" E	15.58'
L11	S 31° 22' 02" E	27.50'
L12	S 63° 54' 38" E	73.11'
L13	S 53° 29' 05" E	36.52'
L14	S 21° 49' 22" W	2.06'
L15	S 17° 56' 34" W	11.36'
L16	N 63° 47' 42" W	79.47'
L17	N 64° 26' 24" W	187.04'
L18	N 64° 10' 53" W	132.62'

TRACT II TIE LINE TABLE		
SEGMENT	DIRECTION	LENGTH
TL1	N 28° 38' 00" E	19.46'
TL2	N 30° 01' 01" E	48.06'
TL3	N 19° 17' 57" W	17.97'
TL4	N 31° 55' 37" E	23.15'
TL5	N 76° 06' 19" E	18.87'
TL6	N 29° 16' 27" E	36.41'
TL7	S 65° 27' 42" E	153.93'
TL8	N 24° 46' 55" E	9.39'
TL9	S 63° 20' 43" E	154.05'
TL10	S 64° 10' 53" E	3.13'
TL11	N 89° 06' 30" E	10.85'
TL12	S 71° 33' 46" E	49.04'
TL13	N 64° 44' 16" E	48.64'

DEED NOTICE 7 TRACT II LINE TABLE		
SEGMENT	DIRECTION	LENGTH
L19	N 64° 44' 16" E	2.98'
L20	N 6° 31' 46" E	21.50'
L21	S 79° 41' 26" E	32.97'
L22	S 20° 45' 38" W	27.84'
L23	N 71° 27' 06" W	29.23'

BULKHEAD

N 28° 37' 00" E 176.32'

S59°39'05"E

NORTH

HACKENSACK RIVER

BLOCK 21901
LOT 8
DB 7452 PG. 62

DEED NOTICE
AREA 5

DEED NOTICE AREA 5
LIMIT LINE

TRACT I
POINT OF
BEGINNING

DEED NOTICE AREA 7
TRACT I
(HATCH AREA)
AREA=7,594± S.F.
0.174 Ac.

TRACT II
POINT OF
BEGINNING

DEED NOTICE AREA 7
TRACT II
(HATCH AREA)
AREA=762± S.F.
0.017 Ac.

BLOCK 21901
LOT 9
DB 8531 PG. 196

BLOCK 21901
LOT 10
DB 8531 PG. 196

DEED NOTICE AREA 5
LIMIT LINE

DEED NOTICE
AREA 5

BLOCK 21901
LOT 5

BLOCK LIMIT LINE

PREVIOUS DEVELOPMENT
BLOCK 6

100 80 60 40 20 0 50 100 200

SCALE : 1" = 100'

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REV	DATE	DRAWN BY	DESCRIPTION
1	12/7/16	CJK	DIVIDED DN-7 INTO TWO (2) TRACTS
2	1/13/17	KAN	BLOCK 6
3	2/2/17	KAN	BLOCK 6
.	.	.	.
.	.	.	.
.	.	.	.

DEED NOTICE AREA 7
SA6 NORTH

BLOCK 21901
LOTS 9 & 10

CITY OF JERSEY CITY
HUDSON COUNTY
NEW JERSEY

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	05/16/16	KAN	GJL

PROJECT NUMBER: 10000292Q
DRAWING NAME: V-EXBT-DN-7_REV

SHEET TITLE: DEED NOTICE EXHIBIT

SHEET NUMBER: 1 of 1

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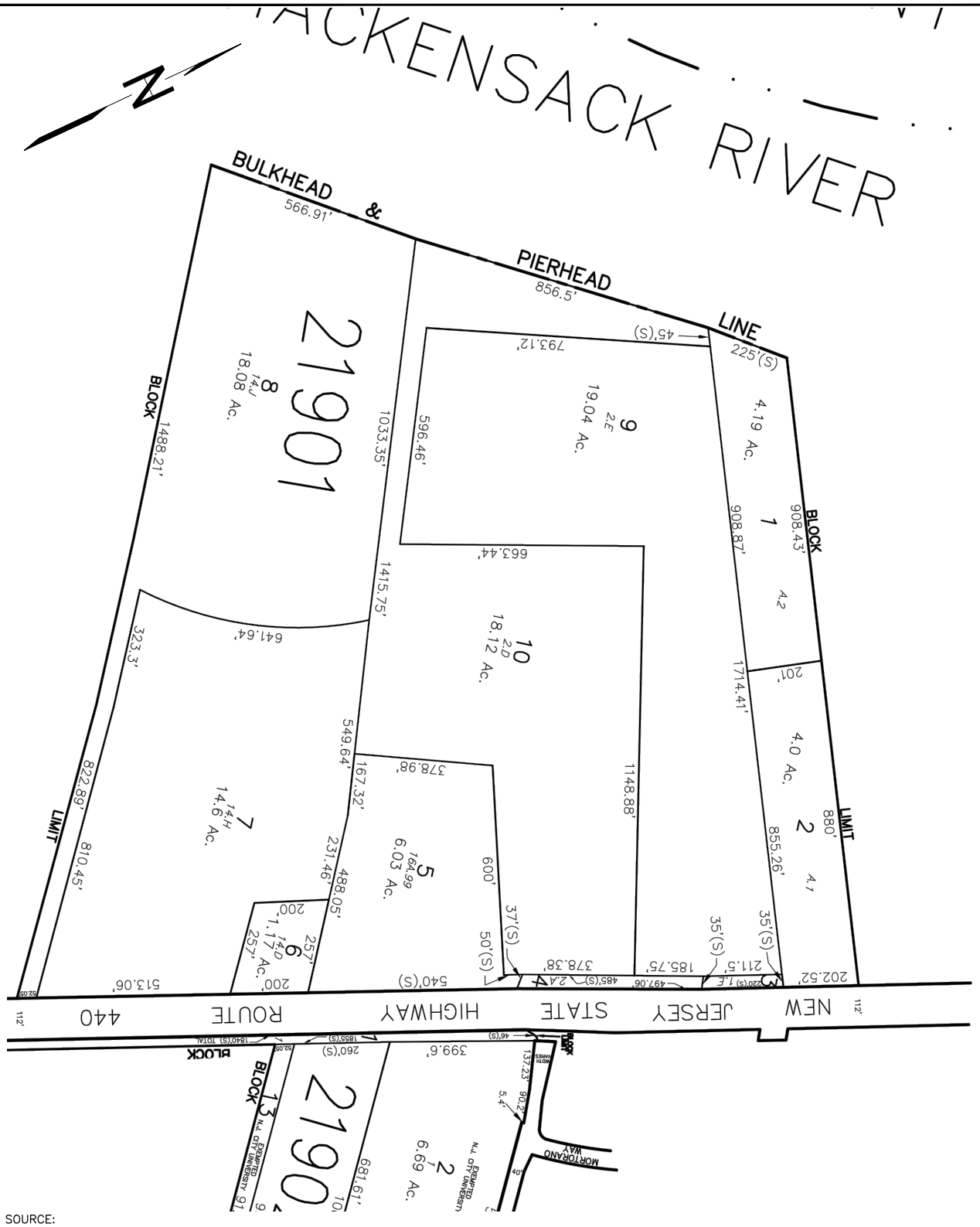
W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 7\3480150487-6100-A207-0000.dwg Wed, 01 Feb 2017 - 12:49pm vandona.mudau



SOURCE:
DRAWING TITLED: "TAX MAP CITY OF JERSEY CITY", PREPARED BY T&M ASSOCIATED, MIDDLETOWN TWP., NJ SHEET 219, DATED AUGUST, 2006; NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF TAXATION PROPERTY ADMINISTRATION DATED MAY 8, 2009 SERIAL NO.: 934.

DRAFT

0 150 300 600
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A207-0000	
PREPARED/DATE: STR 12/22/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-□
TA□ MAP
BLOCK 21901, LOTS 9 □ 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE □□

Exhibit A-3
Property Map

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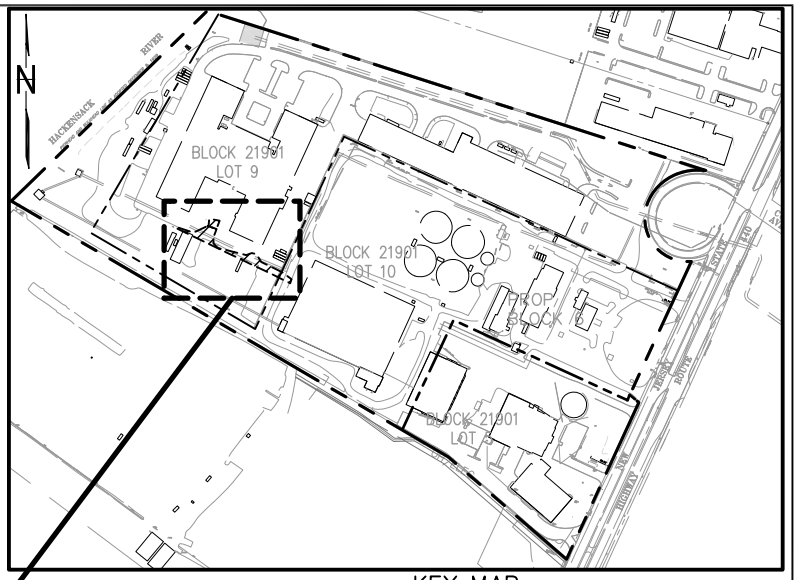
W:\CAD\VONEWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\A1001\DEED NOTICE\DN_7\3480150487-6100-A307-0000.dwg Wed, 01 Feb 2017 - 12:42pm vondano.mudu Layout: Layout1

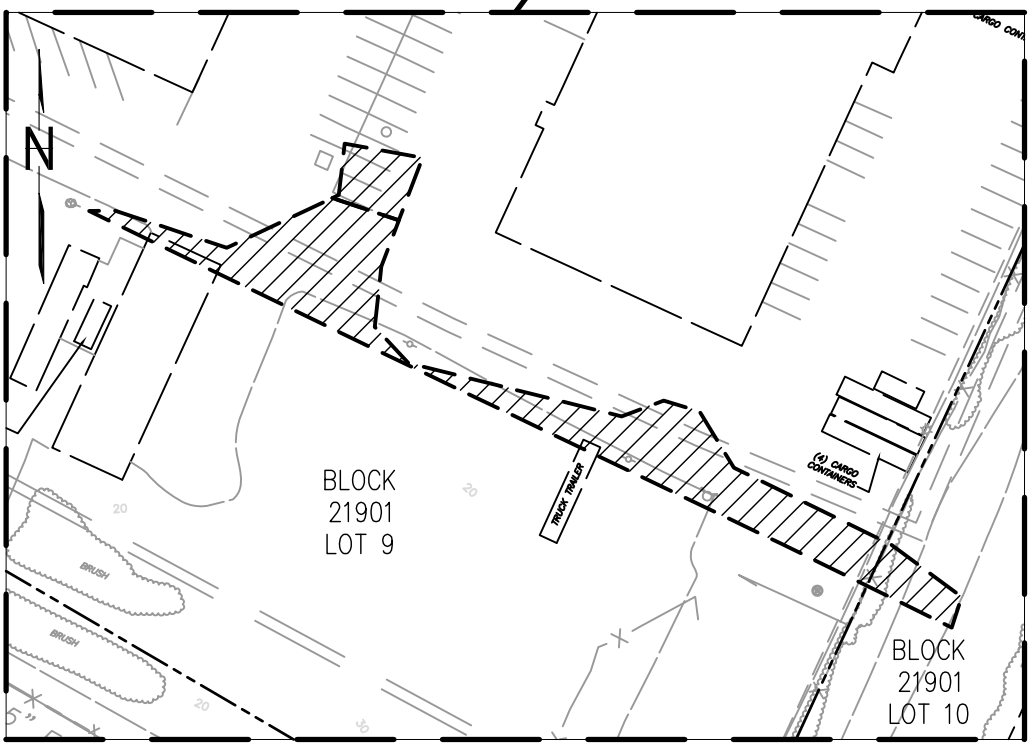
LEGEND

PROPERTY BOUNDARY

RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

0 40 80 160
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A307-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	

EXHIBIT A-3
PROPERTY AREA MAP
BLOCK 21901, LOTS 9 & 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #7

EXHIBIT B
Deed Notice #7 TA-10

B-1 Restricted Area Map
B-2 Restricted Area Data Table
Portions of Block 21901, Lots 9 and 10
City of Jersey City, New Jersey

Exhibit B-1 Restricted Area Map includes Exhibit B-1 (Restricted Area and Soil Sample Locations).

Exhibit B-2 is a Restricted Area Data Table indicating soil sample locations with concentrations remaining above the NJDEP Chromium Policy.

Restricted Area Map Notes:

Exhibit B-1 indicates engineering controls chromium remedy components. For soils with hexavalent chromium concentrations above 20 mg/kg, the engineering control is 12 feet of clean soil and an asphalt cap.

Exhibit B-1
Restricted Area Map

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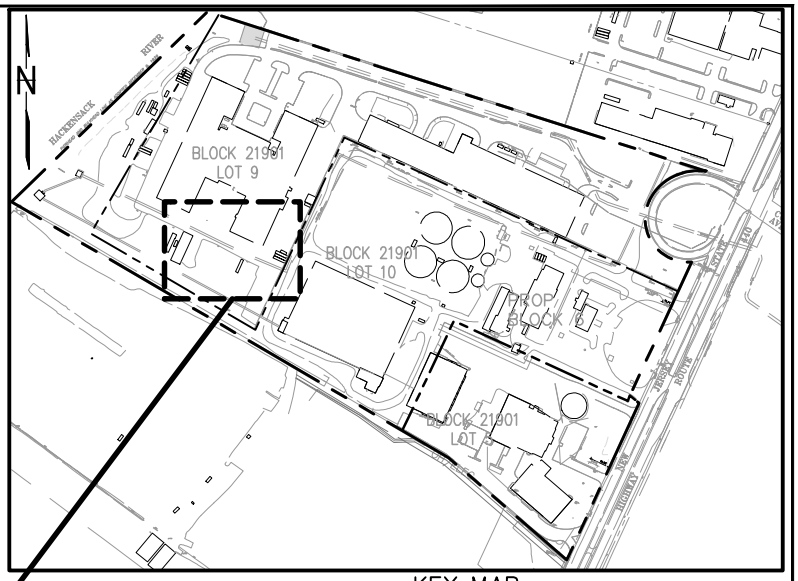
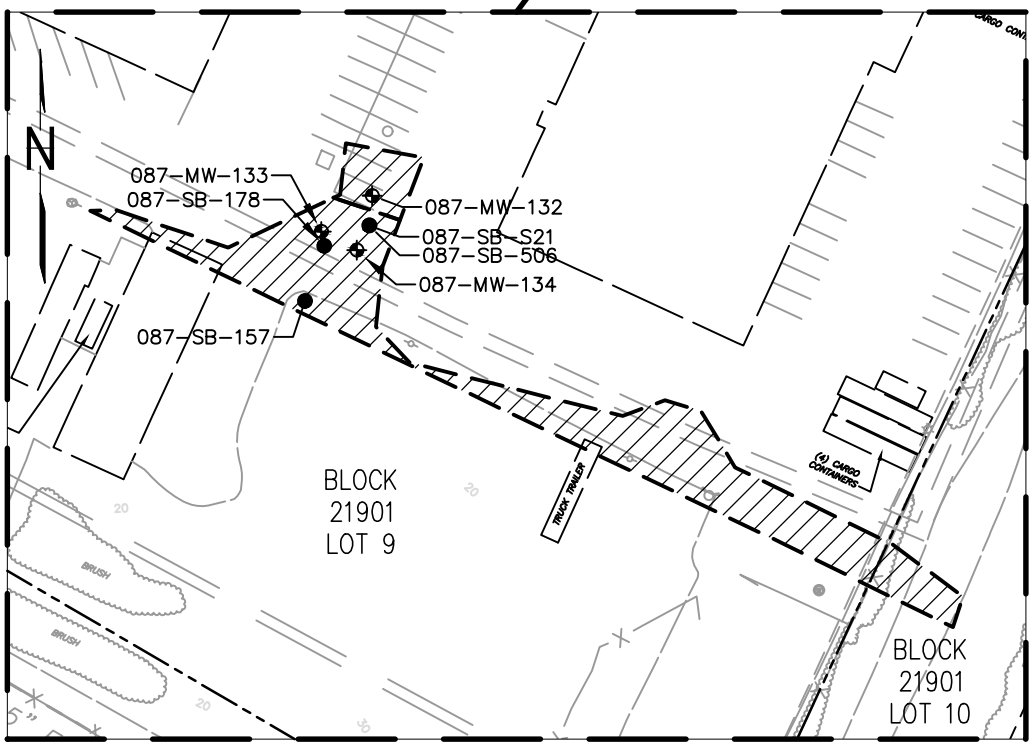
LEGEND

- SOIL SAMPLE LOCATION HEXAVALENT CHROMIUM > 20mg/kg (SEE EXHIBIT B-2)
- MONITORING WELL
- PROPERTY BOUNDARY
- RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



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HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

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PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 12/22/16

amec foster wheeler

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EXHIBIT B-1A
RESTRICTED AREA AND
ENGINEERING CONTROL
BLOCK 21901; LOTS 9 & 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #7

P:\GROUP\MONEWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\B007\0000\USED NOTICE\DN_7\3480150487-6100-B007-0000.dwg Wed, 15 Feb 2017 - 10:51am scottrudie Layout: Layout1

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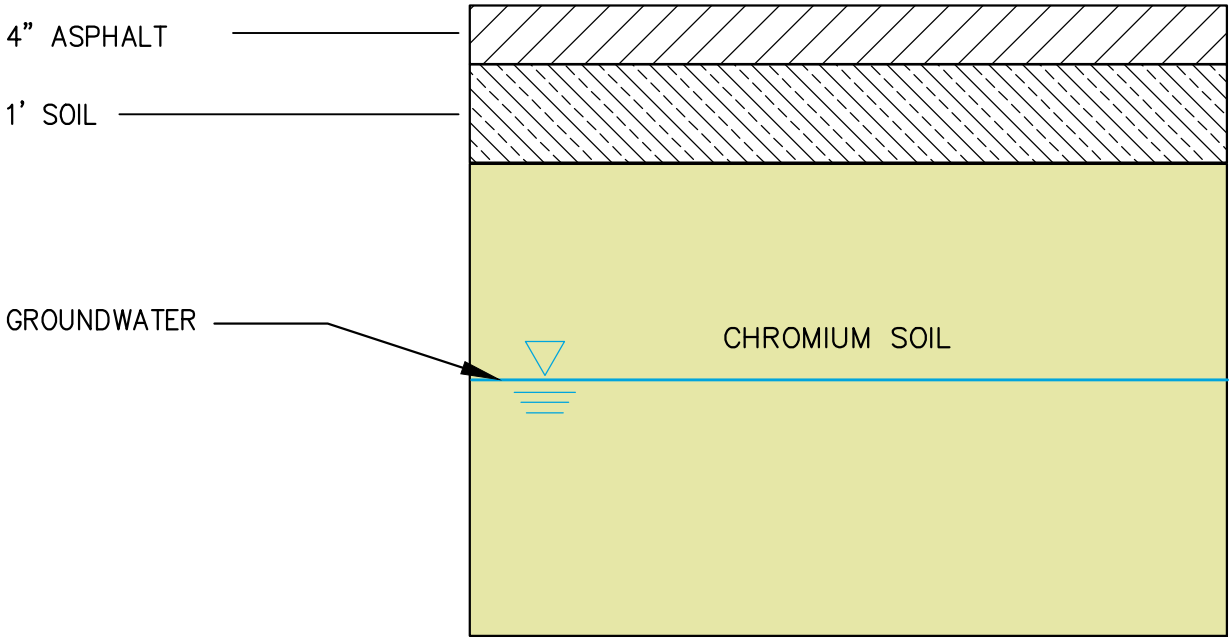
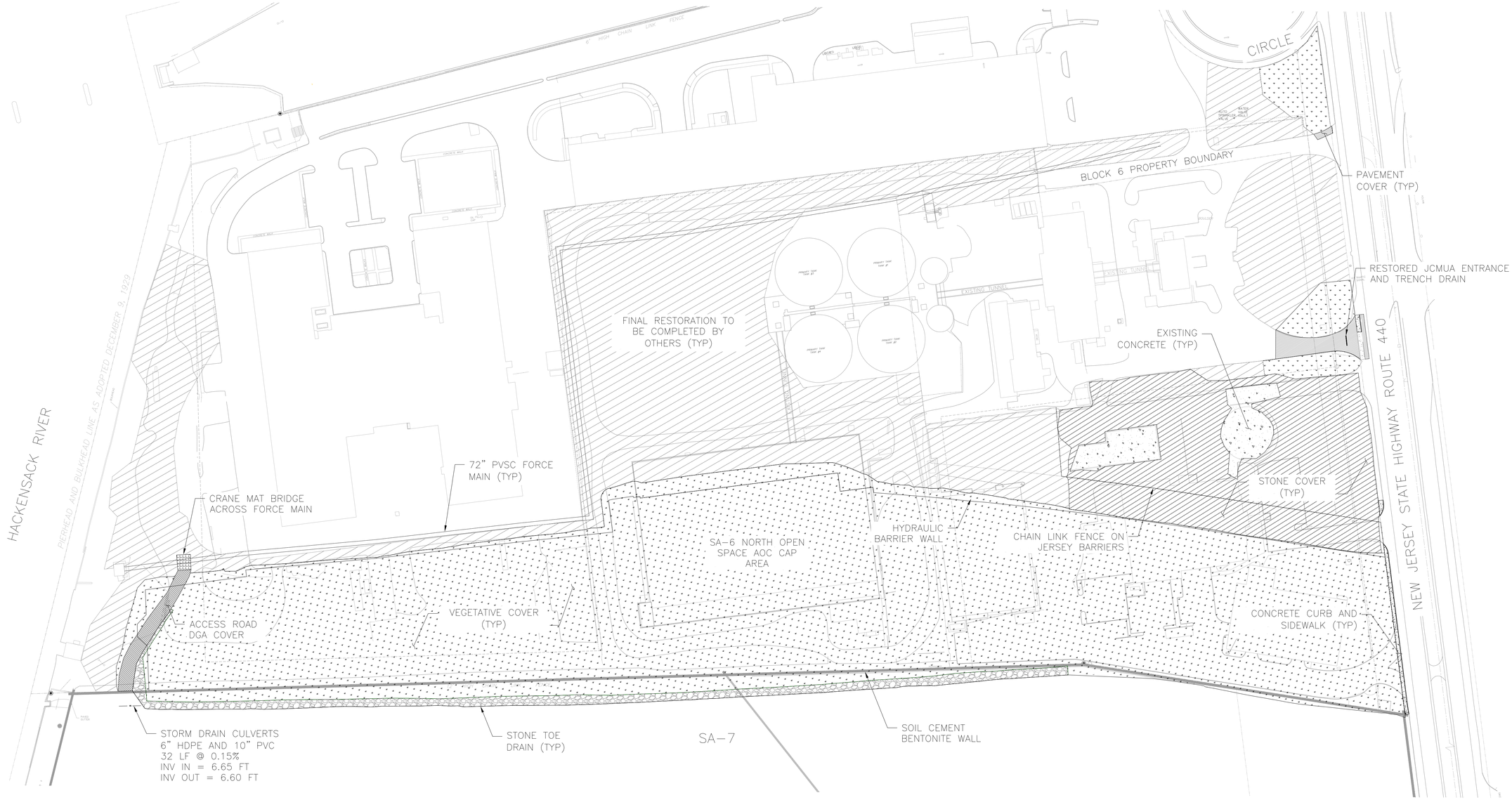
P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 7\3480150487-6100-B207-0000.dwg Tue, 14 Feb 2017 - 12:24pm scott.rudkin



CAP SYSTEM DETAIL
NTS

DRAFT

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150487-6100-B207-0000		amec foster wheeler	**EXHIBIT B-1B** CAP SYSTEM DETAIL BLOCK 21901, LOTS 9 □ 10 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □□
PREPARED/DATE: STR 01/25/17	*CHECKED/DATE:* NW 01/31/17	ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	



NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
DGA COVER
VEGETATED COVER
RESTORATION BY OTHERS
PAVEMENT COVER
STONE TOE DRAIN
CONCRETE COVER
SD — STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH – SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Exhibit B-2: Table B-2
Soil Sample Data Table (Hexavalent Chromium)

EXHIBIT B-2
Restricted Area Data Table
Study Area 6 North
Portions of Block 21901, Lots 9 and 10
Deed Notice #7 TA-10 Area
Jersey City, New Jersey

Location ID	Sample Elevation (NAVD88)	Contaminant	CASR#	NJDEP Chromium SCC (mg/kg)	Northing	Easting	CONC	Q
087-SB-157	-0.3	Hexavalent Chromium	18540-29-9	20	685945	602508	**80.1**	
087-SB-178	1.7	Hexavalent Chromium	18540-29-9	20	685968	602516	**81.2**	J
087-SB-S21	2.8	Hexavalent Chromium	18540-29-9	20	685979.7247	602535.8078	**39**	J
087-SB-506	2.8	Hexavalent Chromium	18540-29-9	20	685979.7247	602535.8078	**46.3**	

Notes:
Results reported in milligrams per kilogram (mg/kg).

Data Qualifiers:
J - Data indicates the presence of a compound that meets the identification criteria. The concentration given is an approximate value.

Abbreviations:
Feet bgs - Feet below ground surface
mg/kg - milligrams per kilogram
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP Chromium SCC - New Jersey Department of Environmental Protection Chromium Soil Cleanup Criteria, revised April 2010
CASR# - Chemical Abstract Service Number

EXHIBIT C
Deed Notice #7 TA-10

C-1 Institutional Controls
C-2 Engineering Controls
Portions of Block 21901, Lots 9 and 10
City of Jersey City, New Jersey

C-1 Institutional Controls

C-1 Deed Notice, Consent Decree, Zoning as Institutional Controls: Exhibit C-1 (A through C) for portions of Block 21901, Lots 9 and 10, City of Jersey City, New Jersey known as the TA-10 Area

Exhibits C-1A through C-1C. Exhibit C-1-A: Deed Notice as Institutional Control; Exhibit C-1-B: Consent Decree as Institutional Control; Exhibit C-1C Zoning as Institutional Control: Exhibits C-1A through C-1C include a narrative description of the restrictions and obligations of this Deed Notice and the other Institutional Controls that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;

The Property constitutes portions of Block 21901, Lots 9 and 10. The estimated size of the Area containing chromium-impacted soils (hexavalent chromium above 20 mg/kg) is identified on Exhibit B-1 is estimated at approximately 8,400 square feet or approximately 0.19 acres.

(2) Description of the restrictions on the Property by operation of the Institutional Control;

The Property shall only be used for activities consistent with this Deed Notice, the Consent Decree, including, but not limited to, Paragraphs 60(j) and 60(k) of the Consent Decree, and the applicable zoning standards. Intrusive activities (i.e., excavation or digging) that breach the engineering controls (as described in Exhibit C-2) will not be permitted on the Property except in compliance with the terms of the Consent Decree, and this Deed Notice. See Deed Notice for additional information; subsections 7A Alterations, Improvements, Disturbances, and 7B, Emergencies.

(3) The objective of the restrictions;

The restrictions will prohibit contact with soils above the NJDEP Soil Cleanup Criteria for hexavalent chromium.

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

Visual inspections of the Property and other monitoring as set forth in the Consent Decree.

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

Same as (B)(1).

(3) The current land use on the Property is consistent with the restrictions in this Deed Notice;

Same as (B)(1).

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

Review of newly promulgated or modified requirements of applicable regulations or laws that potentially may apply to the site.

(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

Same as (B)(4).

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Property is consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including evaluation of any available documents as a result of changes in land use or incidents.***
- ***A report that determines whether or not the land use at the Property has remained consistent with the restrictions in the Consent Decree, this Deed Notice,* and *the applicable zoning standards.***
- ***A report that determines whether or not the Deed Notice continues to be protective of the public health and safety and the environment.***

C-2 Engineering Controls
Deed Notice #7 TA-10

Portions of Block 21901, Lots 9 and 10
City of Jersey City, New Jersey

Exhibits C-2A through C: Narrative description of the Engineering Controls including Clean Fill as follows:

(A) General Description of the engineering controls:

(1) Description of the engineering controls;

The Engineering Control consists of 12 feet of clean soil and an asphalt cap.

(2) The objective of the engineering controls; and

The objective of the controls is to prevent contact with soils above the NJDEP Chromium Policy for hexavalent chromium.

(3) How the engineering controls are intended to function.

The soil engineering controls are intended to function as a barrier to underlying and adjacent soils that exceed the NJDEP Chromium Policy Criteria within the Property.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

Honeywell will perform monitoring by visual inspection of the Property pursuant to the Consent Decree.

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

Same as (B)(1) above.

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering controls;

Same as (B)(1) above. Also, see the Consent Decree and the Deed Notice for additional information: subsections 7A Alterations, Improvements, Disturbances, and 7B Emergencies.

(4) The engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

Same as (B)(1) above.

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering controls. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering controls; and

Records of the inspections are to be maintained as listed in (5).

(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

A review of any new standards, regulations, or laws will be conducted. Should the review indicate that other activities are necessary, those activities will be listed and executed.

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including an evaluation to determine whether or not the engineering controls are continuing to meet the original objective and intended function.***
- ***A report to determine whether or not the engineering controls continue to operate as designed.***
- ***A report to determine whether or not the engineering controls continue to be protective of the public health and safety and of the environment***

APPENDIX III

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

JERSEY CITY MUNICIPAL UTILITIES AUTHORITY, Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5955 Consolidated under Docket No. 95-2097 (DMC)
JERSEY CITY INCINERATOR AUTHORITY Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5993 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)
HACKENSACK RIVERKEEPER, INC., *et al.* Plaintiffs, v. HONEYWELL INTERNATIONAL INC., *et al.* Defendants.	Civil Action No. 06-22 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)

FIRST AMENDED CONSENT DECREE REGARDING REMEDIATION AND REDEVELOPMENT OF STUDY AREA 6 NORTH

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RECITALS

Whereas, on June 30, 2003, the district court for the District of New Jersey issued a Final Judgment in *Interfaith Community Organization v. Honeywell International Inc.*, Civ. No. 95-2097 (DMC) ("*ICO v. Honeywell*"), ordering the remediation of an area designated by the New Jersey Department of Environmental Protection ("NJDEP") as Study Area 7 by excavation of all chromium contamination on the property, under the oversight of a court-appointed Special Master;

Whereas, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property owned by JCMUA and other relief;

Whereas, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property owned by JCIA and other relief;

Whereas, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., Captain William Sheehan, Reverend Winston Clarke, and Lawrence Baker ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater, surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

Whereas, Study Areas 6 North and South are directly adjacent to Study Area 7 on the north and south sides, respectively;

Whereas, Study Area 5 is comprised of properties to the east of Study Areas 6 North, 6 South, and 7 across Route 440;

Whereas, the property owned by JCIA and JCMUA and collectively the subject of *JCMUA v. Honeywell* and *JCIA v. Honeywell* comprises a part of Study Area 6 North;

Whereas, the City of Jersey City ("Jersey City") also owns property that comprises a part of Study Area 6 North;

Whereas, Riverkeeper also named as defendants in *Riverkeeper v. Honeywell* Jersey City, JCMUA, and JCIA (collectively the "Jersey City Entities");

Whereas, the Jersey City Entities and Honeywell also asserted cross-claims against each other in *Riverkeeper v. Honeywell*;

Whereas, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation");

Whereas, in the Consolidated Litigation, the Jersey City Entities and Riverkeeper have alleged that Honeywell bears responsibility for the presence and remediation of chromite ore processing residue ("COPR") and chromium in soils and groundwater on the Study Area 6 North property;

Whereas, in the Consolidated Litigation, Honeywell has alleged that the Jersey City Entities bear full responsibility for lead and other contamination on the Study Area 6 North property, and also bear an equitable share of liability for the presence and remediation of COPR and chromium in soils and groundwater on the Study Area 6 North property and for chromium and other contamination in Hackensack River sediments in the vicinity of Study Area 6 North;

Whereas, on October 9, 2007, Honeywell and Riverkeeper submitted the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"), resolving issues related to the remediation of chromium contaminated sediments in the Hackensack River in the vicinity of Study Areas 5, 6, and 7;

Whereas, the Parties to this Consent Decree each believe that it is in their mutual interest to move forward productively to resolve their differences so that they can implement environmental remediation at Study Area 6 North that ensures the continued protection of human health and the environment and so that Study Area 6 and Study Area 7 can be redeveloped in keeping with Jersey City's vision for a revitalized West Side;

Whereas, the Local Redevelopment and Housing Law, N.J.S.A. 40A:12A-1, *et seq*., as amended and supplemented (the "Redevelopment Law") provides for municipalities to participate in the redevelopment and improvement of areas in need of redevelopment;

Whereas, the portions of Study Area 6 and Study Area 7 (i) which are owned by the Jersey City Entities, (ii) which are owned by Honeywell, (iii) as to which Honeywell has a purchase and sale agreement with the current owner, or (iv) which hereafter will be acquired by a Jersey City Entity and/or Honeywell are parcels which by ordinance adopted by the City Council of Jersey City on February 27, 2008, have been determined to be "areas in need of redevelopment" under the criteria of the Redevelopment Law because of conditions prevalent on those parcels;

Whereas, the settlement which is the subject matter of this Consent Decree contemplates the environmental remediation of Study Area 6 North and redevelopment of the parcels that comprise Study Areas 6 and 7 to create a major mixed use project in an important section of Jersey City;

Whereas, each of the actions to implement this Consent Decree have been fully considered by the Parties as a means to accomplish the aforesaid purposes of this settlement;

Whereas, the consent of each of the Jersey City Entities to this Consent Decree was considered at a duly noticed and appropriate meeting of their respective governing bodies, open to the public, at which members of the public were provided an opportunity to comment on all aspects of the settlement, including, without limitation, the commitments made by the Jersey City Entities herein; and

Whereas, Honeywell and the Jersey City Entities are settling their claims, cross-claims, or counter-claims in the Consolidated Litigation against each other in the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* (hereafter "Jersey City/Honeywell Consent Order"), filed in the Consolidated Litigation simultaneously with this Consent Decree and attached as Exhibit A to this Consent Decree:

NOW, THEREFORE, IT IS HEREBY ORDERED AND DECREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For purposes of this Consent Decree, the following terms shall have the meanings set forth in this Article:

1. **AOC 1** shall mean that area of Study Area 6 North in which the hexavalent chromium concentration in the top 20 feet of soil below existing ground surfaces exceeds concentrations of 20 mg/kg and the Chromium Remedy will be implemented pursuant to Article III. AOC 1 is shown on Exhibit B.

2. **AOC 1 Additional Excavation Areas** shall mean those areas of Study Area 6 North which require excavation pursuant to paragraph 57. The AOC 1 Additional Excavation Areas are not contiguous to AOC 1. The AOC 1 Additional Excavation Areas are shown on Exhibit B.

3. **AOC 1 Open Space Area** shall mean the AOC 1 Open Space Area, as defined by paragraph 53, consisting of approximately 11 acres enclosed by the hydraulic barrier walls constructed under the Chromium Remedy, and which shall be subject to paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B.

4. **AOC 2** shall mean that area of Study Area 6 North on which the Historic Fill Remedy will be implemented pursuant to Article II.B of the Jersey City/Honeywell Consent Order. AOC 2 is shown on Exhibit B.

5. **Bayfront Redevelopment LLC** shall have the meaning set forth in paragraph 4.1 of the Jersey City/Honeywell Consent Order.

6. **COPR** shall mean Chromite Ore Processing Residue.

7. **Chromium Remedy** or **Chromium Remediation** shall mean the remedy set forth in Article III.

8. **Consolidated Litigation** shall mean *Jersey City Municipal Utility Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC).

9. The **Court** shall mean the United States District Court of the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

10. **Deep Groundwater Remedy** shall mean the deep overburden and bedrock groundwater pump and treat remedy as required by the Order Approving the Deep Overburden Groundwater Remediation, entered on October 6, 2006, and the Stipulation on Consent Regarding the Schedule for Implementation of Deep Groundwater Remedial Actions, currently pending before the Special Master in *ICO v. Honeywell.* In the event that Riverkeeper and Honeywell reach a settlement on source control issues, the Deep Groundwater Remedy shall

include the remedy to which Riverkeeper and Honeywell have agreed. In the event that Riverkeeper and Honeywell do not reach a settlement on source control issues, the Deep Groundwater Remedy shall include the remedy ordered by the Special Master or the Court in *ICO v. Honeywell* for source control.

11. **Hackensack River Watershed Land Trust** shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

12. **Historic Fill** shall have the definition provided in the NJDEP Technical Requirements for Site Remediation.

13. **Historic Fill Remedy or Historic Fill Remediation** shall mean the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order, except that the Historic Fill Remedy shall not be limited to the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order if NJDEP requires a more stringent remedy.

14. **Honeywell** shall mean Honeywell International Inc. and its affiliates, including Kellogg Street 80 Property LLC, Kellogg Street 60 Property LLC, and Kellogg Street/440 Property LLC.

15. **Honeywell's Treatment Plant** shall mean the treatment plant currently located at 80 Kellogg Street that is used to treat, *inter alia*, chromium contaminated groundwater.

16. ***ICO v. Honeywell*** shall mean *Interfaith Community Organization v. Honeywell International Inc.,* D.N.J., Civ. No. 95-2097 (DMC).

17. **Including** shall mean including, but not limited to.

18. **JCIA** shall mean the Jersey City Incinerator Authority.

19. **JCMUA** shall mean the Jersey City Municipal Utilities Authority.

20. **JCRA** shall mean the Jersey City Redevelopment Agency.

21. **Jersey City Entities** shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

22. **Jersey City/Honeywell Consent Order** shall mean the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* entered in the Consolidated Litigation simultaneously with this Consent Decree.

23. **NJDEP** shall mean the New Jersey Department of Environmental Protection.

24. **NJDEP Chromium Directive** shall mean the Chromium Directive issued by NJDEP on February 8, 2007, and attached as Exhibit C.

25. **Party or Parties** shall mean any one or all of the signatories to this Consent Decree.

26. **RCRA** shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*, as amended.

27. **Redevelopment Agreement** shall have the meaning set forth in paragraph 4.11(e) of the Jersey City/Honeywell Consent Order.

28. **Redevelopment Area** shall mean Study Area 6 North, Study Area 6 South, and Study Area 7, collectively.

29. **Redevelopment Law** shall mean the New Jersey Local Redevelopment and Housing Law, N.J.S.A. 40A:12A1, *et seq.*, as amended and supplemented.

30. **Redevelopment Plan** shall mean the Bayfront I Redevelopment Plan as adopted by Jersey City on March 12, 2008.

31. **Riverkeeper** shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

32. **Sediment Consent Order** shall mean the Consent Order on Sediment Remediation and Financial Assurances, which the Parties expect will be entered by the Court in *ICO v. Honeywell* and this Consolidated Litigation.

33. **Shallow Groundwater** or **Shallow Level of Groundwater** shall mean groundwater above the meadow mat, groundwater at stratigraphically equivalent depths in locations where there is no meadow mat, and groundwater that is contaminated by recent contact with COPR or other chromium soil contamination above the meadow mat and subsequently flows downward through or past the meadow mat into the upper portion of the lacustrine sediments. This does not include groundwater found in the bedrock, the deep zone, or any plume of contamination that is in both the intermediate and deep zones, as those zones are defined in the Final Groundwater Investigation Report, prepared in *ICO v. Honeywell*, dated February 2007, p. 1-2.

34. **Site** shall mean Study Area 6 North.

35. **Site Preparation Activities** shall have the meaning set forth in paragraph 3.1 of the Jersey City/Honeywell Consent Order.

36. **Site Preparation Plan** shall have the meaning set forth in paragraph 3.2 of the Jersey City/Honeywell Consent Order.

37. **Soil** shall mean soils, historic fill, and/or COPR.

38. The **Special Master** shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

39. **Stratum O** shall mean the layer composed of soft brown silty fine sand interlayered with soft gray silty clay and fine sandy to clayey silt generally located above the meadow mat below the Historic Fill and/or COPR.

40. **Study Area 6 North** shall mean that property comprising Sites 87 and 88 of the Chromate Chemical Production Waste Sites designated by NJDEP, comprising approximately 41.58 acres and including: (a) all such property owned by JCMUA located at 555 Route 440, Jersey City, New Jersey, (b) all such property owned by JCIA located at 501 Route 440, Jersey City, New Jersey; (c) all such property owned by Jersey City or its Department of Public Works and located at 575 Route 440, Jersey City, New Jersey; and (d) all such property owned by Paul Trenk consisting of Block 1290.1, Lot 2A, Jersey City, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

41. **Study Area 6 South** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC consisting of Site 73, located at 200 Kellogg Street Jersey City, Hudson County, New Jersey; (b) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 134, located at 100 Kellogg Street Jersey City, Hudson County, New Jersey; (c) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 140 located at 80 Kellogg Street Jersey City, Hudson County, New Jersey; (d) that property currently owned by Kellogg Street 60 LLC consisting of Site 125, located at 60 Kellogg Street Jersey City, Hudson County, New Jersey; (e) that property currently owned by Kellogg Street/440 Property LLC consisting of Site 124, Jersey City, Hudson County, New Jersey; (f) that property currently owned by Kellogg St/Harsimus Cove Realty located at 150 Kellogg Street, Jersey City, Hudson County, New Jersey, (g) that property currently owned by Cordova Enterprises Ltd located at 38 Kellogg Street, Jersey City, Hudson County, New Jersey, and (g) that property currently owned by Cordova Enterprises Ltd located at 28 Kellogg Street, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

42. **Study Area 6** shall mean Study Area 6 North and Study Area 6 South, collectively.

43. **Study Area 7** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC located at 425 and 445 Route 440, Jersey City, Hudson County, New Jersey, and (b) that property currently owned by Roned Realty/Edward Navlen located at 465 Route 440, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

44. **Technical Requirements for Site Remediation** shall mean the NJDEP Technical Requirements for Site Remediation, N.J.A.C. Chapter 26E, as duly and properly promulgated and amended.

45. **Unrestricted Use** shall mean that the contaminated medium is restored to a condition or quality suitable for all uses.

ARTICLE II: SCOPE OF THE CONSENT DECREE, JURISDICTION, AND CLAIMS RESOLVED

46. Except as provided in this paragraph, the terms of the Jersey City/Honeywell Consent Order shall remain in full force and effect. To the extent that any provision in the Jersey City/Honeywell Consent Order refers to the Chromium Remedy or Chromium Remediation, it shall be construed as referring to Article III of this Decree. In the event of any conflict or inconsistency between the terms of this Decree and the Jersey City/Honeywell Consent Order, the terms of this Decree govern. In the event that any action taken pursuant to the Jersey City/Honeywell Consent Order is in conflict with or inconsistent with the terms of this Decree, the terms of this Decree shall govern.

47. This Court has jurisdiction over the Parties and subject matter of the Consolidated Litigation pursuant to Section 6972 of RCRA.

48. For purposes of this Consent Decree, the Complaints in the Consolidated Litigation each state claims upon which relief may be granted against Honeywell.

49. In the event that this Decree is not terminated by one or more Parties pursuant to paragraph 100, this Consent Decree resolves, settles, and satisfies all claims by Riverkeeper against Honeywell with respect to soils and shallow groundwater at Study Area 6 North. This Consent Decree does not resolve any claims by Riverkeeper against Honeywell with respect to Study Area 6 South, Study Area 5, or groundwater at Study Area 6 North other than shallow groundwater.

50. Nothing in this Consent Decree shall be construed or interpreted to waive any claim or defense any Party has asserted or may assert against any third party in the Consolidated Litigation except as explicitly stated herein.

51. This Consent Decree does not constitute an admission of liability on the part of any Party with respect to any claims, cross-claims, or counter-claims in the Consolidated Litigation.

ARTICLE III: CHROMIUM REMEDIATION

A. Chromium Remedy

52. **Responsibility for Implementation of Chromium Remediation.** As between the Parties, Honeywell shall be responsible for and shall undertake remediation of COPR and chromium present in Study Area 6 North at Honeywell's sole cost and expense. Remediation of COPR and chromium present in Study Area 6 North shall be undertaken in accordance with the terms of this Consent Decree.

53. **AOC 1 and AOC 2.** For the purposes of remediation, Study Area 6 North shall consist of two Areas of Concern ("AOCs"), designated as AOC 1 and AOC 2 as shown on Exhibit B. AOC 1 is set forth on Exhibit B and consists of that portion of Study Area 6 North for which chromium remediation is required pursuant to paragraphs 55, 56, and 57. AOC 2 consists of the entirety of Study Area 6 North, including AOC 1, to the extent that historic fill is present in any area of Study Area 6 North. For AOC 1, the intended land use will determine the types

of remedial measures taken in the Chromium Remedy. There are two distinct land uses for AOC 1: open space and residential. As a result, AOC 1 will be further subdivided into:

(a) The AOC 1 Open Space Area, which shall comprise that portion of AOC 1 for which future use shall be restricted as provided in paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B;

(b) The AOC 1 Residential Area, which shall comprise that portion of AOC 1 for which future use shall allow for residential and/or commercial and retail uses, but for which the remedial measures shall assume only a residential use . The AOC 1 Residential Area is shown on Exhibit B; and

(c) The AOC 1 Additional Excavation Areas, which consist of those portions of Study Area 6 North that require remediation pursuant to paragraph 57. The planned land use for the AOC 1 Additional Excavation Areas is residential and/or commercial and retail uses, but the remedial measures shall assume only a residential use.

54. **Scope and General Requirements of the Chromium Remedy.** The Chromium Remedy shall address shallow groundwater and soil containing hexavalent chromium in AOC 1, and shall be consistent with the requirements set forth in this Article. The Chromium Remedy set forth in this Consent Decree addresses only the shallow level of groundwater (see paragraph 58). The deep overburden and bedrock groundwater remediation, including source control, shall be addressed in a separate consent order, which shall place these issues within the jurisdiction of the Special Master in conjunction with the groundwater remedies for Study Area 7.

(a) The Chromium Remedy shall be consistent with the NJDEP Technical Requirements for Site Remediation, the Chromium Directive as issued by NJDEP on February 8, 2007 ("the NJDEP Chromium Directive"), and the Remedial Action Work Plan (with addenda) approved by NJDEP on or about February 19, 2008. This Consent Decree shall have precedence

over the Remedial Action Work Plan in the event of any inconsistency.

(b) The Chromium Remedy shall be carried out diligently, and the development and implementation of the Historic Fill Remedy shall not delay satisfaction of the milestones in the Schedule established pursuant to this paragraph. Honeywell shall propose a master Schedule for the implementation of the Chromium Remedy within 90 days of the entry of this Consent Decree, which shall include, at a minimum, the following milestones:

(i) Submission to the Special Master for all documents subject to review by the Special Master pursuant to paragraph 72(c);

(ii) Relocation of the Jersey City Entities' Study Area 6 North Operations as shall be required prior to the implementation of the Chromium Remedy;

(iii) Completion of those Site Preparation Activities necessary for the implementation of the Chromium Remedy, including remediation of the AOC 1 Additional Excavation Areas;

(iv) A final date for Honeywell's proposal of *in situ* treatment for any part of the AOC 1 Residential Area pursuant to paragraph 55(d) and a date for the final decision as to whether excavation or *in situ* treatment shall be used in the event of such a proposal;

(v) The initiation of work related to the Chromium Remedy;

(vi) The date for completion of the installation of the Chromium Remedy;

(vii) Implementation of the long-term protections of the AOC 1 Open Space Area established pursuant to paragraph 60; and

(viii) Transfer of the AOC 1 Open Space Area to Jersey City pursuant to paragraph 60(a)(iii).

(c) **Demolition and Grading Activities.** During demolition and grading activities, adequate protective measures shall be taken to protect site workers and the community

from airborne dusts and exposures to contaminated soils.

(d) **Vegetation of Clean Fill.** All clean soil fill in areas that will not involve paved roads, sidewalks, paths, walkways, or building structures shall be vegetated in such a manner to protect and maintain the required depth of clean soil fill.

55. **AOC 1 Residential Area Soil Remedy.** In the AOC 1 Residential Area, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive.

(a) Those soils excavated from the AOC 1 Residential Area in which hexavalent chromium concentrations exceed 240 mg/kg shall be disposed of off-site at a waste disposal facility licensed to accept such waste.

(b) Those soils excavated from the AOC 1 Residential Area in which the hexavalent chromium concentration is less than 240 mg/kg, but greater than 20 mg/kg, shall be consolidated within the AOC 1 Open Space Area. However, any such soils which would require venting of gases shall be disposed of off-site.

(c) Soils excavated from the AOC 1 Residential Area shall be replaced with existing soils from AOC 2 or backfill soil. Any backfill soil brought to the Site shall either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master.

(d) In the AOC 1 Residential Area, excavation of soils containing hexavalent chromium greater than 20 mg/kg shall be the presumptive remedy. Around remaining active underground utilities or other structures, such as the bulkhead, *in situ* treatment may be considered in lieu of excavation only if Honeywell demonstrates, and all Parties, the Special

Master, and NJDEP agree that (1) excavation is technically impracticable and (2) treatment will result in hexavalent chromium concentrations of 20 mg/kg or less and no rebound will occur. If no treatment option is available, Honeywell shall propose an alternative remedial approach, subject to review and comment by the Parties and approval by the Special Master.

(e) Honeywell shall excavate all soils containing hexavalent chromium greater than 20 mg/kg in conjunction with the placement of the piping for the Deep Groundwater Remedy. Honeywell shall not propose treatment in lieu of excavation based on the location of the pipes for the Deep Groundwater Remedy or any apparent impracticability of excavating in conjunction with their installation.

56. **AOC 1 Open Space Area Soil Remedy.** In the AOC 1 Open Space Area, the soil remedy shall consist of an engineered RCRA cap to isolate contaminated soils, with gas venting, if necessary, to address the generation of methane and other naturally occurring gases in the Stratum O and/or Stratum D in the Open Space AOC. Soils consolidated under the cap, shall not require gas venting and shall not be the basis for the inclusion of gas venting as a component of the cap. The cap shall be designed and constructed so that:

(a) The cap shall consist of gas collection system, if gas venting is necessary, a base protective layer, an impervious geomembrane liner with a minimum thickness of 40 mil; a geocomposite drainage layer; a filter fabric; and a distinctive colored warning layer with markings in English and Spanish that would deter penetration of the cap in the event that digging occurred in the vicinity of the cap;

(b) All utilities, including those supporting the pump-and-treat system for groundwater remediation, with the exception of any extraction wells or collection trenches, shall be placed above the cap (but may be below the ground surface and/or contained within utility corridors). In the event that above-cap-grade gas collection and treatment is selected or is

needed to meet current or future regulatory requirements, such collection and treatment facilities are prohibited in the Open Space AOC, except for piping to connect the sub-liner collection system with the treatment facilities. Honeywell shall configure the cap so that all active piping for the wastewater treatment system operated by JCMUA, including all force mains and any connections to the emergency outfall, shall be outside the capped area. Honeywell may propose, subject to the review process in paragraph 72, to use treatment in lieu of excavation in the vicinity of the emergency outfall line if the criteria of paragraph 55(d) are satisfied; and

(c) Exclusive of roadways, the cap shall be overlain by layers of clean fill, backfill and/or overburden with an average depth of at least three feet and a minimum depth of at least two feet provided that any layer that incorporates overburden shall be below at least two feet of clean fill. Any clean fill or backfill soil brought to the Site will either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master. One foot of clean fill, covered with bituminous blacktop, shall be sufficient cover where roads, walkways, or other paved surfaces are located within the AOC 1 Open Space Area. All clean soil fill in areas that will not involve paved roads, walkways, or other paved surfaces shall be vegetated in such a manner as to protect and maintain the required depth of the clean soil fill and to ensure that such vegetation shall not cause any interference with or penetration of the cap.

(d) The existing overburden soils in the AOC 1 Open Space Area shall first be stripped off and set aside for use. If hexavalent chromium concentrations in the overburden exceed 20 mg/kg, the overburden shall be placed under the cap. If hexavalent chromium concentrations in the overburden do not exceed 20 mg/kg, the overburden may be placed above the cap but below the two feet of clean fill required by paragraph 56(c). Excavated hexavalent

chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the AOC 1 Residential Area shall be placed and spread in the AOC 1 Open Space Area under the cap. Excavated hexavalent chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the Study Area 6 South Development AOC (as defined in the First Amended Consent Decree Regarding Remediation and Redevelopment of Study Area 6 South and including only those portions of Study Area 6 South for which the future uses of the property may include commercial or residential development) may be placed and spread in the AOC 1 Open Space Area under the cap, provided that such soils do not require venting of gases and shall not serve as the basis for the inclusion of gas venting as part of the Study Area 6 North AOC 1 Open Space Area remedy. Both the chromium impacted soils and the previously stripped overburden shall be suitably compacted according to design specifications. Debris, to the extent it would interfere with the compaction specification requirements of the 100% Design, shall not be placed under the cap. The engineered cap shall be installed over the chromium-impacted soils exceeding 20 mg/kg hexavalent chromium.

57. **AOC 1 Additional Excavation Areas Remedy.** For those AOC 1 Additional Excavation Areas, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive. Excavation of those areas comprising the AOC 1 Additional Excavation Areas shall initially be conducted in the 50-foot by 50-foot area planned in the RAWP but shall not be so limited in the event that confirmation sampling indicates that hexavalent chromium concentrations continue to exceed 20 mg/kg. Honeywell shall excavate laterally and vertically (to depths of up to 20 feet below current ground surface) until the hexavalent chromium is less than 20 mg/kg based on the results of confirmation sampling. Confirmation sampling for the AOC 1 Additional Excavation Areas shall be taken from the side

walls and bottom of the excavation, in accordance with the Technical Requirements for Site Remediation, to confirm complete removal of contaminated soils.

58. **Shallow Groundwater Remedy.** The shallow groundwater remedy shall consist of hydraulic barriers with a pump-and-treat system designed to isolate shallow groundwater and to intercept and treat shallow groundwater flowing above the meadow mat in the AOC 1 Open Space Area. The shallow groundwater remedy shall consist of the following:

(a) The existing soil/cement/bentonite wall on the boundary of Study Area 6 North and Study Area 7 shall be incorporated into the other engineering controls;

(b) Subterranean slurry walls or other hydraulic barriers shall be installed along the northern, eastern and western sides of the AOC 1 Open Space Area and keyed into the meadow mat or Stratum O or to comparable depths below ground surface;

(c) A groundwater extraction system shall be established that will consist of (i) one or more shallow extraction wells, sumps, or french drains within the AOC 1 Open Space Area; (ii) pumps; and (iii) underground piping to convey any extracted water to Honeywell's Treatment Plant;

(d) The capture zone for the shallow groundwater remedy shall include at least the entire area of contaminated shallow groundwater (except for shallow groundwater that penetrates the meadow mat and is captured by the Deep Groundwater Remedy);

(e) A plan for control of water levels shall be developed;

(f) In the event that underground structures are demolished, the plans shall address the need for special attention for structures that extend below the meadow mat in order to control needed water levels; and

(g) Honeywell shall submit such information as is required to allow NJDEP to establish a classification exception area for groundwater at the Site, in accordance with NJDEP

regulations.

59. **Permits and Authorizations.** Honeywell shall obtain all necessary federal, state, and local permits and authorizations to carry out the Chromium Remedy as set forth in this Article. The Jersey City Entities agree to cooperate with Honeywell in the applications for any such permits, authorizations, or approvals. Such cooperation shall include providing information or data with respect to permit applications, co-signing permit applications, and allowing access to Study Area 6 North to obtain information necessary for the permits.

B. Long-Term Monitoring, Maintenance, and Protection of Engineering and Institutional Controls

60. **Protection of the AOC 1 Open Space Area.** Except as provided in paragraphs 60(j) and 60(k), development in the AOC 1 Open Space Area shall be prohibited. The AOC 1 Open Space Area shall be protected against activities that may jeopardize the integrity of the cap and/or the groundwater remedial measures that shall be installed in the AOC 1 Open Space Area pursuant to the Chromium Remedy or that may impede the long-term monitoring and maintenance of the cap and/or groundwater remedial measures. It is the intention of the Parties to implement different layers of protection, which alone or in concert, impose restrictions on development, run with the land, and survive all parties. Accordingly, the following actions shall be taken pursuant to the Schedule provided in paragraph 54(b):

(a) **Ownership of and Access to the AOC 1 Open Space Area.** Ownership of and access to the AOC 1 Open Space Area shall be in accordance with the following:

(i) Pursuant to the terms of this Consent Decree and paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall become the owner in fee simple absolute of all of the property that comprises the AOC 1 Open Space Area and shall not convey any rights or interests in such property except as provided in this Decree. At the time

of the conveyance from JCRA to Bayfront Redevelopment LLC, Bayfront Redevelopment LLC shall give Jersey City an option to buy AOC 1 Open Space Area prior to the planned transfer pursuant to paragraph 60(a)(iii). Such option to buy shall be subject to the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall exercise the option to buy the AOC 1 Open Space Area in the event that the conditions allowing for withdrawal of funds from the financial assurance mechanisms under paragraphs 84(c) or 84(d) are met;

(ii) At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall grant a conservation restriction for the AOC 1 Open Space Area pursuant to the requirements of paragraph 60(b);

(iii) Upon the final construction of all roads and utility corridors within the AOC 1 Open Space Area, Bayfront Development LLC shall donate good and marketable title to all the land comprising the AOC 1 Open Space Area to Jersey City. In conjunction with such donation, Bayfront Redevelopment LLC shall petition to subdivide the properties within Study Area 6 North to create a new parcel(s) comprising the AOC 1 Open Space Area. At the time of the donation, Jersey City shall grant Honeywell an easement for the purpose of monitoring and maintaining the Chromium Remedy. Jersey City shall also grant Honeywell all necessary access to the AOC 1 Open Space Area by license or such other mechanisms as may be appropriate for purposes of monitoring and maintaining the Chromium Remedy. After it acquires title pursuant to this paragraph, Jersey City shall retain ownership of the AOC 1 Open Space Area unless and until it shall have complied with the requirements of paragraph 60(a)(iv);

(iv) After it acquires title pursuant to this paragraph, Jersey City shall not convey or enter into any lease of the AOC 1 Open Space Area to any other person or entity unless it has first satisfied either of the following conditions:

(1) Jersey City has obtained the Special Master's (or if the Special Master's appointment has expired, the Court's) approval to convey the AOC 1 Open Space Area to a government entity that has the capacity and willingness to fulfill Jersey City's obligations under the Consent Decree with respect to the AOC 1 Open Space Area and such entity agrees to submit to the Court's jurisdiction and to be bound by the requirements of the Consent Decree that Jersey City has committed to fulfill with respect to protection of the AOC 1 Open Space Area pursuant to this paragraph and routine maintenance of the permissible development in the AOC 1 Open Space Area pursuant to paragraph 64(d); or

(2) The AOC 1 Open Space Area has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(b) **Conservation Restriction.** At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, but prior to the grant of the option to buy pursuant to paragraph 60(a)(i), Bayfront Redevelopment LLC shall grant an open space conservation restriction, pursuant to N.J.S.A. 13:8-B-1, *et seq.*, over the AOC 1 Open Space Area substantially in the form set forth in Exhibit D. Exhibit D is a conservation restriction that is consistent with the terms of this paragraph and this Consent Decree. The conservation restriction shall allow for the implementation, maintenance, monitoring, repair and replacement of the Chromium Remedy and development consistent with paragraphs 60(j) and 60(k), including the construction and

placement of roads and utilities. The Hackensack River Watershed Land Trust shall be the primary holder of the conservation restriction, with all rights of monitoring and enforcement. Riverkeeper shall propose an entity to serve as the secondary holder of the conservation restriction subject to comment by the Parties and review by the Special Master. The secondary holder shall have secondary rights of monitoring and enforcement.

(i) The conservation restriction shall be incorporated into this Consent Decree and made part of this Consent Decree. The final, executed conservation restriction shall be lodged with the Court and entered as an order of the Court. The conservation restriction shall be enforceable in this Court, in the same manner as this Consent Decree.

(ii) The conservation restrictions provided under this Consent Decree shall be consistent with the prohibited and permitted development of the AOC 1 Open Space Area as set forth in paragraphs 60(j) and 60(k) below.

(iii) Jersey City shall not take any action, whether through exercise of any power of eminent domain, application to the State of New Jersey for approval of a diversion of public park or recreation land, legal challenge to the validity or enforceability of the conservation restriction, or otherwise, the effect of which would be to in any way terminate, abrogate, or diminish the terms, conditions, or purposes of the conservation restriction. If, notwithstanding the preceding sentence, Jersey City proceeds with a condemnation or other action, the result of which would be to terminate, abrogate, or otherwise diminish the terms, conditions, or purposes of the conservation restriction, Jersey City shall, before taking any such action satisfy all of the conditions set forth in paragraph60(a)(iv)(2).

(iv) Notwithstanding the foregoing, the conservation restriction may be terminated upon application of any Party when no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the

levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive.

(c) **Deed Notice.** Upon completion of the Chromium Remedy, the AOC 1 Open Space Area shall be subjected to the deed notice substantially in the form set forth in Exhibit E that restricts future activities on the AOC 1 Open Space Area. Nothing in the deed notice shall be construed as preventing the imposition of more stringent restrictions on the development allowed in the AOC 1 Open Space Area pursuant to this paragraph and, in particular, the conservation restriction provided for in paragraph 60(b).

(d) **Recording of the Consent Decree, Conservation Restriction, and Deed Notice.** This Consent Decree, the conservation restriction imposed pursuant to paragraph 60(b), and the deed notice imposed pursuant to paragraph 60(c) shall be recorded, pursuant to N.J.S.A. 46:15-1.1, 46:16-1.1, and 46:16-2, in the office of the Hudson County Register and a conspicuous reference to the Consent Decree, conservation restriction, and deed notice shall be included in all instruments concerning title to the AOC 1 Open Space Area. Any Party shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Consent Decree, the conservation restriction, the deed notice, and/or any further orders of the Court related to the AOC 1 Open Space Area in the real estate records related to the AOC 1 Open Space Area.

(e) **Zoning.** Pursuant to the Redevelopment Plan, the AOC 1 Open Space Area is designated for open space and park. Jersey City shall not amend or change this designation unless it first satisfies the requirements of paragraph 60(a)(iv)(2).

(f) **Recreation and Open Space Inventory.** Upon acquiring fee simple absolute title to the AOC 1 Open Space, Jersey City shall add those portions of the AOC 1 Open Space Area not covered by roads, the pedestrian thoroughfare, and utility corridors adjacent to

roads onto its Green Acres Program Recreation and Open Space Inventory ("ROSI") pursuant to N.J.A.C. 7:36 and shall specify in such listing that it is subject to (i) Honeywell's prior easement to monitor, maintain, repair, and replace the Chromium Remedy; (ii) the actions necessary to implement, monitor, maintain, repair, and replace the Chromium Remedy; (iii) the actions necessary to install any development permissible under paragraphs 60(j) and 60(k); and (iv) the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall also take all steps necessary or appropriate to notify the New Jersey Green Acres Program that such portions of the AOC 1 Open Space Area have been added to its ROSI, such that those portions of the AOC 1 Open Space Area shall thereafter be subject to all procedural and regulatory requirements applicable under the Green Acres Program, including prohibitions against diversion.

(g) **Eminent Domain.** If all or part of the AOC 1 Open Space Area is taken in exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, by any public, corporate, or other authority so as to terminate, abrogate, or limit the restrictions created by this Consent Decree or the conservation restriction imposed pursuant to paragraph 60(b), in whole or in part, any Party may take appropriate actions to challenge such taking if there is a reasonable legal basis for doing so. In the event that the Parties are unable to prevent a taking notwithstanding their reasonable and appropriate efforts, any Party may take appropriate actions to recover the full value of the interests in the AOC 1 Open Space Area subject to the taking or in lieu purchase, and all direct and incidental damages, costs, and fees occasioned thereby.

(h) **Environmental Covenant.** In the event that New Jersey enacts the Uniform Environmental Covenants Act or its substantial equivalent, the Parties shall address the issue of whether an environmental covenant shall be established for the AOC 1 Open Space Area under the statute. If the Parties are unable to reach agreement on establishment of an environmental

covenant, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of an environmental covenant if it would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(i) **Future Protections.** Any Party shall have the right to propose consideration of additional or substitute protections for the AOC 1 Open Space Area. If the Parties are unable to reach agreement with regard to the proposal, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of additional or substitute protections for the AOC 1 Open Space Area if they would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(j) **Prohibited Development in AOC 1 Open Space Area.** Only development satisfying the requirements of this paragraph and paragraph 60(k) shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(i) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Area regardless of when the construction or installation of permissible development occurs. The Open Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy.

(ii) The Initial Development in the AOC 1 Open Space Area shall be the

development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Area. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii).

(iii) The Special Master shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(iv) Honeywell shall ensure that the requirements of this paragraph and paragraph 60(k) are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy.

(v) Any development undertaken in the AOC 1 Open Space Area, regardless of when undertaken, shall satisfy each of the following requirements:

(1) It shall not jeopardize the integrity of the Chromium Remedy;

(2) It shall be limited to the types of development permitted under paragraph 60(k);

(3) It shall be consistent with this Consent Decree, including the conservation restriction imposed pursuant to paragraph 60(b), and the Redevelopment Plan;

however, in the event of any conflict or inconsistency between this Decree and the Redevelopment Plan, this Decree shall govern;

(4) In total, at least 75% of the AOC 1 Open Space Area, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi);

(5) The portion of the Open Space Design Standards necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy;

(6) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(7) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(8) No permanent concession facilities shall be permitted.

(vi) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c), except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) shall apply, except that the Special Master need not provide notice to NJDEP.

(vii) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant

to paragraph 60(j)(vi) and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii).

(viii) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(ix) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, and paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement).

(x) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(1) Jersey City satisfies the conditions set forth in paragraph 60(a)(iv)(2);

(2) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, and paragraph 60(j)(v); or

(3) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi), and Jersey City provides notice of its intention to alter or add to the

development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of the conservation restriction shall have the right to move the Court to prohibit such alteration or addition.

(xi) If any of the development features or facilities that Jersey City seeks to add pursuant to paragraph 60(j)(x) require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(xii) Jersey City shall provide Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2), to the development undertaken during the Initial Development Period.

(xiii) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy.

(k) **Permissible Development in the AOC 1 Open Space Area.** The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v):

(i) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Area, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(ii) Curbing and fences;

(iii) Sidewalks, paths, walkways, and nature trails;

(iv) Utilities and utility corridors, lighting, and restrooms;

(v) Irrigation or sprinkler components or systems;

(vi) Water features;

(vii) Above-ground storm water cisterns;

(viii) Signs, including the signs or display required by paragraph 60(l);

(ix) Benches, trash receptacles, and bicycle racks;

(x) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(xi) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4).

(l) **Signs or Displays.** Honeywell shall develop a permanent plan for informing visitors to the AOC 1 Open Space Area of the history of the chromium production, contamination, and its remediation. Such plan shall provide for appropriate signs or displays that communicate this information. Such plan shall be subject to review and comment by the Parties and approval by the Special Master.

61. **Honeywell's Ongoing Responsibility.** Honeywell shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy in perpetuity. Honeywell shall satisfy this responsibility through establishment and implementation of a Long-Term Monitoring Plan. In the event that Honeywell ceases to exist without a

successor-in-interest or its obligations under this Consent Decree are stayed or limited due to a bankruptcy petition, the Court shall appoint an independent third-party fiduciary who shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy pursuant to the requirements of this Consent Decree and the Long-Term Monitoring Plan, unless Jersey City volunteers to assume these responsibilities for the Chromium Remedy.

62. **Long-Term Monitoring Plan.** In consultation with the Parties, and subject to approval by the Special Master and NJDEP, Honeywell shall develop a Long-Term Monitoring Plan to ensure the ongoing effectiveness of the Chromium Remedy to meet the objectives set forth in paragraphs 56, 58, and 63. The Long-Term Monitoring Plan shall be consistent with the applicable EPA policies and guidance, including, among others, EPA's Comprehensive Five Year Review Guidance (2001) (or any subsequent revision) and with NJDEP's Technical Requirements for Site Remediation (or any subsequent revision).

63. **Long-Term Monitoring Plan Objectives.** Honeywell shall design the Long-Term Monitoring Plan to satisfy each of the following objectives:

(a) Provide monitoring to ensure that the integrity and effectiveness of the Chromium Remedy are maintained; and

(b) Provide monitoring to ensure that the restrictions of the institutional controls are being satisfied, including the prohibition on development in the AOC 1 Open Space Area.

64. **Monitoring and Remediation Under the Long-Term Monitoring Plan.** The Long-Term Monitoring Plan shall include the monitoring and remediation activities set forth in this paragraph and other monitoring and remediation activities, if necessary, to meet the objectives of paragraph 63. Honeywell shall provide Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP with annual reports on activities conducted under the Long-Term Monitoring Plan.

(a) **Monitoring Activities in the Long-Term Monitoring Plan.** Honeywell shall undertake the following monitoring activities at intervals to be specified in the Long-Term Monitoring Plan, but no less frequently than set forth below, and, if the monitoring shows it is necessary, Honeywell shall also undertake the remediation activities as set forth below:

(i) Quarterly visual inspection monitoring of the AOC 1 Open Space Area to ensure that it is not being put to any use that is inconsistent with paragraphs 60(j) and 60(k) or any use that may compromise the integrity of the Chromium Remedy. The Long-Term Monitoring Plan shall include an inventory of the prohibited and permissible uses pursuant to paragraph 60 and a corresponding checklist to be used by the individuals conducting the monitoring. If Honeywell determines that the AOC 1 Open Space Area is being used in a manner inconsistent with the protections or the integrity and effectiveness of the Chromium Remedy, Honeywell shall act as soon as possible to cause such use to cease and, if there has been damage to the Chromium Remedy, to repair or replace it to original specifications or to a level of protection equivalent to the original Chromium Remedy;

(ii) Quarterly visual inspection monitoring of the AOC 1 Open Space Area grade and slope to identify whether erosion has occurred or is occurring. Honeywell shall remediate any significant erosion.

(iii) Quarterly visual inspection monitoring to determine whether noticeable differential settlement or subsidence has occurred or is occurring in the AOC 1 Open Space Area such that the integrity of the Chromium Remedy may be materially impaired. If evidence of differential settlement or subsidence is found, Honeywell shall propose further investigative measures. Honeywell shall remediate any differential settlement or subsidence that is beyond the degree of differential settlement/subsidence allowed for in the 100% Design

and repair the cap and/or the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(iv) A baseline topographic survey at the completion of the Chromium Remedy and three additional surveys conducted at five-year intervals beginning five years after the conduct of the baseline survey. The topographic survey shall be of sufficient precision and accuracy to present the results as one-foot contours;

(v) Quarterly visual inspection monitoring to determine whether the Chromium Remedy in the AOC 1 Open Space Area has been disturbed. Any evidence of the distinctive warning layer materials or any other cap materials as described in paragraph 56(a) at the surface is an indication that the cap has been disturbed. In such an event, Honeywell shall propose further investigative measures to evaluate whether the integrity of the cap has been compromised. In the event that the investigative measures show that the cap integrity has been compromised, Honeywell shall repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vi) Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy. If evidence of burrowing animals is found, Honeywell shall follow humane removal procedures and repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vii) Quarterly visual inspection monitoring of the vegetative cover in the AOC 1 Open Space Area to ensure that vegetative cover is in conformance with the landscaping provisions of the 100% Design and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy. Maintenance of the vegetative cover shall include, at a

minimum, mowing to ensure that tree species cannot become established and removal of any other vegetation with the potential to damage the Chromium Remedy;

(viii) Quarterly groundwater monitoring to ensure that groundwater levels are maintained in accordance with the requirement to maintain an outward gradient from Study Area 7 and in accordance with the water level control plan developed pursuant to paragraph 58(e);

(ix) Monitoring of vented gases and the gas venting system to ensure proper operation of the system, to evaluate any degradation of the system, to assess the need for treatment of vented gases, either initial, subsequent, or further depending on whether treatment has been previously provided, and to detect any condition that might endanger public health or safety. Such monitoring shall be conducted on a monthly basis for at least one year and, if the readings are stable, such monitoring may be conducted thereafter on a quarterly basis; and

(x) Any additional monitoring as required by specific details added in the design phase of the AOC 1 Open Space Area.

(b) **Procedures for Proposing Changes to the Long-Term Monitoring Plan.** Any Party may, from time to time, propose changes to the scope of the monitoring activities under the Long-Term Monitoring Plan. If the Parties agree, the Long-Monitoring Plan shall be so changed subject to approval by NJDEP and by the Special Master, if his appointment has not terminated, or otherwise, by the Court. If the Parties are unable to reach agreement over alterations to the monitoring and the Special Master's appointment has not terminated under this Consent Decree, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation. In the event that the dispute arises after the Special Master's appointment has terminated, any Party may file a motion seeking a resolution of the dispute by

the Court.

(c) **Contingency Plan.** As part of the Long-Term Monitoring Plan, Honeywell shall develop a contingency plan to ensure the integrity of the remediation in the event of any planned penetration of the cap or otherwise planned activity that compromises the cap or any unplanned event or accident that penetrates the cap or otherwise compromises the integrity of the Chromium Remedy. The contingency plan shall include, at a minimum, an annually updated plan to notify the relevant persons, including the Special Master, NJDEP, and the Parties, of (i) the event penetrating the cap, compromising the cap, or compromising the integrity of the Chromium Remedy; (ii) the general steps to be taken to identify the extent of the problem; and (iii) the standards for remedying the problem.

(d) **Routine Maintenance.** The title owner of the AOC 1 Open Space Area shall conduct maintenance of the AOC 1 Open Space Area features or facilities that are permissible under paragraphs 60(j) and 60(k). The maintenance workers shall be trained in maintenance procedures that do not jeopardize the integrity of the Chromium Remedy. The training shall include the identification and reporting of any uses or features that are not permissible in the AOC 1 Open Space Area or that may jeopardize the integrity of the Chromium Remedy. Honeywell shall provide all training materials. The title owner of AOC 1 Open Space Area shall annually provide to the other Parties and the Special Master a report describing the training which has been provided to its maintenance workers. The title owner of the AOC 1 Open Space Area shall also provide to the Parties and the Special Master notice of any violations of the restrictions relating to the AOC 1 Open Space Area identified by its workers during routine maintenance.

(e) **Recordkeeping.** Honeywell shall maintain written logs or other records of those monitoring and remediation activities undertaken pursuant to the Long-Term Monitoring

Plan. Such logs shall be provided to Riverkeeper and the Jersey City Entities on a quarterly basis.

65. **Monitoring and Reporting to Riverkeeper and Jersey City Entities.** Riverkeeper and Jersey City Entities shall be provided with all documents submitted to NJDEP and/or the Special Master with respect to the Chromium Remedy, including the documents identified in paragraph 72(c).

66. **Notice to Stakeholders.** All residents, regardless of whether they are owners or lessees, and all commercial tenants on Study Areas 6 and 7 are hereby deemed stakeholders. Honeywell shall ensure that all stakeholders shall be provided at the time of their purchase or lease with notice of the contamination, the remedial actions that have been undertaken or are planned, and the importance of reporting activities that may appear to jeopardize the integrity of the engineering controls. Notice shall be accomplished in the following manner:

(a) Bold or otherwise conspicuous language on the first page of the deed provided to all purchasers in the Residential Area;

(b) A summary notice of the Chromium Remedy which:

(i) Has been subject to review and comment by the Parties and approval by the Special Master; and

(ii) Provides a reference to public websites and libraries and/or the future equivalents thereof, where the following can be found:

(1) Zoning and other Jersey City maps showing the AOC 1 Open Space Area; and

(2) Documents describing the contamination and the remediation, including:

(a) This Consent Decree;

(b) The Remedial Investigation Report and the Final Remedial Action Report,

(c) The annual reports on long-term monitoring and maintenance and repair activities as required by paragraph 64 and annual reports on changes to the Initial Development as required by paragraph 60(j)(xii); and

(d) The Long-Term Monitoring Plan.

(c) The provision of the maps and documents referred to in paragraph 66(b)(ii) to the public via websites and libraries and/or the future equivalents thereof; and

(d) Notices to lessees and commercial tenants in all lease documents.

67. **Annual Letter to Riverkeeper and Jersey City Entities on Notice to Stakeholders.** Each year beginning one year after the issuance of the first notice in a deed or lease pursuant to paragraph 66, Honeywell shall provide a letter to the Riverkeeper and the Jersey City Entities documenting its compliance with paragraph 66.

68. **Future Notice to Stakeholders.** Honeywell shall ensure that all stakeholders are provided with notice, at least annually, of long-term monitoring activities and any additional remediation activities undertaken with respect to the Chromium Remedy. Such notice shall be accomplished by notices on websites or future equivalents thereof, including Jersey City websites, any websites created to provide information about the Chromium Remediation or redevelopment of the Redevelopment Area, and one or more of the following:

(a) Any community message board or other similar site used and/or maintained by stakeholders or the manager(s) of the Redevelopment Area;

(b) Mailings to all stakeholders; and

(c) Posters and flyers throughout the Redevelopment Area.

69. **Stakeholder Enforcement.** Any stakeholder shall have the right to enforce the

remedial obligations of this Consent Decree in the Court, including post-implementation monitoring and maintenance obligations, and the terms of any deed notice or use restriction.

C. Oversight and Enforcement by the Special Master and NJDEP

70. **Federal Court Jurisdiction.** The Court shall retain jurisdiction for the purpose of overseeing and enforcing this Consent Decree and to review any issue or dispute which is not resolved through the oversight process described in Article III.C.

71. **Appointment and Jurisdiction of the Special Master.** The Chromium Remedy provided for in this Consent Decree is hereby referred to a Special Master pursuant to Rule 53 of the Federal Rules of Civil Procedure. The Special Master is appointed in the Consolidated Litigation for the purpose of overseeing and enforcing the Chromium Remedy, the first five years of long-term monitoring of the Chromium Remedy, financial assurances for the Chromium Remedy, and the Initial Development Period for each phase of development in the AOC 1 Open Space Area. The Special Master is also appointed in the Consolidated Litigation for the limited purpose of ensuring that the scheduling and implementation of the Historic Fill Remedy, the site preparation activities, and the site redevelopment activities described in the Jersey City/Honeywell Consent Order, Articles II.B, III, and IV, do not undermine the integrity of, unreasonably interfere with, or unnecessarily delay the effectuation of the Chromium Remedy, the Study Area 7 remedies, and other remedies within his jurisdiction as of the date of entry of this Consent Decree. The Special Master shall have jurisdiction over all matters for which he is appointed.

72. **Oversight of the Chromium Remedy.**

(a) **NJDEP Authority.** NJDEP shall retain its full statutory and regulatory authority with respect to the Study Area 6 North site, including (i) permitting authority; (ii) authority to review and approve the Remedial Action Work Plan, 100% Design, and final

Remedial Action Report for the Chromium Remedy; and (iii) authority to issue a no further action letter.

(b) **Special Master Responsibilities.** The Special Master shall have the following responsibilities:

(i) Ensuring that Honeywell's implementation of the Chromium Remedy satisfies the requirements of this Consent Decree;

(ii) Ensuring that Honeywell's implementation of the Chromium Remedy conforms with federal, state, and local permit requirements;

(iii) Establishing a reasonable schedule for the implementation of the Chromium Remedy and monitoring conformance with it;

(iv) Reviewing monthly progress reports and conducting periodic meetings with the Parties to review the progress of the implementation of the Chromium Remedy. NJDEP shall be invited, but not required, to participate in these meetings and the decision as to whether to participate shall be left to NJDEP's sole discretion;

(v) Submitting quarterly progress reports to the Court;

(vi) Overseeing the financial assurances established pursuant to paragraphs 77 through 86, and, until the expiration of his term pursuant to paragraph 76, overseeing the financial assurances established pursuant to paragraphs 87 through 98;

(vii) Coordinating review of the documents as provided in paragraphs 72(c) through 72(f);

(viii) Overseeing all development undertaken in the AOC 1 Open Space Area during the Initial Development Period pursuant to paragraph 60(j)(iii); and

(ix) To the extent that, in matters within the jurisdiction of the Special Master as set forth herein, a dispute arises between the Parties with respect to implementation of the Chromium Remedy, issuing a recommendation to the Court with respect to the dispute.

(c) **Submission of Documents by Honeywell.** Honeywell shall submit the following documents to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP:

(i) An overall schedule with milestones for the design and implementation of the remedy ("Schedule");

(ii) Design drawings and specifications at the 50% level;

(iii) Design drawings and specifications at the 100% level (after selection of the contractor) (hereafter "100% Design");

(iv) The data validation plan, including quality control and quality assurance protocols;

(v) The site-wide master health and safety plan;

(vi) The Long-Term Monitoring Plan;

(vii) The final Remedial Action Report or final construction report (including as-built drawings and such other reports as may be prepared of the remedy as implemented);

(viii) A report reviewing measured groundwater levels for the groundwater remedy;

(ix) Documents required during the Initial Development Period pursuant to paragraphs 60(j)(vi), 60(j)(vii), and 60(j)(viii) ; and

(x) Other post-implementation monitoring reports as required by the Long-Term Monitoring Plan.

(d) **Comment on Submitted Documents.** For each of the documents submitted by Honeywell pursuant to paragraph 72(c), the Special Master shall establish a schedule for the submission of comments and responses to comments. For each of the documents submitted, Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP shall have the right to submit comments to Honeywell. Honeywell shall address all received comments and submit a revised document. The revised document shall be submitted by Honeywell to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP. The revised document shall be subject to review and approval pursuant to paragraph 72(e).

(e) **Review and Approval of the Submitted/Revised Document**

(i) **Scope of Review.** All documents submitted by Honeywell, pursuant to paragraph 72(c) and 72(d), shall be subject to review and approval by the Special Master in accordance with the following procedure. All such documents, except the Schedule and the 100% Design, shall be subject to the review and approval process and shall not require an order of the Court. The Schedule and 100% Design documents shall be subject to the review and approval process, but shall also require an order of the Court as provided in paragraph 72(f). A document shall be approved if the document (1) complies with this Consent Decree; (2) complies with the Remedial Action Work Plan for the Chromium Remedy; and (3) complies with the Schedule and 100% Design.

(ii) **Procedure.** Prior to making a decision on a document, the Special Master shall notify NJDEP of his intention to rule on the document or make a recommendation to the Court on the document. Such notice shall notify NJDEP that the Special Master will consider any comments NJDEP wishes to submit on the document if such comments are submitted within 30 days of NJDEP's receipt of the notice. NJDEP shall in its sole discretion determine whether to submit comments to the Special Master.

(iii) **Court Review.** If any Party objects to the Special Master's recommendation to the Court or approval of any document pursuant to this paragraph, that Party may seek further relief from the Court with respect to the document.

(f) **Schedule and 100% Design Documents.** As to the Schedule and the 100% Design documents, Honeywell shall have the responsibility, within 30 days of the Special Master's approval of each document, of (i) moving for entry of an order by the Court approving the document as approved by the Special Master; or (ii) filing objections with the Court to the Special Master's approval (and any recommendations contained therein) and moving for entry of the Schedule or 100% Design (including any such recommendations of the Special Master to which Honeywell agrees). Riverkeeper and the Jersey City Entities shall have the right in these proceedings to raise any objections they might have to the Schedule or 100% Design as approved by the Special Master or to the submission by Honeywell to the Court. NJDEP shall receive notice of any motion filed with respect to the Schedule or the 100% Design.

(g) **Flexibility in 50% and 100% Design Documents**. The Parties recognize that work conducted to implement the Chromium Remedy may be conducted by Honeywell contractors and that Honeywell may establish performance-based criteria or specifications for its contractors. As a result, the Parties recognize that the 50% Design and 100% Design documents for the Chromium Remedy may include performance-based standards, criteria, and specifications. These documents shall be sufficiently prescriptive to enable the Parties and the Special Master to evaluate their conformance with the Remedial Action Work Plan and this Consent Decree. The Parties also recognize that the 100% Design will be completed after Honeywell has selected a contractor. The Parties further recognize that completing the 100% Design after the selection of the contractor(s) shall not make the 100% Design subject to any less

stringent or more deferential review. Honeywell's commitment to the contractor(s) shall not be cause to limit review by the Parties and the Special Master.

(h) **Changes to the Schedule**. The Parties recognize that changes to individual line items in the Schedule will occur. To the extent that (i) the Parties and the Special Master agree that such changes do not have a material impact on satisfaction of the Schedule milestones established for items set forth in paragraph 54(b); and (ii) such changes do not require modifications to any necessary permits or authorizations for the Chromium Remedy, such changes may be made upon agreement of the Parties and the Special Master without further order of the Court.

73. **Retention of Professionals.** The Special Master may retain the services of professionals and/or other technical personnel, as reasonably needed, to fulfill his obligations under this Consent Decree, and for which he will be reimbursed pursuant to paragraph 75.

74. **Insurance for the Special Master.** The Special Master shall obtain insurance coverage relating to the performance of the Special Master's duties and responsibilities under this Consent Decree. Such coverage shall be similar to the Special Master's existing coverage in *ICO v. Honeywell*, procured pursuant to the Court's November 11, 2005 Stipulation and Order Regarding Special Master's Application to Procure Insurance Coverage, and as extended to the Consolidated Litigation by the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"). The insurance coverage shall be sufficiently extended in duration and scope to cover all additional duties and responsibilities as set forth hereunder. Honeywell shall pay the premiums and other administrative costs of the Special Master's insurance.

75. **Reimbursement of Special Master Fees and Expenses.** The Special Master shall submit fee applications to the Court for approval of reasonable fees and expenses incurred in the

oversight of matters referred to him pursuant to this Consent Decree. Any Party may raise with the Court objections to such fee applications. Upon approval of a fee application by the Court, the reimbursement of the Special Master's fees and expenses shall be made from the escrow fund previously established by Honeywell for the purpose of paying the Special Master's fees and expenses in *ICO v. Honeywell* pursuant to this Court's September 15, 2003 Order Setting Financial Assurances and extended to the Consolidated Litigation by the Sediment Consent Order.

76. **Expiration of Special Master's Appointment.** The Special Master's appointment under this Consent Decree shall expire after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy and the Initial Development Period for each phase of development has been concluded as provided in paragraph 60(j)(ii). However, solely to the extent that the Special Master is still supervising other portions of the Consolidated Litigation or *ICO v. Honeywell* after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy or the Initial Development Period for each phase of development as provided in paragraph 60(j)(ii), whichever is later, the Special Master shall continue to have jurisdiction under this Consent Decree until he has completed his specifically enumerated responsibilities under the Final Judgment in *ICO v. Honeywell*, the Sediment Consent Order, the Deep Groundwater Consent Order, and any other future orders, decrees, or judgments in *ICO v. Honeywell* and the Consolidated Litigation. Enumerated responsibilities under any order, decree, or judgment shall include only those tasks specifically assigned to the Special Master in the order, decree, or judgment. Enumerated responsibilities shall not include any continued jurisdiction exercised over long-term monitoring beyond the initial period specified in the order, decree, or judgment. For example, the Special Master has jurisdiction over the first five years of long-term monitoring under the Sediment Consent Order. Oversight during these five years shall

be an enumerated responsibility, but any continued oversight of long-term monitoring, pursuant to the extension of the Special Master's jurisdiction beyond the first five years, as provided in paragraph 60 of the Sediment Consent Order, shall not be an enumerated responsibility. Such extensions of jurisdiction shall be effective only so long as specific enumerated responsibilities in any order, decree, or judgment have not been fulfilled.

D. Initial Financial Assurances

77. **Chromium Remedy Letter of Credit.** Honeywell shall obtain a one-year, irrevocable letter of credit (the "Chromium Remedy Letter of Credit") to be automatically renewed annually in an amount equal to the "Remedial Costs Subject to Financial Assurance."

(a) Remedial Costs Subject to Financial Assurance shall mean:

(i) The costs of implementing the Chromium Remedy;

(ii) The costs of monitoring and maintenance activities, as required by the Long-Term Monitoring Plan, for five years; and

(iii) A contingency of 25% with respect to those costs listed in paragraphs 77(a)(i) and 77(a)(ii).

(b) The Chromium Remedy Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution, provided that in either case, the financial institution shall be acceptable to the Special Master.

78. **Procedures for Review of the Proposed Chromium Remedy Letter of Credit.** No later than 60 days after entry by the Court of this Consent Decree, Honeywell shall submit to Riverkeeper, Jersey City Entities, and the Special Master for their review the proposed (a) amount of the Chromium Remedy Letter of Credit; (b) form of the Chromium Remedy Letter of Credit; and (c) name of the institution that will issue the Chromium Remedy Letter of Credit. If

Riverkeeper or the Jersey City Entities do not agree to the terms of the Chromium Remedy Letter of Credit, the Parties shall meet and confer in an effort to resolve their differences. If the Parties are unable to reach agreement over the terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the Chromium Remedy Letter of Credit.

79. **Automatic Renewal.** The Chromium Remedy Letter of Credit shall be automatically renewed annually unless (a) no later than 120 days prior to the anniversary of the Chromium Remedy Letter of Credit issue date, the issuer provides notice of nonrenewal or (b) Honeywell seeks a reduction in the Chromium Remedy Letter of Credit, pursuant to paragraph 80, to correspond to the reduced estimate of Remedial Costs Subject to Financial Assurances. If the issuer provides notice of nonrenewal, Honeywell shall obtain a replacement irrevocable Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit. If Honeywell is not otherwise in default as provided in Article III.D, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit within 91 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit. In the event that the Special Master is entitled to draw upon a Chromium Remedy Letter of Credit because there are two Chromium Remedy Letters of Credit currently in place, the Special Master shall not draw an aggregate amount in excess of the highest valued Chromium Remedy Letter of Credit. Upon Honeywell's request, the Special Master may, at his option, decide not to require overlapping letters of credit in any year based on Honeywell's financial strength in that year, provided that Honeywell has submitted all necessary information so that the Special Master can make his determination at least 150 days prior to the expiration of the Chromium Remedy Letter of Credit.

80. **Annual Right to Seek Reduction in Amount of Chromium Remedy Letter of Credit.** Honeywell shall have the right annually to seek a reduction in the Chromium Remedy Letter of Credit. At the time of seeking such reduction, Honeywell shall submit to the Riverkeeper, the Jersey City Entities, and the Special Master an estimate of the remaining Remedial Costs Subject to Financial Assurance, including the contingency as described in paragraph 77(a)(iii), and shall seek adjustment of the Chromium Remedy Letter of Credit so that the total estimated amount of remaining Remedial Costs Subject to Financial Assurance are covered by the Chromium Remedy Letter of Credit. However, the adjustment shall not result in reducing the Chromium Remedy Letter of Credit to an amount below the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), plus a contingency of 25% of the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), and shall not result in reducing the Chromium Remedy Letter of Credit to an amount less than $20,000,000 as expressed in 2008 dollars unless long-term financial assurances are in place pursuant to Article III.E. Before making any request to reduce the amount or modify the terms of the Chromium Remedy Letter of Credit, Honeywell shall first confer with the Riverkeeper and the Jersey City Entities in an effort to reach agreement on the modified amount or terms of the Chromium Remedy Letter of Credit. If the Parties are unable to reach agreement over the modified amount or terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall resolve the dispute. Any Party shall have the right to seek review by the Court of the Special Master's decision regarding the modified amount or terms of the Chromium Remedy Letter of Credit. Upon agreement on the amount of the reduction or modified terms of the Chromium Remedy Letter of Credit (or upon order of the Court directing that the Chromium Remedy Letter of Credit be reduced to an identified amount or otherwise modified), Honeywell shall obtain a replacement Chromium Remedy Letter of Credit in such amount and with such

terms. If Honeywell is not otherwise in default as provided in Article III.D and the issuer of the primary Chromium Remedy Letter of Credit has not provided notice of non-renewal, within 30 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit.

81. **Bankruptcy Protection.** Neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy. The Chromium Remedy Letter of Credit shall contain the language necessary to assure that neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

82. **Exclusive Court Jurisdiction.** The Chromium Remedy Letter of Credit shall recite that the issuer submits to the exclusive jurisdiction of this Court for any and all disputes arising under the Letter of Credit.

83. **Application of New York Law.** The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Chromium Remedy Letter of Credit.

84. **Procedures upon Honeywell's Material Default of Its Obligations.** During the period in which the Special Master has jurisdiction pursuant to paragraph 71, the Chromium Remedy Letter of Credit shall be payable to the Special Master and shall not, prior to its expiration date, be revoked or terminated except consistent with this Consent Decree and with the consent of the Special Master and approval by the Court. The Special Master's ability to draw upon the Chromium Remedy Letter of Credit shall not be limited by any agreement between Honeywell and the issuer. The Special Master may, without further order or notice to

this Court, draw upon the Chromium Remedy Letter of Credit upon the occurrence of default by Honeywell, which shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 79 to deliver a replacement Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 15 days after written notice to Honeywell thereof and either (i) Honeywell, in the opinion of the Special Master without further input from the Parties, shall have failed to cure the breach; (ii) during the 15-day period, the Court has not entered an order to prevent the Special Master from drawing on the Chromium Remedy Letter of Credit; or (iii) the Court or the Special Master has not granted Honeywell additional time to cure the breach;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if involuntary filing has not been dismissed within 60 days; the appointment of a custodian, receiver, liquidator, or trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under paragraph 84(c) above, and the failure of Honeywell to provide assurance to the Special Master, within 15 days after written notice, that such an event will not impair Honeywell's ability to

carry out the terms of this Consent Decree.

85. **Placement of Proceeds in Court Registry Investment System Account.** In the event that the Special Master draws upon the Chromium Remedy Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Chromium Remedy Letter of Credit which represent the remaining estimated Chromium Remedy costs under paragraphs 77(a)(i), plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), in an account with the Court Registry Investment System in accordance with Local Civil Rule 67.1 and not expend the proceeds of the Letter of Credit without further order of this Court. The Special Master shall place all additional proceeds of the Chromium Remedy Letter of Credit in a trust fund pursuant to paragraph 90(b)(v).

86. **Termination of Chromium Remedy Letter of Credit.** The Chromium Remedy Letter of Credit may be withdrawn in its entirety upon the satisfaction of all of the following:

(a) The implementation of the Chromium Remedy; and

(b) Establishment of long-term financial assurance pursuant to Article III.E.

E. Long-Term Financial Assurances

87. **Long-Term Financial Assurances.** Honeywell shall fund long-term financial assurances to ensure that the activities set forth in paragraph 89(a) are carried out regardless of whether Honeywell is financially able to carry out such activities in perpetuity.

88. **Resolution of the Amount of Long-Term Financial Assurances.** The Parties have agreed to the following options with regard to how the long-term financial assurances shall be determined:

(a) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less,

and agree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E.

(b) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, but disagree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E except that the dispute as to the amount of the long-term financial assurances shall be submitted to the Special Master pursuant to paragraph 91.

(c) If the Parties do not agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, or the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is greater than $10,000,000, the Parties shall seek resolution by the Court of the long-term financial assurances issues, including (i) the type of financial assurances to be provided; (ii) the scope of the financial assurances; (iii) the amount of the financial assurances; and (iv) the duration of the financial assurances. In the event that the Parties seek resolution by the Court, the provisions of paragraphs 90 through 98 shall not apply.

(d) Within 60 days of the entry of this Consent Decree, the Parties shall determine which option under this paragraph shall apply. In the event that the Parties determine that paragraph 88(c) applies, Riverkeeper shall initiate the proceedings by moving the Court for the imposition of long-term financial assurances.

(e) If the Parties determine that they are proceeding under paragraph 88(c), Honeywell shall maintain the Chromium Remedy Letter of Credit required by paragraph 77 in an amount equal to at least $20,000,000 in 2008 dollars until such time as the long-term financial assurances ordered by the Court are in place. In the event of any default by Honeywell pursuant

to paragraph 84 while the Chromium Remedy Letter of Credit is in place, the provisions of paragraph 90(b)(v) for the placement of the proceeds that exceed the remaining estimated Chromium Remedy costs under paragraph 77(a)(i) plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), shall apply.

89. **Costs Subject to Long-Term Financial Assurances.**

(a) Long-term financial assurances shall provide enough funds to cover the costs of the following activities:

(i) Perpetual monitoring and maintenance of the Chromium Remedy, including installation, operation and monitoring of any above-cap-grade gas collection and/or treatment system as may be necessary, but such system is not part of the 100% Design;

(ii) Perpetual operation of the shallow groundwater pump-and-treat remedy;

(iii) Perpetual repair of the cap;

(iv) Perpetual replacement of the cap on a 75-year replacement interval; and

(v) In the event that Honeywell selects a trust fund pursuant to paragraph 90(a), the perpetual administration of the trust fund.

(b) The costs that shall be subject to financial assurances is an amount that will provide the full payment for each of the activities set forth in paragraphs 89(a)(i) through 89(a)(v) plus a 25% contingency when the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to be performed. The costs subject to financial assurances are forward looking because they state an amount valued at the time the funds are needed. As such, they shall be stated in contemporary time as the present value (calculated on the basis of a discount rate of 4.75%) of

the estimated future costs of the activities specified in paragraphs 89(a)(i) through 89(a)(v), plus a 25% contingency on those costs.

90. **Long-Term Financial Assurance Mechanisms.** Honeywell shall provide long-term financial assurances in the amount of the costs subject to long-term financial assurances in the form of a trust fund, a letter of credit, or some combination of the two. The selected mechanism(s) shall satisfy the following requirements:

(a) **Trust Fund.** In the event that Honeywell selects a trust fund, Honeywell shall create a trust fund such that it can provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(i) The trust fund shall be at arm's length from Honeywell and shall not be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The trust fund agreement shall contain the language necessary to assure that neither the trust fund nor the earnings of the trust fund shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The trust fund shall be managed by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution managing the trust fund declares bankruptcy, the Court shall withdraw the funds and appoint another financial institution meeting the requirements of this paragraph to manage the trust.

(iii) No more frequently than once per year, Honeywell may apply to the Court for an order directing the trust manager to reimburse Honeywell for any costs that it has incurred to carry out the activities set forth in paragraphs 89(a)(i) through 89(a)(iv).

(b) **Long-Term Letter of Credit.** In the event that Honeywell selects a letter of credit, Honeywell shall obtain a one-year irrevocable letter of credit (the "Long-Term Letter of Credit") to be automatically renewed annually in an amount that provides sufficient funds such that a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a), could be created. The Long-Term Letter of Credit-funded trust, plus any trust fund established under paragraph 90(a), shall provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The amount of any Long-Term Letter of Credit shall therefore be adjusted periodically as the cap replacement interval is approached because, for example, the money needed in the 10th year to fund a trust that can provide for replacement of the cap in the 75th year is much less than the money that would be needed in the 40th year. Such periodic adjustments shall be proposed and approved by the Court in conjunction with the adjustments under paragraph 92.

(i) Neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The Long-Term Letter of Credit shall contain the language necessary to assure that neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The Long-Term Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution issuing the Long-Term Letter of Credit declares bankruptcy, the Court shall authorize the drawing of funds from the Long-Term Letter of Credit

and shall deposit those funds in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(iii) The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Long-Term Letter of Credit.

(iv) The Long-Term Letter of Credit shall be automatically renewed annually, unless, no later than 120 days prior to the anniversary of the Long-Term Letter of Credit issue date, the issuer provides notice of non-renewal. If the issuer provides notice of non-renewal, Honeywell shall obtain a replacement irrevocable Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit. If Honeywell is not otherwise in default as provided in this Article, the Court shall direct the cancellation of the prior Long-Term Letter of Credit within 91 days after delivery to the Court of any replacement of a Long-Term Letter of Credit. In the event that the Court is entitled to draw upon a Long-Term Letter of Credit when there are two Letters of Credit currently in place, the Court shall not draw an aggregate amount in excess of the highest valued Long-Term Letter of Credit.

(v) Prior to the expiration of the Special Master's appointment pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Special Master. During the time the Long-Term Letter of Credit is payable to the Special Master, the Special Master may draw on the Long-Term Letter of Credit as provided in paragraph 84. In the event that the Special Master draws upon the Long-Term Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a). After the Special Master's appointment expires pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Court and, in the event that the Court draws

on the Long-Term Letter of Credit, the Court shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(vi) Whether the Long-Term Letter of Credit is payable to the Special Master or the Court, it shall not, prior to its expiration date, be revoked or terminated by Honeywell except consistent with this Consent Decree and with the approval of the Court. The ability of the Special Master or the Court to draw upon the Long-Term Letter of Credit shall not be limited by any agreement between Honeywell and the issuer.

(vii) In the event that the Long-Term Letter of Credit is drawn upon and invested pursuant to paragraph 90(b)(ii), 90(b)(v) or 95 and Honeywell has also selected a trust fund pursuant to paragraph 90(a), resulting in the existence of two trust funds, the two trust funds shall be managed so as to ensure that the combined amount of the trust funds is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(c) **Combination.** Honeywell may use some combination of a trust fund and a letter of credit to achieve the requirements of this paragraph. However, if a combination is used, Honeywell shall ensure that the combined amount of financial assurances is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The trust fund and the letter of credit shall otherwise satisfy all the requirements of paragraphs 90(a) and 90(b).

91. **Procedures for Review of the Proposed Long-Term Financial Assurances.** In the event that the Parties have determined that they are proceeding pursuant to paragraph 88(a) or 88(b), no later than 120 days after the determination under paragraph 88(d), Honeywell shall submit to Riverkeeper, the Jersey City Entities, and the Special Master, for their review (a) the

amount of the proposed long-term financial assurances; (b) the form(s) of the proposed long-term financial assurance mechanisms; and (c) the name(s) of the institution proposed to manage or issue the long-term financial assurances. If Riverkeeper and the Jersey City Entities agree to the terms of the proposed long-term financial assurances, within 60 days of such agreement, Honeywell shall create a trust fund and/or secure a Long-Term Letter of Credit on those terms. If the Parties are unable to reach agreement over the terms of the long-term financial assurances, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the financial assurances. In any event, until the long-term financial assurances have been put into place, Honeywell shall maintain the Chromium Remedy Letter of Credit and the requirements of paragraphs 88(e) and 90(b)(v) shall apply to the Chromium Remedy Letter of Credit.

92. **Adjustment of Amount Held in Long-Term Financial Assurances.** Every five years as marked from the establishment of the first long-term financial assurances pursuant to paragraph 90, the Parties shall report to the Court whether the long-term financial assurances are adequately funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. At such time as the Parties report to the Court, any Party may seek an adjustment in the amount of the long-term financial assurances. The Party seeking an adjustment must demonstrate that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Such demonstration shall reflect the actual costs of implementing the remedy and/or any replacement of the remedy, once such actual costs are available. The demonstration shall also reflect the costs of work completed to date and the actual lifetime of the cap, once the

cap has been replaced or has passed a replacement interval without requiring replacement. The demonstration shall further reflect the actual performance of the fund and its ability to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Any demonstration shall be forward looking and shall be based upon estimates of what the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to cost at the time they must be performed and the amount of funding projected to be available to undertake such activities at the time they must be performed. If, after reviewing the submission(s) received from the Parties, the Court determines that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary, the Court shall order an adjustment in the amount held in the long-term financial assurances to overcome the shortage or overage. In the event that the Court determines that the long-term financial assurances are under-funded, it shall order Honeywell to increase the amount held in the long-term financial assurances. In the event that the Court determines that any trust fund established pursuant to paragraph 90(a) is over-funded, the Court shall issue an order directing the trust manager to pay the overage to Honeywell. In the event that the Court determines that the Long-Term Letter of Credit is over-funded, the Court shall issue an order permitting Honeywell to reduce the amount covered during the next annual renewal of the Long-Term Letter of Credit pursuant to paragraph 90(b)(iv). Any adjustment to the amount of the Long-Term Letter of Credit pursuant to this paragraph shall be in addition to any adjustment of the amount of the Long-Term Letter of Credit required pursuant to paragraph 90(b).

93. **Exclusive Court Jurisdiction.** The trust fund agreement and/or the Long-Term Letter of Credit shall recite that the trust fund manager and/or issuer of the Long-Term Letter of Credit submit to the exclusive jurisdiction of this Court for any and all disputes arising under the

trust fund or the Long-Term Letter of Credit. The requirements of this paragraph shall apply whether the trust fund is established pursuant to paragraph 90(a), 90(b)(ii), 90(b)(v), or 95.

94. **Procedures upon Honeywell's Material Default of Its Obligations after the Special Master's Appointment Has Expired.** Upon the occurrence of default by Honeywell, after the Special Master's appointment has expired, Riverkeeper or the Jersey City Entities may move the Court on an expedited basis for an order to withdraw funds from the trust fund or to draw on the Long-Term Letter of Credit. Default shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 90(b)(iv) to deliver a replacement Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 30 days after written notice by Riverkeeper or the Jersey City Entities to Honeywell of the alleged material failure, unless Honeywell cures the alleged breach within the 30-day notice period or such longer period as the Parties may agree to or the Court may order;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if the involuntary filing is not dismissed within 60 days; the appointment of a custodian, receiver, liquidator, trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under

paragraph 94(c), if Honeywell fails to provide assurance to Riverkeeper, the Jersey City Entities, and the Court, within 15 days after written notice, that such an event will not impair Honeywell's ability to carry out the terms of this Consent Decree.

95. **Drawing on the Long-Term Letter of Credit in the Event of Honeywell's Default.** If the Court grants any motion by Riverkeeper or the Jersey City Entities pursuant to paragraph 94 to draw on the Long-Term Letter of Credit, the sum approved by the Court's order granting the motion shall be paid from the Long-Term Letter of Credit into a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

96. **Use of the Trust Fund in the Event of Honeywell's Default**. In the event of Honeywell's default, the money in the trust fund established pursuant to paragraph 90(a) shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

97. **Use of a Trust Fund Established Pursuant to Paragraph 85, 90(b)(ii), 90(b)(v), or 95.** In the event that a trust fund is established pursuant to paragraph 85, 90(b)(ii), 90(b)(v), or 95, the money in the trust fund shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

98. **Termination of the Long-Term Financial Assurances.** Honeywell's obligations

under Article III.E shall be terminated and the long-term financial assurance mechanisms shall be terminated when the Court finds that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area or on the Site, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon determining that long-term financial assurances may be terminated, the Court shall order that any Long-Term Letter of Credit may be withdrawn in its entirety and any trust fund may be terminated. In conjunction with its order terminating any trust fund, the Court in its discretion shall designate a recipient(s) of any remaining trust funds.

ARTICLE IV: IMPLEMENTATION SCHEDULE AND TERMINATION

99. **Schedule for Remedy and Site Preparation Implementation Activities.** The Chromium Remedy under Article III and the Historic Fill Remedy under Article II.B of the Jersey City/Honeywell Consent Order and Site Preparation Activities under Article III of the Jersey City/Honeywell Consent Order shall be undertaken by the Parties in accordance with the following anticipated schedule, recognizing that this schedule may be further modified in writing by agreement of the Parties and with the approval of the Court:

(a) By October 1, 2008, the Jersey City Entities and Honeywell shall develop a Site Preparation Plan, pursuant to paragraph 3.2 of the Jersey City/Honeywell Consent Order, for all Site Preparation Activities necessary to undertake the Chromium Remedy;

(b) No later than June 18, 2009, Honeywell shall submit to NJDEP a remedial design document for the Chromium Remedy;

(c) No later than September 1, 2009, Honeywell shall submit all applications for permits and authorizations for the performance of the Chromium Remedy to all appropriate local, state, and federal government entities;

(d) Honeywell shall use its best efforts to complete the Chromium Remedy no later than four years after all appropriate applications and authorizations for the performance of the Chromium Remedy have been obtained;

(e) By May 1, 2008, Honeywell and the Jersey City Entities shall submit a work plan for further Remedial Investigation for AOC 2 to NJDEP; and

(f) By December 1, 2008, Honeywell and the Jersey City Entities shall submit a Remedial Action Selection Report and Remedial Action Workplan for the Historic Fill Remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order. The Workplan shall contain a schedule for implementation of the Historic Fill Remedy.

100. **Termination of this Consent Decree.** This Consent Decree shall terminate upon the withdrawal of any Party as provided for in this paragraph. Any Party may elect to withdraw from this Consent Decree due to the occurrence of one or more of the following events, provided that such Party provides written notice of withdrawal to the other Parties pursuant to paragraph 108:

(a) The Court fails to enter the Jersey City/Honeywell Consent Order or this Consent Decree or either the Jersey City/Honeywell Consent Order or this Consent Decree is determined to be invalid on appeal;

(b) JCRA fails to take those actions required under paragraphs 4.11(a), (b), and (c) of the Jersey City/Honeywell Consent Order within nine months of entry of this Consent Decree; or

(c) JCRA fails to approve a Redevelopment Agreement between Bayfront Redevelopment LLC and JCRA pursuant to paragraph 4.11(e) of the Jersey City/Honeywell Consent Order within 12 months of entry of this Consent Decree.

101. **Procedures for Withdrawal and Termination.** Any Party electing to withdraw pursuant to paragraph 100 and thereby terminate this Consent Decree shall provide written notice of such withdrawal and termination to all other Parties within 30 days of the occurrence giving rise to the decision to withdraw. If any Party objects to termination of the Consent Decree, or believes that the conditions set forth in paragraph 100 have not been met, such objecting Party may move the Court for an expedited hearing on the issue of whether the conditions for termination have been effectuated.

102. **Good-Faith Obligation to Avoid Termination.** The Parties agree that they will each endeavor to fulfill the terms of this Consent Decree, that they will work diligently and in good faith to meet their obligations hereunder, and that they will promptly and timely take all reasonable steps to give effect to this Consent Decree and to avoid termination under paragraph 100.

103. **Effect of Termination.** If this Consent Decree is terminated pursuant to paragraph 100, the Consent Decree shall no longer be binding on the Parties and shall be of no further effect. In the event that this Consent Decree is terminated by one or more Parties pursuant to paragraph 100, each Party to this Consent Decree reserves all of its rights, claims, and defenses (both legal and factual) against the other Parties with respect to the matters at issue in the Consolidated Litigation and each Party remains free to pursue such rights, claims, and defenses.

ARTICLE V: ADDITIONAL PROVISIONS RELATED TO HISTORIC FILL AND SITE PREPARATION AND REDEVELOPMENT

104. **Historic Fill Remedy**. This Consent Decree shall adopt and incorporate the terms of Article II.B of the Jersey City/Honeywell Consent Order with respect to the Historic Fill Remedy. The Historic Fill Remedy shall not be limited to the activities set forth in Article II.B of the Jersey City/Honeywell Consent Order in the event that NJDEP requires a more extensive remedy. The Historic Fill Remedy shall be compatible with the Chromium Remedy such that no

part of the Historic Fill Remedy shall interfere with the installation, maintenance, and monitoring of the Chromium Remedy. In addition, the Historic Fill Remedy for any discharge of non-chromium contaminants to the Hackensack River shall not interfere with the remedies under the Sediment Consent Order, including the source control remedies. In the event that Jersey City conducts the Historic Fill Remedy instead of Honeywell, the terms of this paragraph shall still apply.

105. **Oversight of Historic Fill Remedy**. Paragraph 2.11 of the Jersey City/Honeywell Consent Order shall apply only to the Historic Fill Remedy, not the Chromium Remedy. The Progress Reports provided for in paragraphs 2.12 and 3.7 of the Jersey City/Honeywell Consent Order shall be provided to Riverkeeper and the Special Master at the time they are submitted.

106. **Transfer of Title of Study Areas 6 North and 7 to and from Bayfront Redevelopment LLC**. The transfer of title of Study Area 6 North and Study Area 7 properties to Bayfront Redevelopment LLC pursuant to the Jersey City/Honeywell Consent Order and any subsequent transfers shall not impede Honeywell's obligations to (a) complete the remediation of Study Area 7 and implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or (b) complete the Chromium Remedy and conduct long-term monitoring and fulfill its other obligations set forth in this Consent Decree. Such transfers of Study Areas 6 North and Study Area 7 shall not include a transfer of Honeywell's obligations to implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or a transfer of Honeywell's obligations under this Consent Decree, but shall include a right of access or any other right required by Honeywell to complete the remediation. Any subsequent transfer of Study Area 6 North or Study Area 7 from Bayfront Redevelopment LLC to a redeveloper or other party shall provide all necessary agreements to allow Honeywell all necessary access to Study Area 6 North and Study Area 7 for purposes of completing Honeywell's obligations with respect to Study Area 6 North under this

Consent Decree and completing the Study Area 7 remediation and implementing the Final Judgment and subsequent orders in *ICO v. Honeywell*.

107. **Dispute Resolution Procedures.** The provisions of Article VIII of the Jersey City/Honeywell Consent Order do not apply to any disputes regarding or impacting the Chromium Remedy, which shall be resolved as provided in paragraph 72. The provisions of Article VIII of the Jersey City/Honeywell Consent Order shall apply to disputes between the Jersey City Entities and Honeywell regarding the Historic Fill Remedy and other obligations provided in the Jersey City/Honeywell Consent Order, except to the extent that such disputes may affect the Chromium Remedy. If any such dispute may affect the Chromium Remedy, it shall be resolved as provided in paragraph 72. Honeywell shall provide Riverkeeper with a copy of each notice of any breach provided under paragraph 8.1 of the Jersey City/Honeywell Consent Order within 10 days of Honeywell's receipt or issuance of such notice. Honeywell shall provide Riverkeeper with a copy of any written resolution of a dispute pursuant to paragraph 8.2 within 10 days of the resolution.

ARTICLE XI: NOTICE

108. **Notice.** Any and all notices given in connection with this Consent Decree shall be deemed adequately given only if in writing and addressed to the Party for whom such notices are intended at the addresses set forth in this paragraph. All notices shall be sent by Federal Express or other nationally recognized overnight messenger service or by first-class registered or certified mail, postage prepaid, return receipt requested. A written notice shall be deemed to have been given to the recipient party on the earlier of (a) the date it shall be delivered to the address set forth in this paragraph; (b) the date delivery shall have been refused at the address set forth in this paragraph; or (c) with respect to notices sent by mail, the date as of which the postal service shall have indicated such notice to be undeliverable at the address set forth in this paragraph.

Any and all notices referred to in this Consent Decree, or which any Party desires to give to the other, shall be addressed as follows:

If to Honeywell and/or
Bayfront Redevelopment LLC :

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

If to Riverkeeper:

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th St., N.W.
Washington, DC 20005-4632
(202) 682-2100

With copies to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-4003

If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

If to JCIA:

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

If to JCMUA:

Sam Della Fera Jr.
Trenk, DiPasquale, Webster,
Della Ferra & Sodono, P.C.
347 Mount Pleasant Ave.
West Orange, NJ 07052
(973) 243-8600

If to JCRA:

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Any party may change its designated recipients or addresses for notice in this paragraph by providing written notice of such change to all other Parties.

ARTICLE XII: RIVERKEEPER'S ATTORNEYS' FEES

109. **Payment of Past Fees and Expenses.** Within 30 days of the entry of this Consent Decree, Honeywell shall pay Terris, Pravlik & Millian, LLP the sum of $1,513,217.15 which represents the following:

(a) A compromise of the attorneys' fees incurred by Riverkeeper in the litigation of Study Area 6 North portion of *Riverkeeper v. Honeywell* through March 27, 2008; and

(b) $187,862.27 in out-of-pocket expenses representing 50% of the expenses incurred by Riverkeeper in *Riverkeeper v. Honeywell* from the inception of the litigation after deducting the expenses to be paid pursuant to the Sediment Consent Order.

Payment of the sum of $1,513,217.15 shall be in full satisfaction of all obligations, duties, and responsibilities of Honeywell with respect to the $1,556,747.46 in fees and expenses that Riverkeeper claimed with regard to the above described fees and expenses.

110. **Future Fees and Expenses.** Honeywell shall reimburse Riverkeeper's attorneys for reasonable fees and expenses incurred: (a) in negotiating this Consent Decree after March 27, 2008; (b) in the monitoring and enforcement of this Consent Decree; and (c) in participation in the Special Master process established pursuant to this Consent Decree. Honeywell shall also reimburse Riverkeeper for reasonable attorneys' fees and expenses for Riverkeeper's review of and participation in the Long-Term Monitoring Plan and monitoring and enforcement of this Consent Decree following the term of the Special Master. In the event that any dispute arises between the Parties under this Consent Decree that must be resolved by the Court, Riverkeeper shall be entitled to recover its attorneys' fees and expenses for litigation of the dispute to the extent allowed by federal law. Riverkeeper and Honeywell shall use the same informal procedure for attempting to settle fees issues as has been used for post-judgment monitoring fees in *ICO v. Honeywell*. In the event that Riverkeeper and Honeywell are unable to reach a

settlement on fees, Riverkeeper shall apply to the Court for an award of attorneys' fees and expenses. If Honeywell objects to only a portion of the Riverkeeper's statement of attorneys' fees and expenses, Honeywell shall pay the undisputed portion within 60 days of Riverkeeper's submittal of the statement to Honeywell. The Court shall resolve any objections to Riverkeeper's statement of attorneys' fees and expenses and shall enter an appropriate Order.

ARTICLE XIII: MISCELLANEOUS PROVISIONS

111. **Force Majeure.** Force Majeure, for the purposes of this Consent Decree, is defined as an event arising from causes beyond the control of any Party or Parties (or their agents, contractors, subcontractors, representatives, or assigns) which could not have been overcome by reasonable diligence and which delays or prevents the performance of any obligation under this Consent Decree. Examples of events which may constitute force majeure include the refusal of any federal or state governmental authority to grant a permit or authorization necessary for the completion of actions required by this Consent Decree, floods, hurricanes, tornadoes, and other extraordinary weather events, earthquakes and other natural disasters, terrorist attacks, war, and other national emergencies. Examples of events that are not force majeure events include normal inclement weather, increased costs or expense, the failure to timely and fully apply for a permit or authorization necessary for the completion of actions required by this Consent Decree, or financial difficulty of any Party. The Party claiming force majeure shall bear the burden of showing an event was a force majeure event.

112. **JCRA and Bayfront Redevelopment LLC as Parties.** As signatories to this Consent Decree, JCRA and Bayfront Redevelopment LLC subject themselves to the Court's jurisdiction for the purpose of enforcing this Consent Decree and agree to be bound by this Consent Decree. This Consent Decree shall be fully enforceable against JCRA and Bayfront Redevelopment LLC.

113. **Successors and Assigns.** This Consent Decree shall be binding upon and shall inure to the benefit of the successors, assigns, heirs, corporate parents, subsidiaries, and affiliates of each Party. No assignment or delegation of the obligations hereunder shall release the assigning Party from its obligations under this Consent Decree.

114. **Successors to Hackensack Riverkeeper, Inc.** In the event that Hackensack Riverkeeper, Inc. disbands or otherwise ceases operations, it shall assign its rights under this Consent Decree to another qualified nonprofit organization. A nonprofit organization shall be qualified for assignment under this Consent Decree if it is a charitable organization under Section 501(c)(3) of the Internal Revenue Code or its substantial equivalent and has an established record of working to enhance or preserve the ecology, natural habitat, or environment. Any such assignment shall be subject to approval by the Court and Honeywell shall have the right to object to any proposed assignment. Any successor organization shall have the duty to assign its rights under this Consent Decree to another qualified nonprofit organization in the event that the successor disbands or otherwise ceases operations. In the event that a successor is not appointed at any given time, the New Jersey Attorney General or equivalent officer shall appoint a successor subject to approval by the Court and objection by Honeywell.

115. **Reservation of Rights and Claims**. Except as set forth expressly herein, this Consent Decree does not affect in any way any of the Parties' claims or defenses against third parties who have not signed the Consent Decree.

116. **Governing Law and Continuing Jurisdiction.** The Court shall retain jurisdiction over the matters addressed in this Consent Decree for purposes of enabling the Parties to apply to the Court for any further order as may be necessary to construe, carry out, or enforce the terms of this Consent Decree. This Consent Decree shall be interpreted and enforced under the laws of

the United States and the State of New Jersey by the United States District Court for the District of New Jersey.

117. **Construction.** Questions regarding the interpretation of this Consent Decree shall not be resolved against any Party on the ground that this Consent Decree has been drafted by that Party. This Consent Decree is the result of review, negotiation, and compromise by each Party.

118. **Authority to Enter into Agreement.** The undersigned representative for each Party represents, certifies, and warrants that he or she is duly authorized by the Party whom he or she represents to enter into the terms of this Consent Decree and bind such Party legally to this Consent Decree.

119. **Measures to Effectuate This Consent Decree.** The Jersey City Entities and JCRA shall take all appropriate steps to ensure that this Consent Decree has been (and that actions required hereunder will be) duly considered, ratified, and approved. Such steps include consideration of this Consent Decree at a meeting of the City Council, open to the public, at which members of the public have the opportunity to comment on all aspects of the Settlement, including the commitments made by Jersey City; and consideration by and approval of the commissioners of the JCIA, JCMUA, and JCRA.

120. **Modifications.** This Consent Decree may be modified by mutual agreement of the Parties but such agreement must be in writing, duly and properly signed by all Parties, and shall be submitted to the Court for approval.

121. **Severability.** Each of the provisions in paragraph 60 of this Consent Decree shall be deemed severable and, in the event that one or more of such provisions is deemed invalid or unenforceable, it shall not affect the validity or enforceability of the other provisions of the Consent Decree.

122. **Signatures.** This Consent Decree may be signed simultaneously or in counterparts by the respective signatories, which shall be as fully valid and binding as if a single document was signed by all of the signatories. This Consent Decree may be signed electronically by any or all signatories, and such electronic signature shall be as fully valid and binding as a hand-written signature.

Consented to and approved for entry:

s/Aurelio Vincitore

William Matsikoudis
Aurelio Vincitore
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NY 07305
(201) 547-4667

Counsel for the City of Jersey City

s/David L. Isabel

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

Counsel for Jersey City Incinerator Authority

s/ Joni Noble McDonnell

Joni Noble McDonnell
Genova, Bruns & Giantomasi
4974 Broad Street
Newark, NJ 07102
973-535-4435

Counsel for Jersey City Municipal Utilities Authority

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Executive Director of Jersey City Redevelopment Agency

s/ David Sheehan

David Sheehan
Baker Hostetler
45 Rockefeller Plaza
11th Floor
New York, NY 10111
(212) 589-4200

Michael D. Daneker
Arnold & Porter LLP
555 12th Street N.W.
Washington, DC 20004
(202) 942-5000

Counsel for Honeywell International Inc. and Bayfront Redevelopment LLC

s/ Edward Lloyd

Edward Lloyd
Columbia Law School
435 West 116th Street, Room 831
New York, NY 10027
(212) 854-4376

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th Street N.W.
Washington, DC 20005-4632
(202) 682-2100

Counsel for the Hackensack Riverkeeper, William Sheehan, Reverend Winston Clarke, and Lawrence Baker

APPROVED AND ENTERED as an Order of this Court this ___ day of _____, 2012.

_____
Hon. Dennis M. Cavanaugh
United States District Judge

EXHIBITS

Exhibit A: Jersey City/Honeywell Consent Order

Exhibit B: Remedial AOC's and Remedial Approach Map

Exhibit C: NJDEP Chromium Policy

Exhibit D: Conservation Restriction

Exhibit E: Deed Notice

RECORD AND RETURN TO:

E. NEAL ZIMMERMANN, ESQ.
Waters, McPherson, McNeill, P.C.
300 Lighting Way
Secaucus, New Jersey 07096

20090109010002700 1/34
01/09/2009 04:14:54 PM DEED - MASTER
Bk: 8644 Pg: 662
Willie L.Flood
Hudson County, Register of Deeds
Receipt No. 55414

CONSERVATION RESTRICTION

This **CONSERVATION RESTRICTION** ("Conservation Restriction"), made on this 12th day of December, 2008, between BAYFRONT REDEVELOPMENT LLC, a limited liability company, having an address at c/o Honeywell International Inc., 101 Columbia Turnpike, Morristown, New Jersey 07962 (hereafter the "Grantor"), HONEYWELL INTERNATIONAL INC., a corporation of the State of Delaware, having an address at 101 Columbia Turnpike, Morristown, New Jersey 07962, and THE HACKENSACK WATERSHED LAND TRUST, a non-profit Corporation of the State of New Jersey with offices at 231 Main Street, Hackensack, New Jersey 07061 (hereafter "Grantee").

WHEREAS, the Grantee, is a non-profit corporation incorporated under the laws of the State of New Jersey as a tax exempt public charity under Section 501(c)(3) and 509(a)(1) of the Internal Revenue Code; is qualified under section 170(h) of the Internal Revenue Code to receive conservation contributions; is a charitable conservancy within the meaning of N.J.S.A. 13:8B-2(a); is qualified to do business in the State of New Jersey; and whose purpose is to preserve natural areas for scientific, charitable, educational, and aesthetic purposes; and

WHEREAS, Grantor is the owner in fee simple of certain AOC 1 Open Space Property consisting of approximately 11 acres and now known and designated as a portion of Block 1290.1, Lots 2D and 2E and Block 1290.1, Lot 16A.99 on the Tax Map of the City of Jersey City, as described in Schedule A and Exhibit A attached hereto (the "AOC 1 Open Space Property"); and

WHEREAS, the AOC 1 Open Space Property is subject to a certain Option to Purchase in favor of the City of Jersey City which may be exercised upon the occurrence of certain conditions, which is being recorded simultaneously with this Conservation Restriction, and which provides for purchase subject to this Conservation Restriction; and

WHEREAS, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property then-owned by JCMUA, which included the area known as the AOC 1 Open Space Property; and

WHEREAS, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property then-owned by JCIA, which included the area known as the AOC 1 Open Space Property; and

WHEREAS, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater,

surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

WHEREAS, Study Area 6 North includes the properties previously owned by JCMUA, JCIA, and the City of Jersey City and includes the AOC 1 Open Space Property.

WHEREAS, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation"); and

WHEREAS, the Consolidated Litigation was resolved, in part, by the "Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North" (hereinafter the "Consent Decree"), which decree is being recorded simultaneously with this Conservation Restriction; and

WHEREAS, the AOC 1 Open Space Property is being remediated for chromium contamination and following the remediation, development of the AOC 1 Open Space Property is prohibited except in the limited circumstances set forth in the Consent Decree and this Conservation Restriction; and

WHEREAS, subject to certain roadway and utility improvements affecting portions of the AOC 1 Open Space Property, and consistent with the terms of the Consent Decree and this Conservation Restriction, the AOC 1 Open Space Property will, following implementation of the Chromium Remedy as defined in the Consent Decree, be re-developed from commercial/industrial purposes to open space/public park purposes. Following the remediation, the AOC 1 Open Space Property will be established as a predominantly green open space with associated pedestrian walkways

and outdoor recreation facilities for the use and enjoyment of the public, while serving to protect the long-term integrity of the Chromium Remedy; and

WHEREAS, pursuant to the Bayfront I Redevelopment Plan, adopted by Jersey City on March 12, 2008, the AOC 1 Open Space Property has been zoned for open space and park use and certain roadways and utility improvements; and

WHEREAS, the AOC 1 Open Space Property is subject to certain provisions in the Consent Decree; and

WHEREAS, paragraph 60(b) of the Consent Decree provides that Bayfront Redevelopment LLC shall grant an open space conservation restriction over the AOC 1 Open Space Property; and

WHEREAS, the parties hereto wish to set forth certain terms and conditions that will restrict future uses of, and activities on, the AOC 1 Open Space Property and assure appropriate monitoring and enforcement of the conservation, open space, parks, and recreation purposes of this Conservation Restriction.

NOW THEREFORE, WITNESSETH: For and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration paid by Grantee to Grantor, the receipt and sufficiency of which is acknowledged by Grantor, and in consideration of the covenants hereinafter contained, the parties to this Conservation Restriction, intending to be legally bound, do

HEREBY AGREE AS FOLLOWS:

1. **Purpose**. It is the purpose of this Conservation Restriction to protect and preserve the AOC 1 Open Space Property; to permit Honeywell to implement, monitor, maintain, repair, and replace the Chromium Remedy; to prevent any use of the AOC 1

Open Space Property that will significantly impair or interfere with the purposes of the Consent Decree; and to preserve the AOC 1 Open Space Property as predominantly green open space with associated pedestrian walkways and outdoor recreation facilities for the use and enjoyment of the public. However, nothing in this Conservation Restriction shall grant a public right of access to enter upon, or use, the AOC 1 Open Space Property, or any portion thereof, during the time that the Chromium Remedy required by the Consent Decree is being implemented. Thereafter, Grantor and Grantee intend that this Conservation Restriction will confine the use of the AOC 1 Open Space Property to such activities as are consistent with the purpose of the Consent Decree. In the event of any conflict between the Consent Decree and this Conservation Restriction, the Consent Decree shall control.

2. **Title**. Grantor covenants and represents that Grantor is the sole owner and is seized of the AOC 1 Open Space Property in fee simple and has good right to grant and convey this Conservation Restriction and that Grantee(s) shall have the use of, and enjoyment of, the benefits derived from and existing out of this Conservation Restriction.

3. **Definitions**.

3.1 Capitalized terms in this Conservation Restriction which are not defined herein shall have the meaning ascribed to them in the Consent Decree.

3.2 AOC 1 Open Space Property shall mean the property consisting of approximately 11 acres and now known and designated as a portion of Block 1290.1, Lots 2D, 2E, and Block 1290.1, Lot 16A.99 on the Tax Map of the City of Jersey City, as described more fully in Schedule A and Exhibit A attached hereto. The AOC 1 Open

Space Property is the same property as the AOC 1 Open Space Area in the Consent Decree.

3.3 Bayfront Redevelopment LLC shall mean the limited liability company created by Honeywell for the purposes described in paragraph 4.1 of the Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc., filed simultaneously with the Consent Decree in the Consolidated Litigation.

3.4 Consent Decree shall mean the Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North, entered in the Consolidated Litigation and being recorded simultaneously with this Conservation Restriction.

3.5 Consolidated Litigation shall mean *Jersey City Municipal Utilities Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.*, D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-022 (DMC).

3.6 The Court shall mean the United States District Court for the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

3.7 Hackensack River Watershed Land Trust shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

3.8 Holders of this Conservation Restriction shall mean Grantee and its successors and assigns and, in the event a Secondary Grantee is designated pursuant to paragraph 7.3, its successors and assigns.

3.9 Honeywell shall mean Honeywell International Inc.

3.10 Grantee shall mean Hackensack Watershed Land Trust and/or its designated successors and assigns. Grantee shall also mean the Secondary Grantee, in the event that the Secondary Grantee is designated pursuant to paragraph 7.3, and must fill the role of Grantee pursuant to paragraph 7.4.

3.11 Grantor shall mean Bayfront Redevelopment LLC as the current holder of the fee simple title to the AOC 1 Open Space Property and any subsequent holder of the fee simple title to the AOC 1 Open Space Property, including Jersey City.

3.12 Jersey City shall mean the City of Jersey City, New Jersey.

3.13 The Jersey City Entities shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

3.14 Party or Parties shall mean any one or all of the signatories to the Consent Decree.

3.15 Qualified Holder shall mean (a) an organization exempt from federal income taxation under Section 501(c)(3) of the Internal Revenue Code that satisfies the requirements to be a qualified organization within the meaning of Section 170(h)(3) of the Internal Revenue Code, or under any substantially similar provision of any successor tax code, and that is authorized to hold a conservation restriction with respect to property located within the State of New Jersey, (b) any trust or other entity

created by the legislature of the State of New Jersey or by Hudson County for substantially similar purposes, or (c) the State of New Jersey, Hudson County, or any other public body in New Jersey that is empowered to hold and administer a conservation restriction.

3.16 Riverkeeper shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

3.17 Secondary Grantee shall mean a qualified holder designated by Grantee pursuant to paragraph 7.3.

3.18 The Special Master shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

4. **Conservation Restriction**.

4.1 Grant. Grantor hereby grants and conveys to Grantee, a non-public conservation restriction on, over and across the AOC 1 Open Space Property as is depicted on the recorded Plat, which area is described in Schedule A and Exhibit A attached hereto and made a part hereof.

4.2 Grantor's Retained Responsibilities. Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership of the AOC 1 Open Space Property, including the payment of taxes. Grantor shall keep Grantee's interest in the AOC 1 Open Space Property free of any liens arising out of any work performed for, materials furnished to, or obligations incurred by

Grantor. Honeywell shall be solely responsible for the implementation, monitoring, maintenance, repair, and replacement of the Chromium Remedy in the AOC 1 Open Space Property as provided for under the Consent Decree. Neither Grantee nor Secondary Grantee, if such a grantee is designated pursuant to paragraph 7.3, shall have any responsibility whatsoever with respect to the implementation, monitoring, maintenance, repair, and/or replacement of the Chromium Remedy in the AOC 1 Open Space Property.

4.3 Recordation, Notice in Future Instruments. This Conservation Restriction shall be recorded in the office of the Hudson County Register and a conspicuous reference to this Conservation Restriction shall be included in all instruments concerning title to the AOC 1 Open Space Property. Any Party to the Consent Decree and Grantee shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Conservation Restriction in the real estate records related to the AOC 1 Open Space Property. This right of recordation shall be exercised in conjunction with the right of recordation provided in paragraph 60(d) of the Consent Decree.

4.4 Notice of Future Transfers. Grantor shall give written notice to Grantee(s) of any sale, lease, or other transfer of any interest in the Property not later than ten days following the date of such sale, lease, or transfer, which notice shall include the name and address of each party to whom an interest was sold, leased, or transferred. However, sales, leases, or transfers other than in accordance with the terms of paragraph 60 of the Consent Decree are prohibited.

5. **Permitted Activities.**

5.1 Remediation and Redevelopment as Open Space/Public Park. Grantor and/or Honeywell shall be permitted to undertake all activities reasonably required in connection with: (i) the implementation, maintenance, monitoring, repair, and replacement of the Chromium Remedy consistent with the Consent Decree, (ii) the construction of roads and associated utilities at the AOC 1 Open Space Property as permitted by the Consent Decree, and (iii) such further development of the AOC 1 Open Space Property into an open space/public park as is consistent with paragraphs 60(j) and 60(k) of the Consent Decree and paragraphs 5.2 and 5.3 of this Conservation Restriction. In addition, the Jersey City Entity Study Area 6 North Operations (as defined in the Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc. attached as Exhibit A to the Consent Decree) shall be allowed to continue on the AOC 1 Open Space Property until such time as those Operations are relocated prior to implementation of the Chromium Remedy pursuant to the Consent Decree.

5.2 Prohibited Development in the AOC 1 Open Space Property. Only development satisfying the requirements of this paragraph, paragraph 5.3 of this Conservation Restriction, and the requirements of paragraphs 60(j) and 60(k) of the Consent Decree shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(a) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Property, regardless of when the construction or installation of permissible development occurs. The Open

Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction, and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy, installed pursuant to the Consent Decree.

(b) The Initial Development in the AOC 1 Open Space Property shall be the development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Property, pursuant to the Consent Decree. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii) of the Consent Decree and paragraph 5.2(h) of this Conservation Restriction.

(c) The Special Master, appointed in the Consolidated Litigation pursuant to the Consent Decree, shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with the Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(d) Honeywell shall ensure that the requirements of this

paragraph, paragraph 5.3 of this Conservation Restriction, and of paragraphs 60(j) and 60(k) of the Consent Decree are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with the requirements of the Consent Decree and with protection of the integrity of the Chromium Remedy installed pursuant to the Consent Decree.

(e) Any development undertaken in the AOC 1 Open Space Property, regardless of when undertaken, shall satisfy each of the following requirements:

(i) It shall not jeopardize the integrity of the Chromium Remedy installed pursuant to the Consent Decree;

(ii) It shall be limited to the types of development permitted under paragraph 60(k) of the Consent Decree and paragraph 5.3 of this Conservation Restriction;

(iii) It shall be consistent with this Conservation Restriction, the Consent Decree, and the Redevelopment Plan; however, in the event of any conflict or inconsistency between this Conservation Restriction, the Consent Decree, and the Redevelopment Plan, the Consent Decree shall govern;

(iv) In total, at least 75% of the AOC 1 Open Space Property, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi) of the Consent Decree and paragraph 5.3(k) of this Conservation Restriction;

(v) The portion of the Open Space Design Standards

necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy, which is subject to review and approval pursuant to the terms of the Consent Decree;

(vi) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(vii) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(viii) No permanent concession facilities shall be permitted.

(f) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c) of the Consent Decree, except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) of the Consent Decree shall apply, except that the Special Master need not provide notice to NJDEP.

(g) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant to paragraph 60(j)(vi) of the Consent Decree and paragraph 5.2(f) of this Conservation Restriction, and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii) of the Consent

Decree and paragraph 5.2(c) of this Conservation Restriction.

(h) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(i) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement) of the Consent Decree and paragraphs 5.2(e) and 5.2(j)(iii) of this Conservation Restriction.

(j) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(i) The AOC 1 Open Space Property has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Property, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive

standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(ii) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction; or

(iii) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi) of the Consent Decree and paragraphs 5.2(e) and 5.2(k) of this Conservation Restriction, and Jersey City provides notice of its intention to alter or add to the development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of this Conservation Restriction at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of this Conservation Restriction shall have the right to move the Court to prohibit such alteration or addition.

(k) If any of the development features or facilities that Jersey City seeks to add, pursuant to paragraph 60(j)(x) of the Consent Decree and paragraph 5.2(j) of this Conservation Restriction, require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(l) Jersey City shall provide Honeywell, Riverkeeper, and the

holders of this Conservation Restriction with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2) of the Consent Decree and 5.2(j)(ii) of this Conservation Restriction, to the development undertaken during the Initial Development Period.

(m) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy required by the Consent Decree.

5.3 The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v) of the Consent Decree and paragraph 5.2(e) of this Conservation Restriction:

(a) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Property, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(b) Curbing and fences;

(c) Sidewalks, paths, walkways, and nature trails;

(d) Utilities and utility corridors, lighting, and restrooms;

(e) Irrigation or sprinkler components or systems;

(f) Water features;

(g) Above-ground storm water cisterns;

(h) Signs, including the signs or display required by paragraph

60(l) of the Consent Decree;

(i) Benches, trash receptacles, and bicycle racks;

(j) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(k) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4) of the Consent Decree and paragraph 5.2(e)(iv) of this Conservation Restriction.

5.4 Easement for Monitoring, Maintenance, Repair, and Replacement: As between Grantor and Grantee, Honeywell shall remain solely responsible for monitoring, maintenance, repair, and replacement of the Chromium Remedy in accordance with the Consent Decree and shall reserve, or obtain a grant of, an easement for the purpose of such monitoring, maintenance, repair, and replacement. Neither Grantee nor Secondary Grantee, if such grantee is designated pursuant to paragraph 7.3, shall have any responsibility whatsoever with respect to the implementation, monitoring, maintenance, repair, and/or replacement of the Chromium Remedy in the AOC 1 Open Space Property. Honeywell shall be entitled to promptly record such reservation and/or easement and Grantee agrees that the terms, conditions, and restrictions and purposes of such reservation and/or easement, or reference thereto, will be inserted in any subsequent deed or other legal instrument by

which the City of Jersey City, Grantor, or Grantee divests either a real property or other recordable interest in the AOC 1 Open Space Property.

6. **Prohibited Activities.** Development at the AOC 1 Open Space Property is prohibited, except insofar as it meets the requirements of the Consent Decree and of paragraph 5 of this Conservation Restriction.

7. **Grantee's Rights.** To accomplish the purpose of this Conservation Restriction, the following rights are conveyed to Grantee:

7.1 Right of Entry. The right to enter the AOC 1 Open Space Property during the implementation of the Chromium Remedy pursuant to the Consent Decree at reasonable times and with prior notice for the purpose of: (a) inspecting the AOC 1 Open Space Property to determine if Grantor is complying with the covenants and purposes of this Conservation Restriction; (b) enforcing the terms of this Conservation Restriction; and (c) taking any and all actions with respect to the AOC 1 Open Space Property as may be legal, necessary and appropriate, to remedy or abate any material violations hereof. After the Chromium Remedy has been implemented, Grantee shall have the right to enter the AOC 1 Open Space Property at reasonable times for the purposes above without the need for prior notice.

7.2 Enforcement. The right to prevent any improvement, activity on, or use of, the AOC 1 Open Space Property that is inconsistent with the purpose of this Conservation Restriction and to require the restoration of such areas or features of the AOC 1 Open Space Property that may be damaged by any inconsistent improvement or use. For purposes of the enforcement of this Conservation Restriction, Grantee agrees

to pursue such enforcement solely before the Court in the Consolidated Litigation and to submit to the jurisdiction of that Court.

7.3 Designation of Secondary Grantee. Grantee has the right to designate a Qualified Holder as a Secondary Grantee with the written consent of Grantor, which consent will not be unreasonably withheld. Within 60 days of such designation, this Conservation Restriction shall be modified by the Parties and duly recorded.

7.4 Allocation of Responsibilities between Grantee and Secondary Grantee. In the event a Secondary Grantee is designated pursuant to paragraph 7.3, then the following shall apply: for so long as Grantee, or any successor in interest to Grantee, remains a holder of this Conservation Restriction, and unless and until Grantee and Secondary Grantee or their respective successors or assigns shall otherwise agree in a writing executed by them in recordable form and delivered to Grantor, Grantee shall be delegated the primary responsibility for monitoring and enforcing compliance with the terms of this Conservation Restriction. In connection therewith, Grantee, or its successors and assigns, shall have sole power and authority, as between Grantee and Secondary Grantee of this Conservation Restriction, to grant or withhold any and all other consents or approvals that may be required to be obtained by Grantor under the terms of this Conservation Restriction. Notwithstanding the foregoing, Secondary Grantee shall be entitled to receive a copy of all notices required to be given to Grantee, and shall be provided with a copy of all requests for approval submitted by Grantor and all written approvals, or denials thereof, given pursuant to this Conservation Restriction. Secondary Grantee's right to exercise rights and remedies

conferred by this Conservation Restriction upon Grantee, other than as provided in this paragraph, shall become effective upon Grantee's dissolution, in the event that Grantee has failed to name a successor.

8. **Grantee's Remedies**.

8.1 Proceedings upon Violation. In the event that Grantee becomes aware of a violation of the terms of this Conservation Restriction, Grantee shall promptly give notice to Grantor, Honeywell, the Jersey City Entities, and Riverkeeper of such violation via certified mail, return receipt requested, and request corrective action sufficient to abate such violation and restore the AOC 1 Open Space Property as closely as possible to the condition that would have existed had there been no violation. Failure by Grantor or Honeywell to cause discontinuance, abatement, or initiate such other corrective action as may be required by the Consent Decree within 90 days after receipt of such notice, or such longer period as may be necessary if the violation cannot reasonably be cured within 90 days, shall entitle Grantee to move the Court to enforce the terms of this Conservation Restriction; to require the restoration of the AOC 1 Open Space Property to its previous condition; and/or to enjoin compliance. If Grantee believes that circumstances are such that immediate action is required to prevent or mitigate significant additional harm or damage to the AOC 1 Open Space Property, Grantee may pursue its remedies without waiting for any period provided for cure to expire and without prior notice.

8.2 Proceedings upon Alteration or Addition to Development. Grantee shall have the right to participate in proceedings under paragraph 5.2(j)(iii) of this

Conservation Restriction and paragraph 60(j)(x)(3) of the Consent Decree to prohibit any alterations or additions to the development in the AOC 1 Open Space Property.

8.3 Forbearance. Any forbearance by Grantee to exercise its rights under this Conservation Restriction in the event of any breach of any term of this Conservation Restriction by Grantor shall not be deemed or construed to be a waiver by Grantee of such term or of any subsequent breach of the same or any other term of this Conservation Restriction or of any of Grantee's rights under this Conservation Restriction. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair such right or remedy or be construed as a waiver. Grantor shall not be entitled to assert any defense based upon laches, estoppel, or prescription with respect to any violation of this Conservation Restriction as to which Grantee was not specifically notified by Grantor in writing.

9. **Parties Subject to Conservation Restriction**. The covenants agreed to and the terms, conditions, and restrictions imposed by this grant shall be binding upon Grantor, its lessees, agents, personal representatives, successors, assigns, and all other successors in interest to Grantor. The covenants agreed to and the terms, conditions, and restrictions imposed by this grant shall be binding upon Grantee(s), their lessees, agents, personal representatives, successors, assigns, and all other successors in interest to Grantee(s).

10. **Termination**.

10.1 This Conservation Restriction is intended to be of unlimited duration, subject only to termination as provided in paragraph 10.2 of this Conservation

Restriction, and therefore may not be terminated solely by mutual agreement of Grantor and Grantee.

10.2 This Conservation Restriction may be terminated upon application to the Court of any Party to the Consent Decree when no hexavalent or total chromium contamination remains in AOC 1 Open Space Property, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon Court approval of termination of this Conservation Restriction, Grantor shall conduct a public hearing in accordance with N.J.S.A 13:8B-5 and Grantee(s) shall release the Conservation Restriction and shall execute, at the request of Grantor, a release of this Conservation Restriction and any other instrument to that effect deemed necessary or desirable.

11. **Assignment.**

11.1 Right to Assign. Grantee, and any future assignee of this Conservation Restriction, may with the prior written consent of Grantor, which consent will not be unreasonably withheld, transfer and assign this Conservation Restriction and the rights and obligations created hereby, in whole or in part, to one or more Qualified Holders as defined in paragraph 3.15 The assignee shall simultaneously with such assignment assume the obligation to carry out the conservation purposes for which this Conservation Restriction is granted.

11.2 Executory Limitation. In the event that a Secondary Grantee has been designated pursuant to paragraph 7.3 and the Grantee dissolves without having assigned all of it rights and interest in the Property and delegated all of its

responsibilities under this Conservation Restriction to one or more Qualified Holders, such rights and responsibilities shall be vested in the Secondary Grantee pursuant to paragraph 7.4. In the event that a Secondary Grantee is not designated pursuant to paragraph 7.3 and the Grantee dissolves without having assigned all of its rights and interest in the Property and delegated all of its responsibilities under this Conservation Restriction to one or more Qualified Holders, such rights and responsibilities shall be vested in another Qualified Holder pursuant to a *cy pres* proceeding in the Court. Grantor and Honeywell shall have the right to appear in any such proceeding as interested parties. In the event that a Secondary Grantee is designated pursuant to paragraph 7.3, and such Secondary Grantee dissolves without having assigned all of its rights and interest in the Property and delegated all of its responsibilities under this Conservation Restriction to one or more Qualified Holders, Grantee may designate another Secondary Grantee pursuant to paragraph 7.3.

11.3 Release of Grantee's Further Obligations. The holder or holders of this Conservation Restriction immediately before any assignment or judicial re-vesting pursuant to paragraph 11.2 shall thereafter have no further obligation to monitor compliance with, or enforce the provisions of, this Conservation Restriction, provided that the assignee meets the requirements set forth above and has assumed the obligation to monitor and enforce this Conservation Restriction.

12. **Miscellaneous Provisions.**

12.1 Severability. If any provision of this Conservation Restriction or the application thereof to any person or circumstances is found to be invalid, the remaining provisions of this Conservation Restriction, and the application of such provisions to

persons or circumstances other than those as to which it is found to be invalid, shall not be affected.

12.2 Successors and Assigns. The term "Grantor" shall include Grantor and Grantor's heirs, executors, administrators, successors, and assigns. The term "Grantor" shall also mean the masculine, feminine, corporate, singular, or plural of the word as needed in the context of its use.

12.3 No Third-Party Beneficiaries. The parties hereto intend that there be no third-party beneficiaries to this Conservation Restriction, except the Parties to the Consent Decree.

12.4 Captions. The captions herein have been inserted solely for convenience of reference and are not a part of this Conservation Restriction and shall have no effect upon construction or interpretation.

12.5 Notices. Any notices required in this Conservation Restriction shall be sent by registered or certified mail to the persons at the following addresses. Any party listed below may change the recipient or location for receipt of such notice by sending written notice of such change to the other Parties listed below:

(a) If to Grantor:

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

(b) With copy to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962

(973) 455-4003

(c) If to Grantee Hackensack River Watershed Land Trust:

William Sheehan
231 Main Street
Hackensack, NJ 07601

(d) If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

12.6 Amendment. This Conservation Restriction may be amended only with the written consent of Grantee and Grantor and of the Parties to the Consent Decree. Any such amendment shall be consistent with the purpose of the Consent Decree and this Conservation Restriction and shall comply with any applicable requirements of N.J.S.A. 13:8B-1 et seq.

12.7 No Extinguishment through Merger. If Grantee comes to own all or any portion of the fee interest in the AOC 1 Open Space Property, (a) Grantee, as successor in title to Grantor, shall observe and be bound by the obligations of Grantor and the restrictions imposed upon the AOC 1 Open Space Property by this Conservation Restriction, (b) in view of the public interest in its enforcement, this Conservation Restriction shall survive such simultaneous ownership of fee and Conservation Restriction interests in the AOC 1 Open Space Property, and shall not be extinguished notwithstanding any otherwise applicable legal doctrine under which such property interests would or might be merged, and (c) Grantee shall, as promptly as practicable, either assign its interests in this Conservation Restriction to another

Qualified Holder in conformity with the requirements of this paragraph or divest itself of its fee interest in the AOC 1 Open Space Property. Any instrument of assignment of this Conservation Restriction or the rights conveyed herein shall refer to the provisions of this paragraph, and shall contain language necessary to continue it in force.

IN WITNESS WHEREOF, the parties hereunto set their hands and seals the day and year first above written.

By: Richard J. Kriva
Title: Vice President, Global Real Estate.
Bayfront Redevelopment LLC

This 12th day of December, 2008

By: Richard J. Kriva
Title: Vice President, Global Real Estate
Honeywell International Inc.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

By: [signature]
Title: RIVERKEEPER
Hackensack Watershed Land Trust

This 25th day of November, 2008

KELLY G. PALAZZI
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES ~~APRIL 24,~~ May 6th, 2009

STATE OF ILLINOIS)
) SS:
COUNTY OF MC HENRY)

I CERTIFY that on December 12th, 2008, Richard J. Kriva, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Vice President, Global Real Estate of Honeywell International Inc., the corporation named in the attached document;

(b) this document was signed and made by the corporation as its voluntary act and deed and was duly authorized by the corporation; and

(c) this person delivered the attached document as the voluntary act and deed of the corporation.

Sworn to and Subscribed before me
this 12th day of December, 2008.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

Jennifer Scaletta
A Notary Public

STATE OF ILLINOIS)
) SS:
COUNTY OF MC HENRY)

I CERTIFY that on December 12th, 2008, Richard J. Kriva, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Vice President, Global Real Estate for Honeywell International Inc, which is the sole member of Bayfront Redevelopment LLC, the limited liability company named in the attached document;

(b) this document was signed and made by the limited liability company as its voluntary act and deed and was duly authorized by the sole member of the limited liability company; and

(c) this person delivered the attached document as the voluntary act and deed of the limited liability company.

Sworn to and Subscribed before me
this 12th day of December, 2008.

"OFFICIAL SEAL"
Jennifer Scaletta
Notary Public, State of Illinois
Commission Expires 2/26/2011

Jennifer Scaletta
A Notary Public

STATE OF NEW JERSEY)
) SS:
COUNTY OF)

I CERTIFY that on November 25, 2008, William Sheehan, personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the Riverkeeper of the Hackensack Watershed Land Trust, the trust named in the attached document;

(b) this document was signed and made by the trust as its voluntary act and deed and was duly authorized by the trust; and

(c) this person delivered the attached document as the voluntary act and deed of the trust.

Sworn to and Subscribed before me
this 12th day of December, 2008.

A Notary Public

KELLY G. PALAZZI
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES ~~APRIL 24,~~ May 6, 2009

598375.1

Schedule A
MAXIMUM LEGAL DESCRIPTION
PRE-REMEDIATION AOC 1 OPEN SPACE PROPERTY
BLOCK 1290.1 Lots 2D, 2E, 14H, 14J, 15B, 15D and 16A.99
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY

The AOC 1 Open Space Property that is the subject of this Conservation Restriction is intended to consist of a parcel of land which will be bounded by underground Hydraulic Barrier Walls that have not been fully constructed as of the date of this instrument. Accordingly, the parties agree that until such time as construction of the Hydraulic Barrier Walls is completed and an Amended Conservation Restriction is approved by the Court as provided below, the legal description of the AOC 1 Open Space Property shall be as set forth in the survey and diagram attached hereto as Exhibit A. The parties further agree that such legal description is subject to revision as provided herein.

Upon completion of construction of the Hydraulic Barrier Walls, Grantor will cause the AOC 1 Open Space Property to be re-surveyed (the "As-Built Survey") with the perimeter of the AOC 1 Open Space Property to be the outer facing wall of the Hydraulic Barrier Walls, as constructed. Grantor shall further cause a metes and bounds description (the "As-Built Description") to be prepared based on the As-Built Survey. Following preparation of the As-Built Description, Grantor shall request that the Court amend the order which, pursuant to paragraph 60(b)(i) of the Consent Decree, embodies this Conservation Restriction ("the Conservation Restriction Order"), by substituting the As-Built Description for the metes and bounds description set forth in Exhibit A and thereby creating an Amended Conservation Restriction. Once the Conservation Restriction Order is so amended by the Court, Grantor shall record the Amended Conservation Restriction in the office of the Hudson County Register, without the need for execution or consent, written or otherwise, by Grantee.

Upon recording the Amended Conservation Restriction, the As-Built Description shall supersede, replace and make null and void the legal description set forth in Exhibit A to this Conservation Restriction.

CMX

Exhibit
A

July 2, 2008
Revised July 3, 2008
Revised July 29, 2008
Revised August 13, 2008
Revised October 3, 2008

Project No. 030117508

LEGAL DESCRIPTION
PROPOSED OPEN SPACE AREA
BLOCK 1290.1 LOTS 2D, 2E, 14H, 14J and 16A.99
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY

A Parcel of land described herein located in Block 1290.1, Lots 2D, 2E, 14H, 14J and 16A.99, City of Jersey City, Hudson County, New Jersey, and being more particularly described as follows:

Beginning at the intersection of the westerly sideline of New Jersey State Highway Route 440 and the division line between Block 1290.1, Lots 14D and 16A.99, and running; thence,

1. Along said division line, North 49 degrees 06 minutes 05 seconds West, 257.00 feet to the division line between Lots 14D and 14H; thence,

2. Along said division line, South 24 degrees 46 minutes 55 seconds West 6 feet more or less to the southerly face of an existing Hydraulic Barrier Wall; thence,

Running through Lots 14H and 14J in Block 1290.1, along said southerly wall face, the following two (2) courses:

3. North 49 degrees 06 minutes 05 seconds West, 232.64 feet; thence,

4. North 59 degrees 39 minutes 05 seconds West, 1584.08 feet to the westerly line of said Lot 14J; thence,

5. Along said westerly line, and along the westerly line of Lot 2D in Block 1290.1, North 45 degrees 52 minutes 45 seconds East, 70.6 feet more or less to the intersection of the same with the southerly building line as extended, of an outfall structure building; thence,

6. Running through Lot 2D along said line, South 45 degrees 40 minutes 26 seconds East, 60.73 feet; thence,

7. Along the same, North 44 degrees 19 minutes 34 seconds East, 22.58 feet; thence,

8. Along the same, North 45 degrees 40 minutes 26 seconds West, 7.05 feet; thence,

9. Along the same, North 44 degrees 19 minutes 34 seconds East, 5.38 feet; thence,

10. Along the same, North 45 degrees 40 minutes 26 seconds West, 1.44 feet; thence,

11. Along the same, North 44 degrees 19 minutes 34 seconds East, 5.24 feet to the intersection of the same with the outer wall of an existing JCMUA 72" underground sanitary sewer force main pipe (being the side facing the herein described open space lands); thence,

12. Along said outer pipe wall, North 68 degrees 14 minutes 24 seconds East, 110.05 feet; thence,

13. Along the same, North 26 degrees 00 minutes 52 seconds East, 5.35 feet to the southerly building line of another outfall structure building; thence,

14. Along said building line, South 63 degrees 59 minutes 08 seconds East, 3.40 feet; thence,

15. Along the same, North 26 degrees 00 minutes 52 seconds East, 5.26 feet to the aforementioned outer wall of an existing JCMUA 72" underground sanitary sewer force main pipe; thence,

16. Along said outer pipe wall, South 64 degrees 15 minutes 52 seconds East, 298.76 feet; thence,

17. Along the same, South 63 degrees 39 minutes 08 seconds East, 195.65 feet; thence

18. Along the same, South 65 degrees 19 minutes 16 seconds East, 113.04 feet; thence,

19. Along the same, South 67 degrees 09 minutes 18 seconds East, 103.49 feet; thence,

20. Along the same, North 23 degrees 08 minutes 40 seconds East, 53.16 feet to a point of non-tangent curvature in the northerly curb line of a proposed road to be known as Stegman Boulevard, as shown on Exhibit 7 of the "Bayfront I Development Plan" prepared for the City of Jersey City by A. Nelessen Associates, Inc, dated February 13, 2008; thence,

Running through Lots 2D, 2E, and 16A.99, along said proposed northerly curb line the following five (5) courses:

20. Along a non-tangent curve to the right having a radius of 1036.00 feet, a central angle of 06 degrees 49 minutes 53 seconds and an arc length of 123.52 feet and a chord bearing of South 66 degrees 53 minutes 53 seconds East, a chord distance of 123.45 feet to a point of compound curvature; thence,

21. Along a curve to the right having a radius of 1458.00 feet, a central angle of 09 degrees 39 minutes 52 seconds and an arc length of 245.93 feet to a point of tangency; thence,

22. South 53 degrees 49 minutes 05 seconds East, 74.81 feet to a point of curvature; thence,

23. Along a curve to the right having a radius of 6213.00 feet, a central angle of 04 degrees 27 minutes 15.8 seconds and an arc length of 483.02 feet to a point of tangency; thence,

24. South 49 degrees 21 minutes 50 seconds East, 272.98 feet to the aforementioned Route 440 westerly sideline; thence,

25. Along said westerly sideline, South 24 degrees 46 minutes 55 seconds West, 274.45 feet to the point and place of beginning.

Containing 11.8 acres of land more or less as described herein.

Subject to a field survey of the proposed hydraulic barrier walls upon completion of their installation.

Subject to all existing easements, rights-of-way and reservations of record.

The above described premises being also depicted on the diagram included as part of this Exhibit A.

Glen J. Lloyd, P.L.S.
N.J. Professional Land Surveyor
New Jersey License No. GS37598

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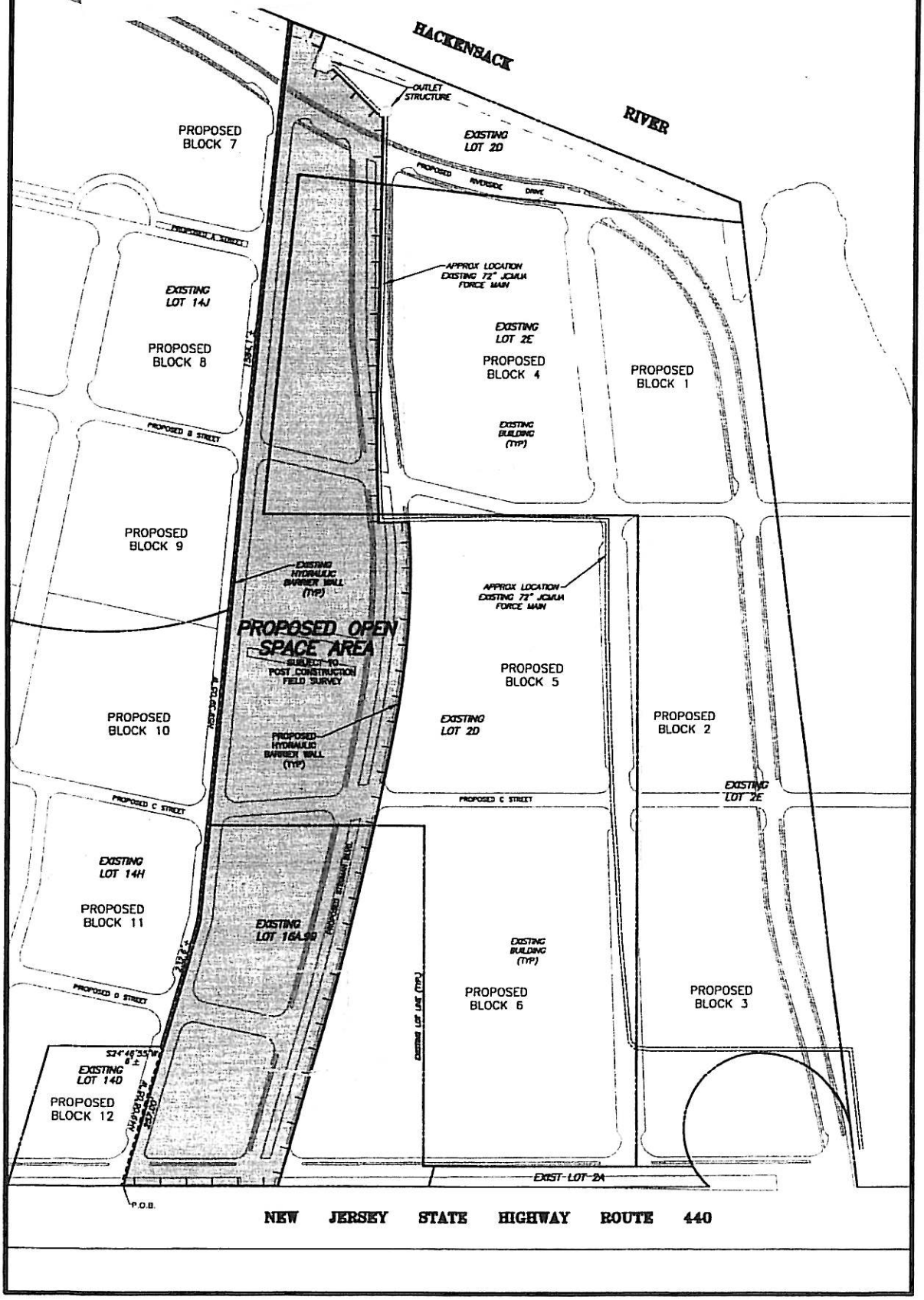
DEED - MASTER
NUMBER OF PAGES : 34
NGODFREY

(HIBIT A

SCALE 1"=200'



DRAFT DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Bayfront Redevelopment, LLC]

Recorded by:

_____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE CONCERNING CONTROLS INSTALLED FOR CHROMIUM CONTAMINATION UNDERLYING THE PROPERTY

This Deed Notice is made as of the __ day of _____, 2017, by ***Paul Trenk, whose post office address is 114 Oakville Street, Staten Island, NY 10314***. Owner shall mean Paul Trenk together with its successors and assigns, including all successors in interest in the Property which is the subject of this Deed Notice as described fully below.

1. THE PROPERTY. Paul Trenk is the current owner in fee simple of certain real property designated the Deferred Area as portions of ***Block 21901, Lot 4 on the tax map of the City of Jersey City, Hudson County, New Jersey***[1]. The New Jersey Department of Environmental Protection (NJDEP) Program Interest Number for the contaminated site which includes this property is ***Hudson County Chromate Site No. 087 Program Interest (PI) # G000008710*** [NJDEP PI# for non-chromium-related contaminants at the Property is #745719]. The Property is also part of the Deferred Area of the site referred to as Site 087 pursuant to the Consent Decree Regarding Remediation and Redevelopment of Study Area 6 North ("Consent Decree") which is attached hereto and is entered as an order of the Court in the following consolidated actions *JCMUA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-05955; *JCIA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-5993; and *Hackensack Riverkeeper, Inc. v. Honeywell International, Inc.*,

[1] All references to Block 21901 Lot 4 in this Deed Notice shall mean those portions of Block 21901 Lot 4 regardless of whether the word "portion(s)" is specifically called out or not.

D.N.J., Civ. No. 06-22. The Consent Decree restricts transfer, use and development of the Property. To the extent that there is any conflict or inconsistency between the terms of this Deed Notice and the terms of the Consent Decree, the Consent Decree shall govern. To the extent that any action to be taken pursuant to this Deed Notice is in conflict with or inconsistent with the Consent Decree, the Consent Decree shall govern.

2. REMEDIATION.

i. The Department's Bureau of State Case Management (BCM) is the entity within the Department that is responsible for the oversight of the remediation of the SA-6 North. The matter was Case No. Hudson County Chromate Site No. 087 PI# G000008710. The Department has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26-C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL AND GROUNDWATER CONTAMINATION. Honeywell International Inc. ("Honeywell") a corporation of the State of Delaware, licensed to do business in the State of New Jersey whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950, has remediated the Property to address chromium-related soil and shallow groundwater contamination. The Remedial Action Work Plan (RAWP) was approved by the Department on February 19, 2009 for Hudson County Chromate Site Nos. 087 and 088, which included portions of the Property. Remedial actions were further approved pursuant to the Consent Decree. Under both the Consent Decree and the RAWP soil contamination remains in the Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Property.

Deed Notice #9 consists of two small areas on SA-6 North within the Route 440 Right-Of-Way (ROW) where the Public Service Electric & Gas (PSE&G) gas main is located north of the SA-6 North Open Space Area. Deed Notice Area #9 is comprised of two tracts of land; Tract 1 is near Culver Circle at the Route 440 ROW and Tract 2 is further south along the Route 440 ROW at SA-6 North. Tract 1 is an approximately 1,400 square foot area. Tract 2 is an approximately 970 square foot area. These deed notice areas includes chromium only. Excavations in this part of SA-6 North were limited in these areas by the PSE&G gas main and will be completed after the Route 440 ROW widening project. In the meantime, this deed notice is for both Tracts 1 and 2 together. Once the remediation of these areas is complete and remedial objectives are achieved, Honeywell will terminate Deed Notice Area #9.

It is not anticipated that the Bayfront Redevelopment Project will impact Deed Notice #9. Because this area is so narrow, is proximate to the Route 440 ROW, and the gas main is located within the area, development of this area will also need to be deferred until the gas main is relocated.

The soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result of the contamination, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13. Under the terms of the Consent Decree and this Deed Notice,

Honeywell is responsible for monitoring and maintaining the soil remediation for the Property in perpetuity or until remediation is implemented that renders this Deed Notice unnecessary.

4. CONSIDERATION. In accordance with the Department's approval of the chromium RAWP for the remediation of Hudson County Chromate Site Nos. 087 and 088 which includes the Property, and in consideration of the terms and conditions of that approval, and in accordance with the Consent Decree, and other good and valuable considerations, Owner has agreed to subject the Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of contamination remaining at concentrations that do not allow for unrestricted use, Owner has agreed, as part of the remedial action for the Property, to restrict the use of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property. A narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C. Honeywell shall be responsible for monitoring and maintenance of engineering controls and biennial certification requirements as specified in Paragraphs 8A and 8B.

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with

all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person of whom it has knowledge, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of known contamination in the Restricted Areas, and, of the precautions necessary to protect the engineering controls and minimize potential human exposure to contaminants.

ii. Except as provided in the Consent Decree and Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property except as (a) permitted in the Consent Decree and (b) without first obtaining the express written consent of the Department. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

iii. Notwithstanding subparagraph 7A.ii., above, a Soil Remedial Action Permit modification is not required for any alteration, improvement, or disturbance provided that:

(A) Takes such action in conformance with the Consent Decree; and

(B) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance; and

(C) Notifies Honeywell of the activity by calling 855-727-2658; and

(D) Honeywell and/or the owner, lessee or operator restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance; and

(E) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration; and

(F) Ensures that human exposure to contamination in excess of the applicable remediation standards does not occur; and

(G) The next biennial certification includes a description of the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Immediately notifies Honeywell of the emergency by calling 855-727-2658;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

vi. Notifies Honeywell when the emergency has ended by calling 855-727-2658; and

vii. Honeywell restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within sixty (60) calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent recurrence of such conditions in the future. Honeywell shall submit the report to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

8A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the persons responsible for conducting the remediation, Honeywell, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. Honeywell shall certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

8B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. Honeywell shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

9. ACCESS. The Owner agrees to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the persons responsible for monitoring the protectiveness of the remedial action, as described in Paragraph 8, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. NOTICES.

i. Owner shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner shall notify any person intending to conduct invasive work or excavate within the Property on its behalf of the nature and location of contamination and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. Owner shall provide written notice to the Department of Environmental Protection at least thirty (30) calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area. Any such conveyance, grant or gift must be consistent with the terms of the Consent Decree.

iv. Owner shall provide written notice to the Department within thirty (30) calendar days following the Owner's receiving notice of any petition for a rezoning of the Property. Any such rezoning must be consistent with the terms of the Consent Decree. The Owner shall submit the written notice to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413.

11. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this Property.

ii. The restrictions provided herein may be enforceable by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

12. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as if the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. Any person seeking a modification or termination of this Deed Notice must also have such modification approved by the United States District Court for the District of New Jersey pursuant to the Consent Decree until such time as the Consent Decree terminates with regard to the Property pursuant to the Consent Decree.

iv. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the Hudson County Register, New Jersey, expressly modifying or terminating this Deed Notice.

Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

14A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property;

ii. Exhibit A-2: Metes and Bounds Description - A metes and bounds description of the Property, including reference to tax lot and block numbers for the Property and a Tax Map;

iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; the map(s) shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1: Restricted Area Map - Maps for the Property that include, as applicable:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, ground water monitoring wells, and ground water pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and/or sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described below.

ii. Exhibit B-2 (Table B-2): Restricted Area Data Tables - Table for the Property that includes:

(A) Sample location designation from Restricted Area maps (Exhibit B-1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E-4.6, Table 4-2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1A through C-1C. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control; Exhibit C-1C: Zoning as Institutional Control: Exhibit C-1 includes a narrative description of the restrictions and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:
(1) Description and estimated size of the Restricted Areas as described above;
(2) Description of the restrictions on the Property by operation of this Deed Notice and the other Institutional Controls; and
(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:
(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;
(2) There have been any land use changes subsequent to the filing of this Deed Notice and the other Institutional Controls or the most recent biennial certification, whichever is more recent;
(3) The current land use on the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls;
(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the Property; and
(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice and the other Institutional Controls, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice and the other Institutional Controls;

(2) Land use at the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls; and
(3) The remedial action that includes this Deed Notice and the other Institutional Controls continues to be protective of the public health and safety and of the environment.

ii. Exhibit C-2. Exhibit C-2: Engineering Controls: Asphalt Cover;

Exhibit C-2 includes a narrative description of the engineering controls as follows:

(A) General Description of the engineering control:
(1) Description of the engineering control;
(2) The objective of the engineering control; and
(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:
(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;
(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
(4) The engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering control; and
(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;
(2) The engineering control continues to operate as designed; and
(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 2016,2017, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20162017

_____, Notary Public

_____
[Print name and title]

16. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

EXHIBIT A
Deed Notice #9 SA-6 North Route 440 Deferred Area

A-1 Vicinity Map

A-2 Metes and Bounds Description and Tax Map

A-3 Property Map Portions of Block 21901, Lot 4, City of Jersey City, New Jersey

Exhibit A-1 Vicinity Map consists of a road map for the vicinity of the Property.

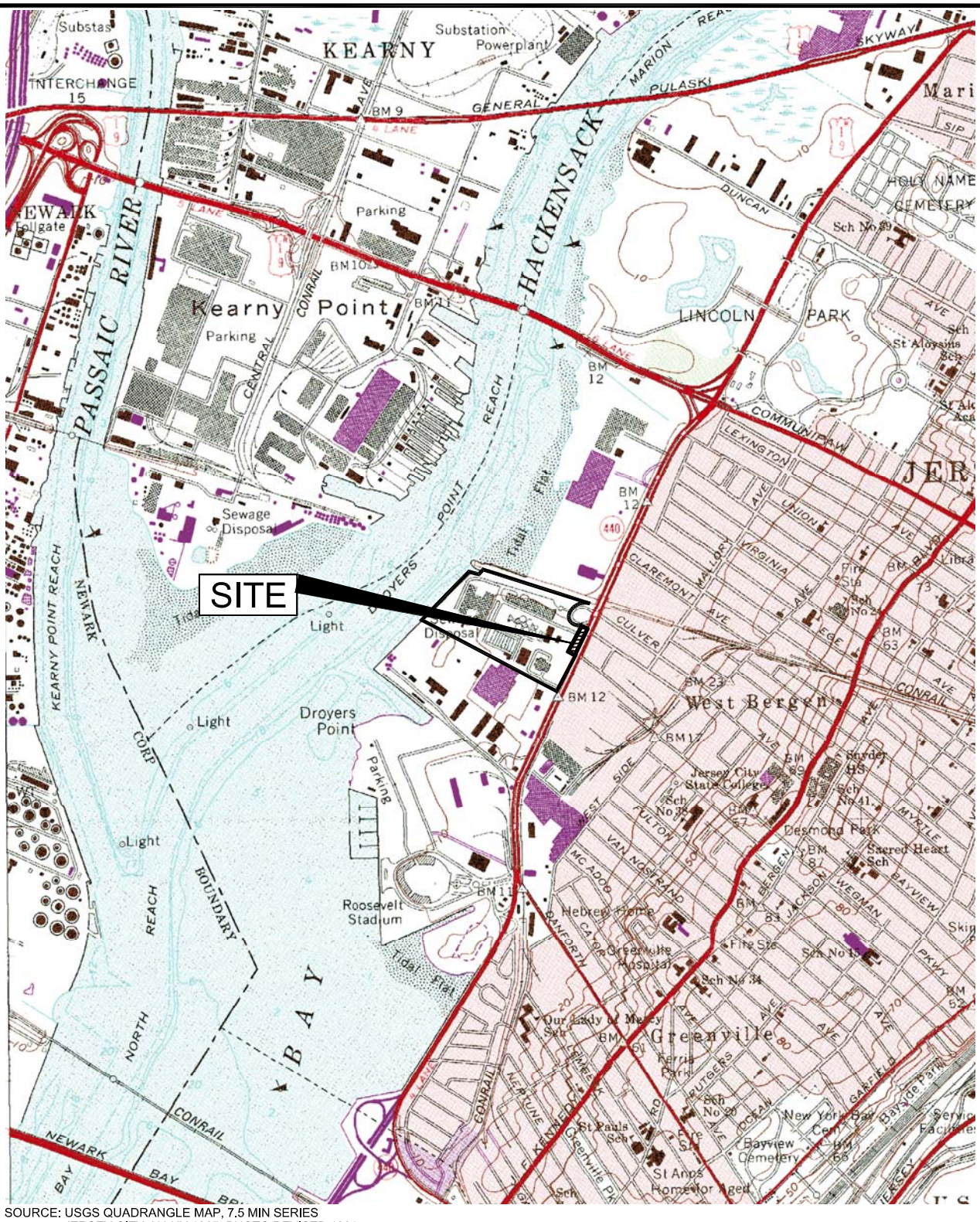
Exhibit A-2 consists of metes and bounds and a tax map for the Property.

Exhibit A-3 Property Map consists of a figure indicating major surface features and engineering control for the Property.

Exhibit A-1
Site Vicinity Map
Jersey City, New Jersey

EXHIBIT A-1
SITE VICINITY MAP
PORTIONS OF STUDY AREA 6 NORTH SITE 087
JERSEY CITY, NEW JERSEY

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.



SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

RESTRICTED AREA

Amec Foster Wheeler PROJECT No. 3480150450 *DRAWING:* 3480150487-6100-A109-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE, Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-1
VICINITY MAP
BLOCK 21901 LOT 4
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #9

W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 9\3480150487-6100-A109-0000.dwg Wed, 01 Feb 2017 - 1:37pm vandana.muddu

Exhibit A-2
Deed Notice #9 SA-6 North Route 440 Deferred Area

Metes and Bounds Description of Property: See Attached

A-2 Metes and Bounds Description of Property Portions of Block 21901, Lot 4
City of Jersey City, New Jersey

If there is any discrepancy between the Metes and Bounds and the tax map; the Metes and Bounds prevails.

The Property is identified as portions of Block 21901, Lot 4 on the City of Jersey City tax maps, the Property being presently owned by Paul Trenk. A copy of the current tax map showing the Property is included as Exhibit A-2.

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners • Surveyors • Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 • Fax: 732.383.1984

DESCRIPTION OF PROPERTY
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY
PROJECT NO. 10000292R

DEED NOTICE AREA 9
BLOCK 21901, LOT 4
MAY 18, 2016
REVISED OCTOBER 13, 2016

All those certain lots, tracts or parcels of land situate lying and being in the City of Jersey, in the County of Hudson and State of New Jersey, and being a portion of Lot 4 in Block 21901, designated as Deed Notice Area 9 as shown on an exhibit entitled, "Deed Notice Area 9, SA6 North, Block 21901, Lot 4, City of Jersey City, Hudson County, New Jersey," prepared by Maser Consulting P.A., dated May 12, 2016, last revised October 7, 2016 and being more particularly bounded and described as follows, to wit:

TRACT I

COMMENCING at the intersection of the westerly line of New Jersey State Highway Route 440 (112 foot wide right of way), with the northeasterly corner of Lot 4 in Block 21901, lands now or formerly of Paul Trenk; thence –

A) **S 24° 46' 55" W, 22.21 feet** along said westerly line to the True Point of **BEGINNING**, as shown on the aforesaid exhibit and running; thence –

1. Along said westerly line of Route 440, **S 24° 46' 55" W, 137.98 feet**; thence –

Running through a portion of Lot 4 in Block 21601, the following four (4) courses:

2. **N 39° 23' 38" W, 11.11 feet**; thence –
3. **N 24° 46' 55" E, 138.43 feet**; thence –
4. **N 84° 58' 58" E, 5.43 feet;** thence –
5. **S 08° 44' 20" E, 9.57 feet,** to the Point and Place of **BEGINNING.**

CONTAINING: 1,408 S.F. of land more or less or 0.032 acre of land more or less.

TRACT II

BEGINNING at the intersection of the westerly line of New Jersey State Highway Route 440 (112 foot wide right of way), with the southeasterly corner of Lot 4 in Block 21901, lands now or formerly of Paul Trenk and running; thence –

1. Along the southerly line of Lot 4 in Block 21901, **N 49° 08' 25" W, 15.61 feet**; thence –

Running through a portion of said Lot 4 in Block 21601, the following four (4) courses:

2. **N 24° 46' 55" E, 67.80 feet**; thence –

3. **S 18° 52' 12" E, 8.39 feet**; thence –

4. **S 59° 15' 07" E, 9.26 feet**, to the aforesaid westerly line of New Jersey State Highway Route 440; thence –

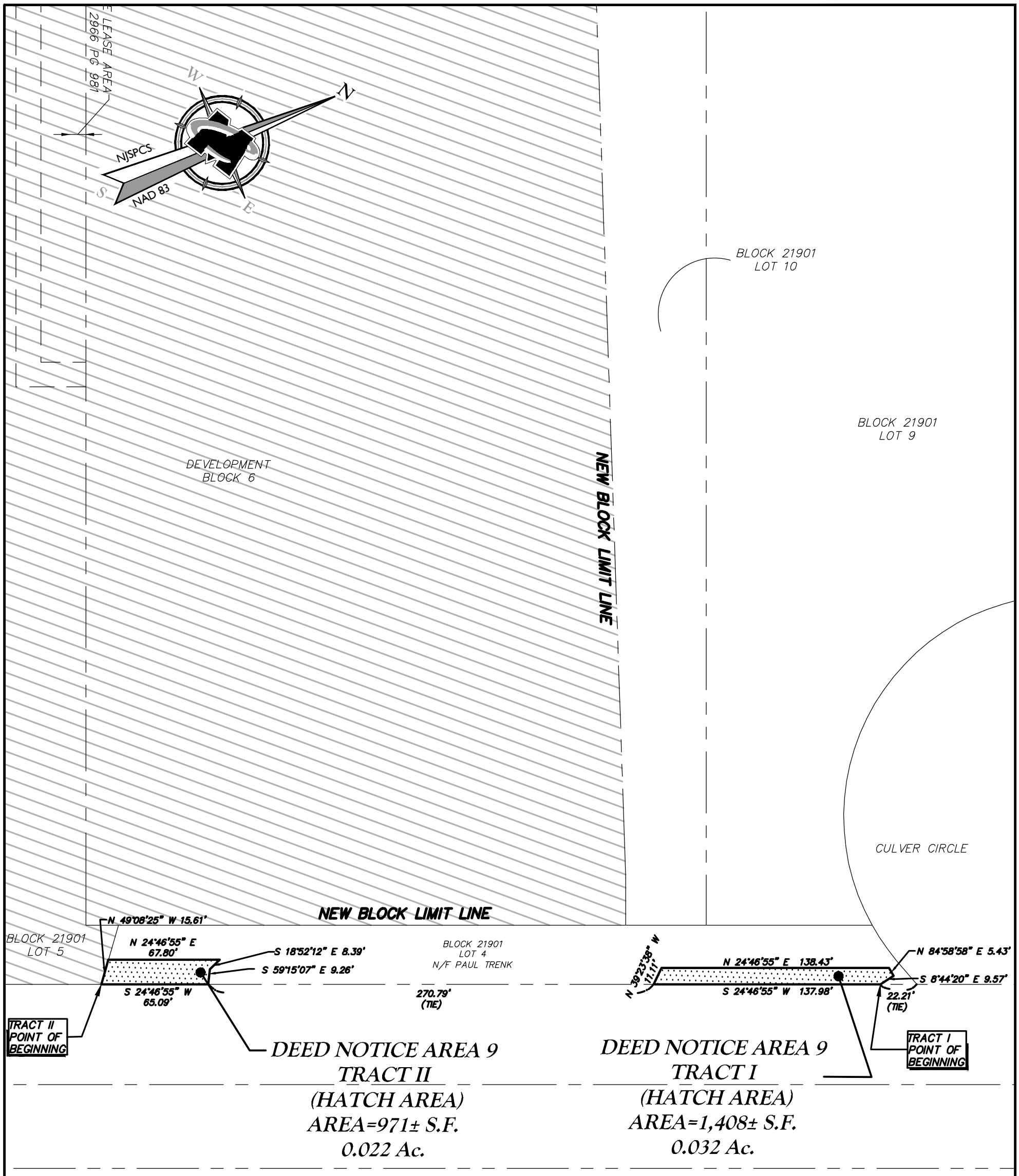
6. Along said westerly line of Route 440, **S 24° 46' 55" W, 65.09 feet,** to the Point and Place of **BEGINNING.**

CONTAINING: 971 S.F. of land more or less or 0.022 acre of land more or less.

10/13/16

GLEN J. LLOYD, P.L.S. — DATE SIGNED
NEW JERSEY PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS037598

\\HQFAS1\General\Projects\2010\10000292R\Survey\Description\Metes & Bounds-Deed Notice 9_REV.docx



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State of N.J. Cert. of Authorization: 24GA27986500

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Office Locations:
- Red Bank, NJ
- Clinton, NJ
- Hamilton, NJ
- Marmora, NJ
- Mt. Arlington, NJ
- Mt. Laurel, NJ
- Sterling, VA
- Norfolk, VA
- Albuquerque, NM
- Albany, NY
- Chestnut Ridge, NY
- Newburgh, NY
- Hawthorne, NY
- Lehigh Valley, PA
- Exton, PA
- Philadelphia, PA
- Columbia, MD
- Tampa, FL

REV	DATE	DRAWN BY	DESCRIPTION
1	10/7/16	KAN	ADD PORTION FROM DN 6 TO DN 9 AS REQUESTED
2	1/11/17	KAN	REVISED BLOCK 6
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.	.	.	.
.	.	.	.

DEED NOTICE AREA 9
SA6 NORTH

BLOCK 21901
LOT 4

CITY OF JERSEY CITY
HUDSON COUNTY
NEW JERSEY

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/12/16	KAN	CJK

PROJECT NUMBER: 2010l1000
DRAWING NAME: V-EXBT-DN-9-REV

SHEET TITLE:
DEED NOTICE EXHIBIT

SHEET NUMBER:
1 of 1

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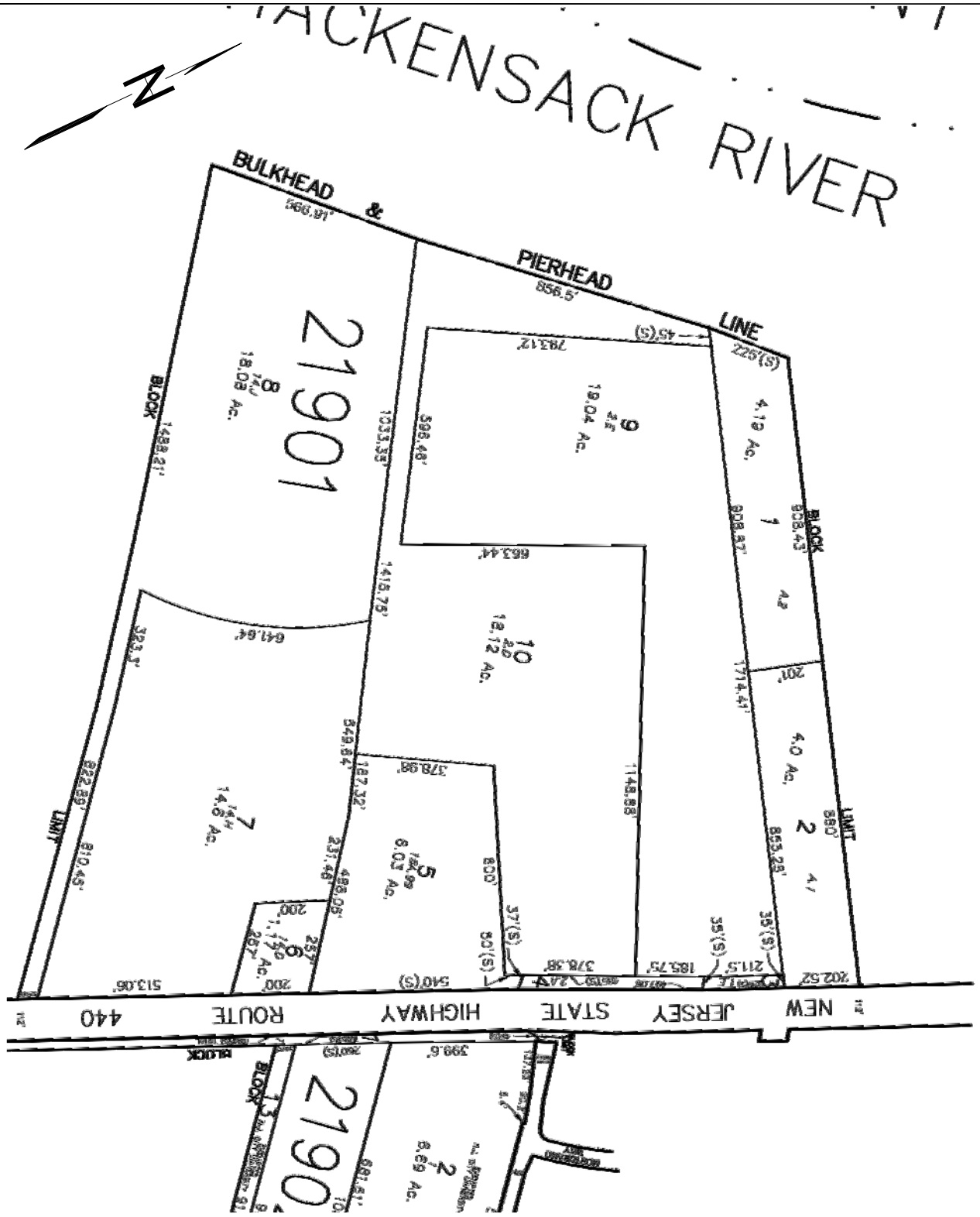
W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 9\3480150487-6100-A209-0000.dwg Wed, 01 Feb 2017 - 2:51pm vandona.mudalu



SOURCE:
DRAWING TITLED: "TAX MAP CITY OF JERSEY CITY", PREPARED BY T&M ASSOCIATED, MIDDLETOWN TWP., NJ SHEET 219, DATED AUGUST, 2006; NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF TAXATION PROPERTY ADMINISTRATION DATED MAY 8, 2009 SERIAL NO.: 934.

0 150 300 600
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150450 *DRAWING:* 3480150487-6100-A209-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE, Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 09/07/16	*CHECKED/DATE:* NW 01/31/17	

EXHIBIT A-2
TAX MAP
BLOCK 21901, LOT 4
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #9

Exhibit A-3
Property Map

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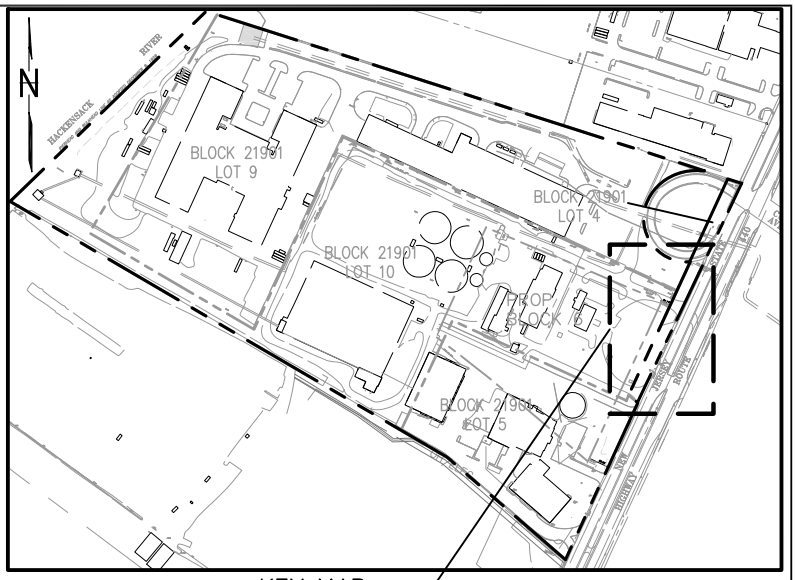
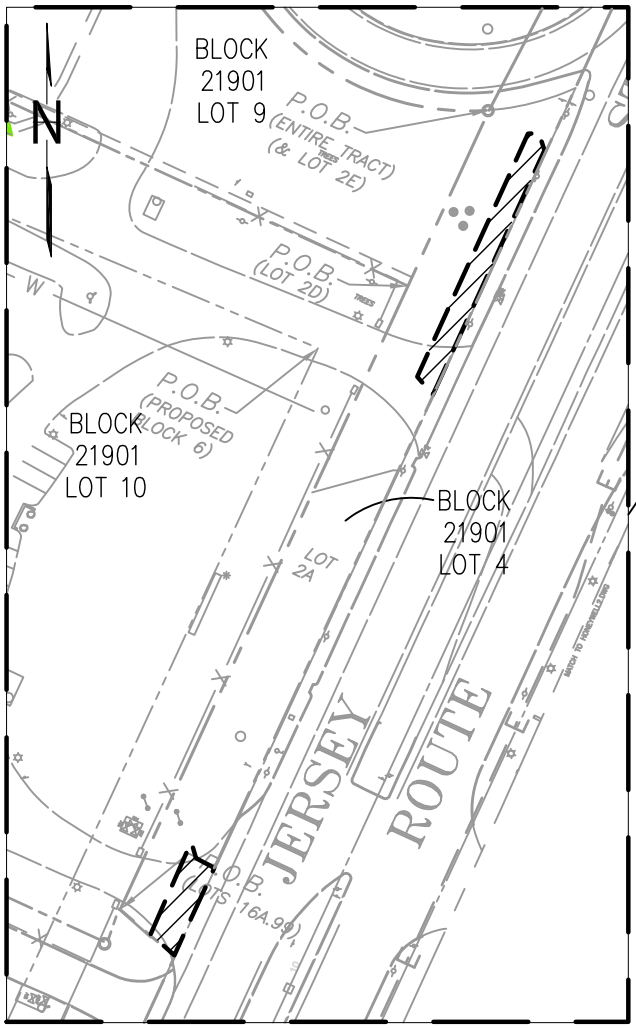
LEGEND

PROPERTY BOUNDARY

RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

0 50 100 200
SCALE IN FEET

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A309-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-3
PROPERTY AREA MAP
BLOCK 21901, LOT 4
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #9

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EXHIBIT B
Deed Notice #9 SA-6 North Route 440 Deferred Area

B-1 Restricted Area Map
B-2 Restricted Area Data Table
Portions of Block 21901, Lot 4
City of Jersey City, New Jersey

Exhibit B-1 Restricted Area Map includes Exhibit B-1 (Restricted Area and Soil Sample Locations).

Exhibit B-2 is a Restricted Area Data Table indicating soil sample locations with concentrations remaining above the New Jersey Department of Environmental Protection's (NJDEP) Chromium Policy.

Restricted Area Map Notes:

Exhibit B-1 indicates engineering controls. For soils with hexavalent chromium concentrations above 20 mg/kg, the engineering controls include a cap consisting of 1 foot of clean soil at the northern-most restricted area and a cap consisting of a geotextile demarcation fabric overlain by 6-inches of gravel at the southern-most restricted area.

Exhibit B-1
Restricted Area Map

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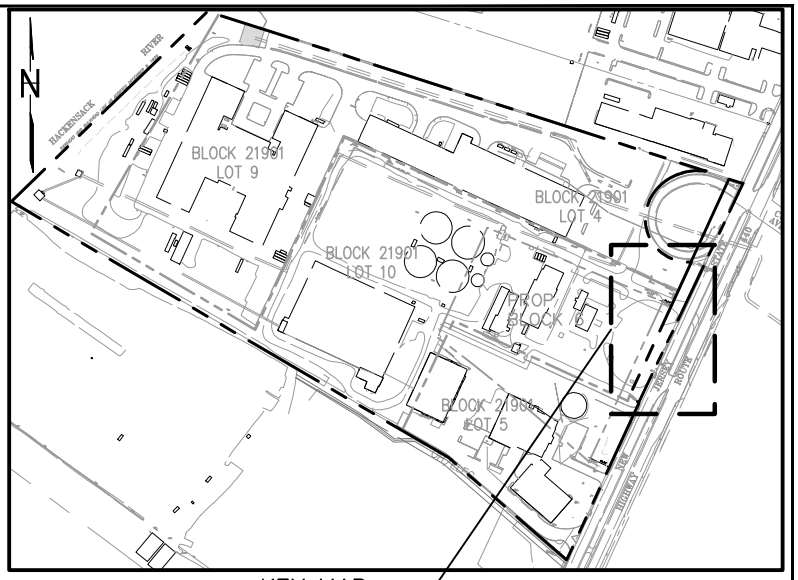
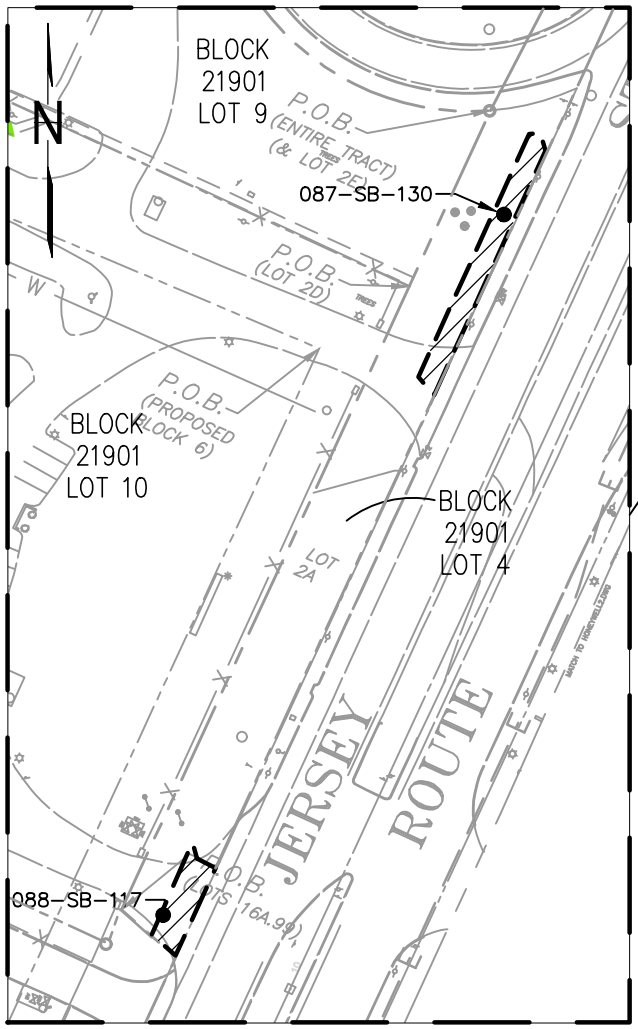
LEGEND

- ● SOIL SAMPLE LOCATION HEXAVALENT CHROMIUM > 20mg/kg (SEE EXHIBIT B-2)
- PROPERTY BOUNDARY
- RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

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DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

DRAFT

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SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-B009-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1A** RESTRICTED AREA MAP BLOCK 21901, LOT □ SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □9
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17		

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\1000\DEED NOTICE\DN 9\3480150487-6100-B009-0000.dwg Wed, 15 Feb 2017 - 10:39am scott.ruskin Layout: Layout1

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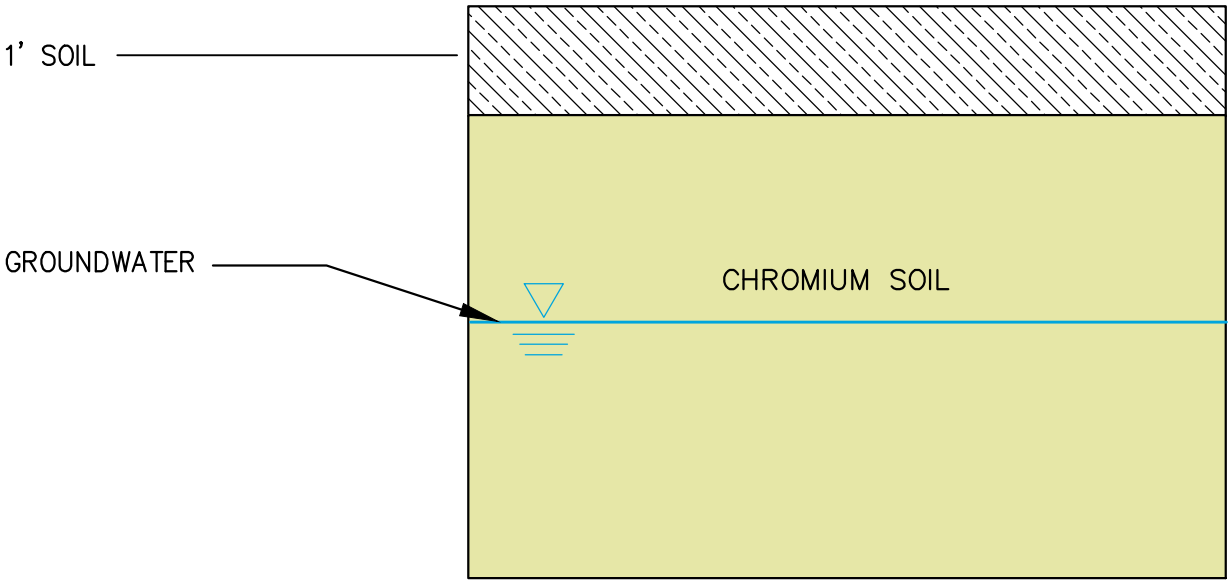
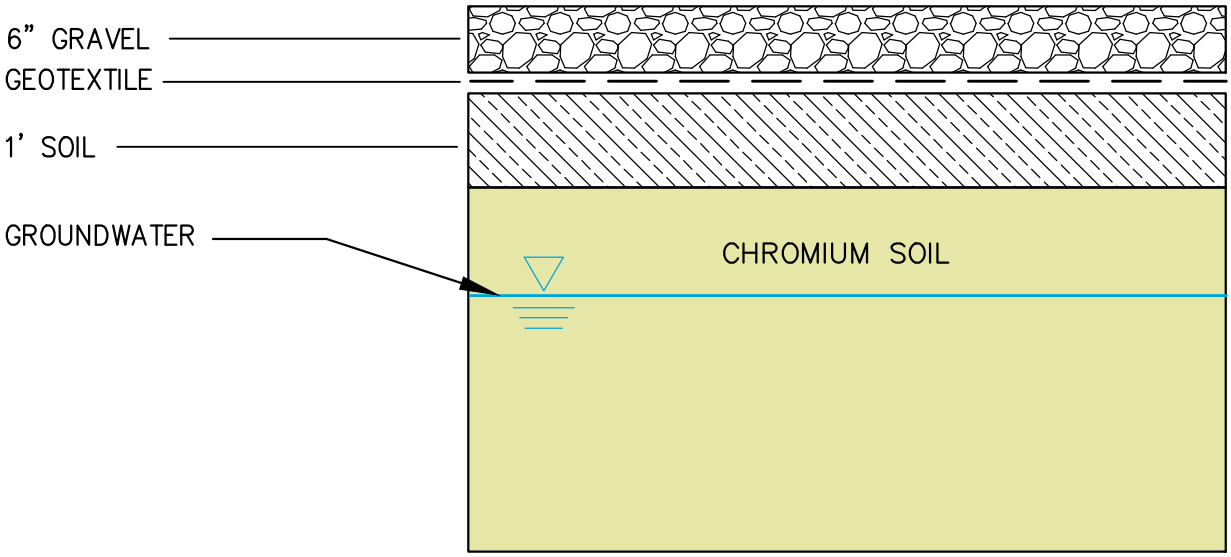


CAP SYSTEM DETAIL
(NORTHERN PARCEL)
NTS



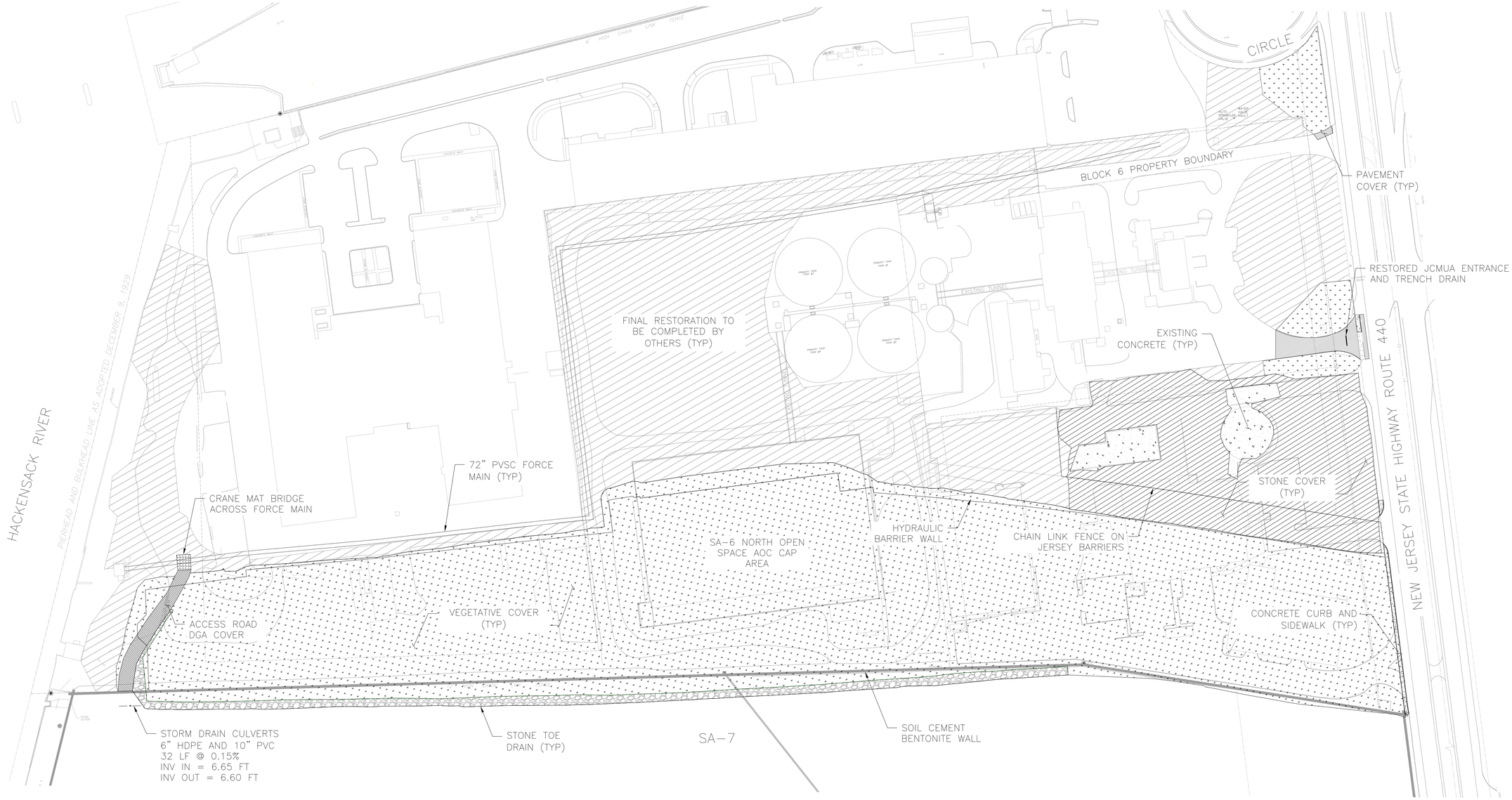
CAP SYSTEM DETAIL
(SOUTHERN PARCEL)
NTS

DRAFT

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150487-6100-B209-0000	
PREPARED/DATE: STR 01/25/17	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT B-1B
CAP SYSTEM DETAIL
BLOCK 21901; LOT □
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE □9



NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
DGA COVER
VEGETATED COVER
RESTORATION BY OTHERS
PAVEMENT COVER
STONE TOE DRAIN
CONCRETE COVER
SD — STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH – SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Exhibit B-2: Table B-2
Soil Sample Data Table (Hexavalent Chromium)

EXHIBIT B-2
Restricted Area Data Table
Study Area 6 North
Portions of Block 21901, Lot 4
Deed Notice 9A, Route 440 Deferred Area
Jersey City, New Jersey

Location ID	Sample Date	Sample Depth (feet bgs)	Sample Elevation (feet msl NAVD88)	Contaminant	CASR#	NJDEP Chromium SCC (mg/kg)	CONC	Q
087-SB-130	06/02/2008	1 - 1.5	0	Hexavalent Chromium	18540-29-9	20	**24.3**	
088-SB-117	06/02/2008	6.5 - 7	0	Hexavalent Chromium	18540-29-9	20	**4670**	

Notes:
Results reported in mg/kg.

Data Qualifiers:
J - Data indicates the presence of a compound that meets the identification criteria. The concentration given is an approximate value.

Abbreviations:
Feet bgs - Feet below ground surface
mg/kg - milligrams per kilogram
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP Chromium SCC - New Jersey Department of Environmental Protection Chromium Soil Cleanup Criteria, revised April 2010

EXHIBIT C
Deed Notice #9 SA-6 North Route 440 Deferred Area

C-1 Institutional Controls
C-2 Engineering Controls
Portions of Block 21901, Lot 4
City of Jersey City, New Jersey

C-1 Institutional Controls

C-1 Deed Notice, Consent Decree, Zoning as Institutional Controls: Exhibit C-1 (A through C) for portions of Block 21901, Lot 4, City of Jersey City, New Jersey known as the Deferred Area

i. Exhibits C-1A through C-1C. Exhibit C-1A: Deed Notice as Institutional Control; Exhibit C-1B: Consent Decree as Institutional Control; Exhibit C-1C Zoning as Institutional Control Exhibits C-1 include a narrative description of the restrictions and obligations of this Deed Notice and the other Institutional Controls that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;

The Property constitutes portions of Block 21901, Lot 4. The estimated size of the Area containing chromium-impacted soils (hexavalent chromium above 20 mg/kg) as identified on Exhibit B-1 is estimated at approximately 2,370 square feet or approximately 0.05 acres.

(2) Description of the restrictions on the Property by operation of the Institutional Control;

The Property shall only be used for activities consistent with this Deed Notice, the Consent Decree, including, but not limited to, Paragraphs 60(j) and 60(k) of the Consent Decree, and the applicable zoning standards. Intrusive activities (i.e., excavation or digging) that breach the engineering controls (as described in Exhibit C-2) will not be permitted on the Property except in compliance with the terms of the Consent Decree, and this Deed Notice. See Deed Notice for additional information; subsections 7A Alterations, Improvements, Disturbances, and 7B, Emergencies.

(3) The objective of the restrictions;

The restrictions will prohibit contact with soils above the NJDEP Soil Cleanup Criteria for hexavalent chromium.

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

Visual inspections of the Property and other monitoring as set forth in the Consent Decree.

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

Same as (B)(1).

(3) The current land use on the Property is consistent with the restrictions in this Deed Notice;

Same as (B)(1).

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

Review of newly promulgated or modified requirements of applicable regulations or laws that potentially may apply to the site.

(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

Same as (B)(4).

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Property is consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including evaluation of any available documents as a result of changes in land use or incidents.***
- ***A report that determines whether or not the land use at the Property has remained consistent with the restrictions in the Consent Decree, this Deed Notice,* and *the applicable zoning standards.***
- ***A report that determines whether or not the Deed Notice continues to be protective of the public health and safety and the environment.***

C-2 Engineering Controls
Deed Notice #9 SA-6 North Route 440 Deferred Area

Portions of Block 21901, Lot 4
City of Jersey City, New Jersey

ii. Exhibits C-2A through C: Narrative description of the Engineering Controls including Clean Fill as follows:

(A) General Description of the engineering controls:

(1) Description of the engineering controls;

The Engineering Controls consist of a cap consisting of 1 foot of clean soil at the northern-most restricted area and a cap consisting of a geotextile demarcation fabric overlain by 6-inches of gravel at the southern-most restricted area.

(2) The objective of the engineering controls; and

The objective of the controls is to prevent contact with soils above the NJDEP Chromium Policy for hexavalent chromium.

(3) How the engineering controls are intended to function.

The soil engineering controls are intended to function as a barrier to underlying and adjacent soils that exceed the NJDEP Chromium Policy Criteria within the Property.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

Honeywell will perform monitoring by visual inspection of the Property pursuant to the Consent Decree.

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

Same as (B)(1) above.

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering controls;

Same as (B)(1) above. Also, see the Consent Decree and the Deed Notice for additional information: subsections 7A Alterations, Improvements, Disturbances, and 7B Emergencies.

(4) The engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

Same as (B)(1) above.

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering controls. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering controls; and

Records of the inspections are to be maintained as listed in (5).

(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

A review of any new standards, regulations, or laws will be conducted. Should the review indicate that other activities are necessary, those activities will be listed and executed.

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including an evaluation to determine whether or not the engineering controls are continuing to meet the original objective and intended function.***
- ***A report to determine whether or not the engineering controls continue to operate as designed.***

- ***A report to determine whether or not the engineering controls continue to be protective of the public health and safety and of the environment.***

APPENDIX III

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

JERSEY CITY MUNICIPAL UTILITIES AUTHORITY, Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5955 Consolidated under Docket No. 95-2097 (DMC)
JERSEY CITY INCINERATOR AUTHORITY Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5993 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)
HACKENSACK RIVERKEEPER, INC., *et al.* Plaintiffs, v. HONEYWELL INTERNATIONAL INC., *et al.* Defendants.	Civil Action No. 06-22 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)

FIRST AMENDED CONSENT DECREE REGARDING REMEDIATION AND REDEVELOPMENT OF STUDY AREA 6 NORTH

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RECITALS

Whereas, on June 30, 2003, the district court for the District of New Jersey issued a Final Judgment in *Interfaith Community Organization v. Honeywell International Inc.*, Civ. No. 95-2097 (DMC) ("*ICO v. Honeywell*"), ordering the remediation of an area designated by the New Jersey Department of Environmental Protection ("NJDEP") as Study Area 7 by excavation of all chromium contamination on the property, under the oversight of a court-appointed Special Master;

Whereas, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property owned by JCMUA and other relief;

Whereas, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property owned by JCIA and other relief;

Whereas, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., Captain William Sheehan, Reverend Winston Clarke, and Lawrence Baker ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater, surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

Whereas, Study Areas 6 North and South are directly adjacent to Study Area 7 on the north and south sides, respectively;

Whereas, Study Area 5 is comprised of properties to the east of Study Areas 6 North, 6 South, and 7 across Route 440;

Whereas, the property owned by JCIA and JCMUA and collectively the subject of *JCMUA v. Honeywell* and *JCIA v. Honeywell* comprises a part of Study Area 6 North;

Whereas, the City of Jersey City ("Jersey City") also owns property that comprises a part of Study Area 6 North;

Whereas, Riverkeeper also named as defendants in *Riverkeeper v. Honeywell* Jersey City, JCMUA, and JCIA (collectively the "Jersey City Entities");

Whereas, the Jersey City Entities and Honeywell also asserted cross-claims against each other in *Riverkeeper v. Honeywell*;

Whereas, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation");

Whereas, in the Consolidated Litigation, the Jersey City Entities and Riverkeeper have alleged that Honeywell bears responsibility for the presence and remediation of chromite ore processing residue ("COPR") and chromium in soils and groundwater on the Study Area 6 North property;

Whereas, in the Consolidated Litigation, Honeywell has alleged that the Jersey City Entities bear full responsibility for lead and other contamination on the Study Area 6 North property, and also bear an equitable share of liability for the presence and remediation of COPR and chromium in soils and groundwater on the Study Area 6 North property and for chromium and other contamination in Hackensack River sediments in the vicinity of Study Area 6 North;

Whereas, on October 9, 2007, Honeywell and Riverkeeper submitted the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"), resolving issues related to the remediation of chromium contaminated sediments in the Hackensack River in the vicinity of Study Areas 5, 6, and 7;

Whereas, the Parties to this Consent Decree each believe that it is in their mutual interest to move forward productively to resolve their differences so that they can implement environmental remediation at Study Area 6 North that ensures the continued protection of human health and the environment and so that Study Area 6 and Study Area 7 can be redeveloped in keeping with Jersey City's vision for a revitalized West Side;

Whereas, the Local Redevelopment and Housing Law, N.J.S.A. 40A:12A-1, *et seq*., as amended and supplemented (the "Redevelopment Law") provides for municipalities to participate in the redevelopment and improvement of areas in need of redevelopment;

Whereas, the portions of Study Area 6 and Study Area 7 (i) which are owned by the Jersey City Entities, (ii) which are owned by Honeywell, (iii) as to which Honeywell has a purchase and sale agreement with the current owner, or (iv) which hereafter will be acquired by a Jersey City Entity and/or Honeywell are parcels which by ordinance adopted by the City Council of Jersey City on February 27, 2008, have been determined to be "areas in need of redevelopment" under the criteria of the Redevelopment Law because of conditions prevalent on those parcels;

Whereas, the settlement which is the subject matter of this Consent Decree contemplates the environmental remediation of Study Area 6 North and redevelopment of the parcels that comprise Study Areas 6 and 7 to create a major mixed use project in an important section of Jersey City;

Whereas, each of the actions to implement this Consent Decree have been fully considered by the Parties as a means to accomplish the aforesaid purposes of this settlement;

Whereas, the consent of each of the Jersey City Entities to this Consent Decree was considered at a duly noticed and appropriate meeting of their respective governing bodies, open to the public, at which members of the public were provided an opportunity to comment on all aspects of the settlement, including, without limitation, the commitments made by the Jersey City Entities herein; and

Whereas, Honeywell and the Jersey City Entities are settling their claims, cross-claims, or counter-claims in the Consolidated Litigation against each other in the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* (hereafter "Jersey City/Honeywell Consent Order"), filed in the Consolidated Litigation simultaneously with this Consent Decree and attached as Exhibit A to this Consent Decree:

NOW, THEREFORE, IT IS HEREBY ORDERED AND DECREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For purposes of this Consent Decree, the following terms shall have the meanings set forth in this Article:

1. **AOC 1** shall mean that area of Study Area 6 North in which the hexavalent chromium concentration in the top 20 feet of soil below existing ground surfaces exceeds concentrations of 20 mg/kg and the Chromium Remedy will be implemented pursuant to Article III. AOC 1 is shown on Exhibit B.

2. **AOC 1 Additional Excavation Areas** shall mean those areas of Study Area 6 North which require excavation pursuant to paragraph 57. The AOC 1 Additional Excavation Areas are not contiguous to AOC 1. The AOC 1 Additional Excavation Areas are shown on Exhibit B.

3. **AOC 1 Open Space Area** shall mean the AOC 1 Open Space Area, as defined by paragraph 53, consisting of approximately 11 acres enclosed by the hydraulic barrier walls constructed under the Chromium Remedy, and which shall be subject to paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B.

4. **AOC 2** shall mean that area of Study Area 6 North on which the Historic Fill Remedy will be implemented pursuant to Article II.B of the Jersey City/Honeywell Consent Order. AOC 2 is shown on Exhibit B.

5. **Bayfront Redevelopment LLC** shall have the meaning set forth in paragraph 4.1 of the Jersey City/Honeywell Consent Order.

6. **COPR** shall mean Chromite Ore Processing Residue.

7. **Chromium Remedy** or **Chromium Remediation** shall mean the remedy set forth in Article III.

8. **Consolidated Litigation** shall mean *Jersey City Municipal Utility Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC).

9. The **Court** shall mean the United States District Court of the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

10. **Deep Groundwater Remedy** shall mean the deep overburden and bedrock groundwater pump and treat remedy as required by the Order Approving the Deep Overburden Groundwater Remediation, entered on October 6, 2006, and the Stipulation on Consent Regarding the Schedule for Implementation of Deep Groundwater Remedial Actions, currently pending before the Special Master in *ICO v. Honeywell.* In the event that Riverkeeper and Honeywell reach a settlement on source control issues, the Deep Groundwater Remedy shall

include the remedy to which Riverkeeper and Honeywell have agreed. In the event that Riverkeeper and Honeywell do not reach a settlement on source control issues, the Deep Groundwater Remedy shall include the remedy ordered by the Special Master or the Court in *ICO v. Honeywell* for source control.

11. **Hackensack River Watershed Land Trust** shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

12. **Historic Fill** shall have the definition provided in the NJDEP Technical Requirements for Site Remediation.

13. **Historic Fill Remedy or Historic Fill Remediation** shall mean the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order, except that the Historic Fill Remedy shall not be limited to the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order if NJDEP requires a more stringent remedy.

14. **Honeywell** shall mean Honeywell International Inc. and its affiliates, including Kellogg Street 80 Property LLC, Kellogg Street 60 Property LLC, and Kellogg Street/440 Property LLC.

15. **Honeywell's Treatment Plant** shall mean the treatment plant currently located at 80 Kellogg Street that is used to treat, *inter alia*, chromium contaminated groundwater.

16. ***ICO v. Honeywell*** shall mean *Interfaith Community Organization v. Honeywell International Inc.,* D.N.J., Civ. No. 95-2097 (DMC).

17. **Including** shall mean including, but not limited to.

18. **JCIA** shall mean the Jersey City Incinerator Authority.

19. **JCMUA** shall mean the Jersey City Municipal Utilities Authority.

20. **JCRA** shall mean the Jersey City Redevelopment Agency.

21. **Jersey City Entities** shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

22. **Jersey City/Honeywell Consent Order** shall mean the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* entered in the Consolidated Litigation simultaneously with this Consent Decree.

23. **NJDEP** shall mean the New Jersey Department of Environmental Protection.

24. **NJDEP Chromium Directive** shall mean the Chromium Directive issued by NJDEP on February 8, 2007, and attached as Exhibit C.

25. **Party or Parties** shall mean any one or all of the signatories to this Consent Decree.

26. **RCRA** shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*, as amended.

27. **Redevelopment Agreement** shall have the meaning set forth in paragraph 4.11(e) of the Jersey City/Honeywell Consent Order.

28. **Redevelopment Area** shall mean Study Area 6 North, Study Area 6 South, and Study Area 7, collectively.

29. **Redevelopment Law** shall mean the New Jersey Local Redevelopment and Housing Law, N.J.S.A. 40A:12A1, *et seq.*, as amended and supplemented.

30. **Redevelopment Plan** shall mean the Bayfront I Redevelopment Plan as adopted by Jersey City on March 12, 2008.

31. **Riverkeeper** shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

32. **Sediment Consent Order** shall mean the Consent Order on Sediment Remediation and Financial Assurances, which the Parties expect will be entered by the Court in *ICO v. Honeywell* and this Consolidated Litigation.

33. **Shallow Groundwater** or **Shallow Level of Groundwater** shall mean groundwater above the meadow mat, groundwater at stratigraphically equivalent depths in locations where there is no meadow mat, and groundwater that is contaminated by recent contact with COPR or other chromium soil contamination above the meadow mat and subsequently flows downward through or past the meadow mat into the upper portion of the lacustrine sediments. This does not include groundwater found in the bedrock, the deep zone, or any plume of contamination that is in both the intermediate and deep zones, as those zones are defined in the Final Groundwater Investigation Report, prepared in *ICO v. Honeywell*, dated February 2007, p. 1-2.

34. **Site** shall mean Study Area 6 North.

35. **Site Preparation Activities** shall have the meaning set forth in paragraph 3.1 of the Jersey City/Honeywell Consent Order.

36. **Site Preparation Plan** shall have the meaning set forth in paragraph 3.2 of the Jersey City/Honeywell Consent Order.

37. **Soil** shall mean soils, historic fill, and/or COPR.

38. The **Special Master** shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

39. **Stratum O** shall mean the layer composed of soft brown silty fine sand interlayered with soft gray silty clay and fine sandy to clayey silt generally located above the meadow mat below the Historic Fill and/or COPR.

40. **Study Area 6 North** shall mean that property comprising Sites 87 and 88 of the Chromate Chemical Production Waste Sites designated by NJDEP, comprising approximately 41.58 acres and including: (a) all such property owned by JCMUA located at 555 Route 440, Jersey City, New Jersey, (b) all such property owned by JCIA located at 501 Route 440, Jersey City, New Jersey; (c) all such property owned by Jersey City or its Department of Public Works and located at 575 Route 440, Jersey City, New Jersey; and (d) all such property owned by Paul Trenk consisting of Block 1290.1, Lot 2A, Jersey City, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

41. **Study Area 6 South** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC consisting of Site 73, located at 200 Kellogg Street Jersey City, Hudson County, New Jersey; (b) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 134, located at 100 Kellogg Street Jersey City, Hudson County, New Jersey; (c) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 140 located at 80 Kellogg Street Jersey City, Hudson County, New Jersey; (d) that property currently owned by Kellogg Street 60 LLC consisting of Site 125, located at 60 Kellogg Street Jersey City, Hudson County, New Jersey; (e) that property currently owned by Kellogg Street/440 Property LLC consisting of Site 124, Jersey City, Hudson County, New Jersey; (f) that property currently owned by Kellogg St/Harsimus Cove Realty located at 150 Kellogg Street, Jersey City, Hudson County, New Jersey, (g) that property currently owned by Cordova Enterprises Ltd located at 38 Kellogg Street, Jersey City, Hudson County, New Jersey, and (g) that property currently owned by Cordova Enterprises Ltd located at 28 Kellogg Street, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

42. **Study Area 6** shall mean Study Area 6 North and Study Area 6 South, collectively.

43. **Study Area 7** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC located at 425 and 445 Route 440, Jersey City, Hudson County, New Jersey, and (b) that property currently owned by Roned Realty/Edward Navlen located at 465 Route 440, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

44. **Technical Requirements for Site Remediation** shall mean the NJDEP Technical Requirements for Site Remediation, N.J.A.C. Chapter 26E, as duly and properly promulgated and amended.

45. **Unrestricted Use** shall mean that the contaminated medium is restored to a condition or quality suitable for all uses.

ARTICLE II: SCOPE OF THE CONSENT DECREE, JURISDICTION, AND CLAIMS RESOLVED

46. Except as provided in this paragraph, the terms of the Jersey City/Honeywell Consent Order shall remain in full force and effect. To the extent that any provision in the Jersey City/Honeywell Consent Order refers to the Chromium Remedy or Chromium Remediation, it shall be construed as referring to Article III of this Decree. In the event of any conflict or inconsistency between the terms of this Decree and the Jersey City/Honeywell Consent Order, the terms of this Decree govern. In the event that any action taken pursuant to the Jersey City/Honeywell Consent Order is in conflict with or inconsistent with the terms of this Decree, the terms of this Decree shall govern.

47. This Court has jurisdiction over the Parties and subject matter of the Consolidated Litigation pursuant to Section 6972 of RCRA.

48. For purposes of this Consent Decree, the Complaints in the Consolidated Litigation each state claims upon which relief may be granted against Honeywell.

49. In the event that this Decree is not terminated by one or more Parties pursuant to paragraph 100, this Consent Decree resolves, settles, and satisfies all claims by Riverkeeper against Honeywell with respect to soils and shallow groundwater at Study Area 6 North. This Consent Decree does not resolve any claims by Riverkeeper against Honeywell with respect to Study Area 6 South, Study Area 5, or groundwater at Study Area 6 North other than shallow groundwater.

50. Nothing in this Consent Decree shall be construed or interpreted to waive any claim or defense any Party has asserted or may assert against any third party in the Consolidated Litigation except as explicitly stated herein.

51. This Consent Decree does not constitute an admission of liability on the part of any Party with respect to any claims, cross-claims, or counter-claims in the Consolidated Litigation.

ARTICLE III: CHROMIUM REMEDIATION

A. Chromium Remedy

52. **Responsibility for Implementation of Chromium Remediation.** As between the Parties, Honeywell shall be responsible for and shall undertake remediation of COPR and chromium present in Study Area 6 North at Honeywell's sole cost and expense. Remediation of COPR and chromium present in Study Area 6 North shall be undertaken in accordance with the terms of this Consent Decree.

53. **AOC 1 and AOC 2.** For the purposes of remediation, Study Area 6 North shall consist of two Areas of Concern ("AOCs"), designated as AOC 1 and AOC 2 as shown on Exhibit B. AOC 1 is set forth on Exhibit B and consists of that portion of Study Area 6 North for which chromium remediation is required pursuant to paragraphs 55, 56, and 57. AOC 2 consists of the entirety of Study Area 6 North, including AOC 1, to the extent that historic fill is present in any area of Study Area 6 North. For AOC 1, the intended land use will determine the types

of remedial measures taken in the Chromium Remedy. There are two distinct land uses for AOC 1: open space and residential. As a result, AOC 1 will be further subdivided into:

(a) The AOC 1 Open Space Area, which shall comprise that portion of AOC 1 for which future use shall be restricted as provided in paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B;

(b) The AOC 1 Residential Area, which shall comprise that portion of AOC 1 for which future use shall allow for residential and/or commercial and retail uses, but for which the remedial measures shall assume only a residential use . The AOC 1 Residential Area is shown on Exhibit B; and

(c) The AOC 1 Additional Excavation Areas, which consist of those portions of Study Area 6 North that require remediation pursuant to paragraph 57. The planned land use for the AOC 1 Additional Excavation Areas is residential and/or commercial and retail uses, but the remedial measures shall assume only a residential use.

54. **Scope and General Requirements of the Chromium Remedy.** The Chromium Remedy shall address shallow groundwater and soil containing hexavalent chromium in AOC 1, and shall be consistent with the requirements set forth in this Article. The Chromium Remedy set forth in this Consent Decree addresses only the shallow level of groundwater (see paragraph 58). The deep overburden and bedrock groundwater remediation, including source control, shall be addressed in a separate consent order, which shall place these issues within the jurisdiction of the Special Master in conjunction with the groundwater remedies for Study Area 7.

(a) The Chromium Remedy shall be consistent with the NJDEP Technical Requirements for Site Remediation, the Chromium Directive as issued by NJDEP on February 8, 2007 ("the NJDEP Chromium Directive"), and the Remedial Action Work Plan (with addenda) approved by NJDEP on or about February 19, 2008. This Consent Decree shall have precedence

over the Remedial Action Work Plan in the event of any inconsistency.

(b) The Chromium Remedy shall be carried out diligently, and the development and implementation of the Historic Fill Remedy shall not delay satisfaction of the milestones in the Schedule established pursuant to this paragraph. Honeywell shall propose a master Schedule for the implementation of the Chromium Remedy within 90 days of the entry of this Consent Decree, which shall include, at a minimum, the following milestones:

(i) Submission to the Special Master for all documents subject to review by the Special Master pursuant to paragraph 72(c);

(ii) Relocation of the Jersey City Entities' Study Area 6 North Operations as shall be required prior to the implementation of the Chromium Remedy;

(iii) Completion of those Site Preparation Activities necessary for the implementation of the Chromium Remedy, including remediation of the AOC 1 Additional Excavation Areas;

(iv) A final date for Honeywell's proposal of *in situ* treatment for any part of the AOC 1 Residential Area pursuant to paragraph 55(d) and a date for the final decision as to whether excavation or *in situ* treatment shall be used in the event of such a proposal;

(v) The initiation of work related to the Chromium Remedy;

(vi) The date for completion of the installation of the Chromium Remedy;

(vii) Implementation of the long-term protections of the AOC 1 Open Space Area established pursuant to paragraph 60; and

(viii) Transfer of the AOC 1 Open Space Area to Jersey City pursuant to paragraph 60(a)(iii).

(c) **Demolition and Grading Activities.** During demolition and grading activities, adequate protective measures shall be taken to protect site workers and the community

from airborne dusts and exposures to contaminated soils.

(d) **Vegetation of Clean Fill.** All clean soil fill in areas that will not involve paved roads, sidewalks, paths, walkways, or building structures shall be vegetated in such a manner to protect and maintain the required depth of clean soil fill.

55. **AOC 1 Residential Area Soil Remedy.** In the AOC 1 Residential Area, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive.

(a) Those soils excavated from the AOC 1 Residential Area in which hexavalent chromium concentrations exceed 240 mg/kg shall be disposed of off-site at a waste disposal facility licensed to accept such waste.

(b) Those soils excavated from the AOC 1 Residential Area in which the hexavalent chromium concentration is less than 240 mg/kg, but greater than 20 mg/kg, shall be consolidated within the AOC 1 Open Space Area. However, any such soils which would require venting of gases shall be disposed of off-site.

(c) Soils excavated from the AOC 1 Residential Area shall be replaced with existing soils from AOC 2 or backfill soil. Any backfill soil brought to the Site shall either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master.

(d) In the AOC 1 Residential Area, excavation of soils containing hexavalent chromium greater than 20 mg/kg shall be the presumptive remedy. Around remaining active underground utilities or other structures, such as the bulkhead, *in situ* treatment may be considered in lieu of excavation only if Honeywell demonstrates, and all Parties, the Special

Master, and NJDEP agree that (1) excavation is technically impracticable and (2) treatment will result in hexavalent chromium concentrations of 20 mg/kg or less and no rebound will occur. If no treatment option is available, Honeywell shall propose an alternative remedial approach, subject to review and comment by the Parties and approval by the Special Master.

(e) Honeywell shall excavate all soils containing hexavalent chromium greater than 20 mg/kg in conjunction with the placement of the piping for the Deep Groundwater Remedy. Honeywell shall not propose treatment in lieu of excavation based on the location of the pipes for the Deep Groundwater Remedy or any apparent impracticability of excavating in conjunction with their installation.

56. **AOC 1 Open Space Area Soil Remedy.** In the AOC 1 Open Space Area, the soil remedy shall consist of an engineered RCRA cap to isolate contaminated soils, with gas venting, if necessary, to address the generation of methane and other naturally occurring gases in the Stratum O and/or Stratum D in the Open Space AOC. Soils consolidated under the cap, shall not require gas venting and shall not be the basis for the inclusion of gas venting as a component of the cap. The cap shall be designed and constructed so that:

(a) The cap shall consist of gas collection system, if gas venting is necessary, a base protective layer, an impervious geomembrane liner with a minimum thickness of 40 mil; a geocomposite drainage layer; a filter fabric; and a distinctive colored warning layer with markings in English and Spanish that would deter penetration of the cap in the event that digging occurred in the vicinity of the cap;

(b) All utilities, including those supporting the pump-and-treat system for groundwater remediation, with the exception of any extraction wells or collection trenches, shall be placed above the cap (but may be below the ground surface and/or contained within utility corridors). In the event that above-cap-grade gas collection and treatment is selected or is

needed to meet current or future regulatory requirements, such collection and treatment facilities are prohibited in the Open Space AOC, except for piping to connect the sub-liner collection system with the treatment facilities. Honeywell shall configure the cap so that all active piping for the wastewater treatment system operated by JCMUA, including all force mains and any connections to the emergency outfall, shall be outside the capped area. Honeywell may propose, subject to the review process in paragraph 72, to use treatment in lieu of excavation in the vicinity of the emergency outfall line if the criteria of paragraph 55(d) are satisfied; and

(c) Exclusive of roadways, the cap shall be overlain by layers of clean fill, backfill and/or overburden with an average depth of at least three feet and a minimum depth of at least two feet provided that any layer that incorporates overburden shall be below at least two feet of clean fill. Any clean fill or backfill soil brought to the Site will either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master. One foot of clean fill, covered with bituminous blacktop, shall be sufficient cover where roads, walkways, or other paved surfaces are located within the AOC 1 Open Space Area. All clean soil fill in areas that will not involve paved roads, walkways, or other paved surfaces shall be vegetated in such a manner as to protect and maintain the required depth of the clean soil fill and to ensure that such vegetation shall not cause any interference with or penetration of the cap.

(d) The existing overburden soils in the AOC 1 Open Space Area shall first be stripped off and set aside for use. If hexavalent chromium concentrations in the overburden exceed 20 mg/kg, the overburden shall be placed under the cap. If hexavalent chromium concentrations in the overburden do not exceed 20 mg/kg, the overburden may be placed above the cap but below the two feet of clean fill required by paragraph 56(c). Excavated hexavalent

chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the AOC 1 Residential Area shall be placed and spread in the AOC 1 Open Space Area under the cap. Excavated hexavalent chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the Study Area 6 South Development AOC (as defined in the First Amended Consent Decree Regarding Remediation and Redevelopment of Study Area 6 South and including only those portions of Study Area 6 South for which the future uses of the property may include commercial or residential development) may be placed and spread in the AOC 1 Open Space Area under the cap, provided that such soils do not require venting of gases and shall not serve as the basis for the inclusion of gas venting as part of the Study Area 6 North AOC 1 Open Space Area remedy. Both the chromium impacted soils and the previously stripped overburden shall be suitably compacted according to design specifications. Debris, to the extent it would interfere with the compaction specification requirements of the 100% Design, shall not be placed under the cap. The engineered cap shall be installed over the chromium-impacted soils exceeding 20 mg/kg hexavalent chromium.

57. **AOC 1 Additional Excavation Areas Remedy.** For those AOC 1 Additional Excavation Areas, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive. Excavation of those areas comprising the AOC 1 Additional Excavation Areas shall initially be conducted in the 50-foot by 50-foot area planned in the RAWP but shall not be so limited in the event that confirmation sampling indicates that hexavalent chromium concentrations continue to exceed 20 mg/kg. Honeywell shall excavate laterally and vertically (to depths of up to 20 feet below current ground surface) until the hexavalent chromium is less than 20 mg/kg based on the results of confirmation sampling. Confirmation sampling for the AOC 1 Additional Excavation Areas shall be taken from the side

walls and bottom of the excavation, in accordance with the Technical Requirements for Site Remediation, to confirm complete removal of contaminated soils.

58. **Shallow Groundwater Remedy.** The shallow groundwater remedy shall consist of hydraulic barriers with a pump-and-treat system designed to isolate shallow groundwater and to intercept and treat shallow groundwater flowing above the meadow mat in the AOC 1 Open Space Area. The shallow groundwater remedy shall consist of the following:

(a) The existing soil/cement/bentonite wall on the boundary of Study Area 6 North and Study Area 7 shall be incorporated into the other engineering controls;

(b) Subterranean slurry walls or other hydraulic barriers shall be installed along the northern, eastern and western sides of the AOC 1 Open Space Area and keyed into the meadow mat or Stratum O or to comparable depths below ground surface;

(c) A groundwater extraction system shall be established that will consist of (i) one or more shallow extraction wells, sumps, or french drains within the AOC 1 Open Space Area; (ii) pumps; and (iii) underground piping to convey any extracted water to Honeywell's Treatment Plant;

(d) The capture zone for the shallow groundwater remedy shall include at least the entire area of contaminated shallow groundwater (except for shallow groundwater that penetrates the meadow mat and is captured by the Deep Groundwater Remedy);

(e) A plan for control of water levels shall be developed;

(f) In the event that underground structures are demolished, the plans shall address the need for special attention for structures that extend below the meadow mat in order to control needed water levels; and

(g) Honeywell shall submit such information as is required to allow NJDEP to establish a classification exception area for groundwater at the Site, in accordance with NJDEP

regulations.

59. **Permits and Authorizations.** Honeywell shall obtain all necessary federal, state, and local permits and authorizations to carry out the Chromium Remedy as set forth in this Article. The Jersey City Entities agree to cooperate with Honeywell in the applications for any such permits, authorizations, or approvals. Such cooperation shall include providing information or data with respect to permit applications, co-signing permit applications, and allowing access to Study Area 6 North to obtain information necessary for the permits.

B. Long-Term Monitoring, Maintenance, and Protection of Engineering and Institutional Controls

60. **Protection of the AOC 1 Open Space Area.** Except as provided in paragraphs 60(j) and 60(k), development in the AOC 1 Open Space Area shall be prohibited. The AOC 1 Open Space Area shall be protected against activities that may jeopardize the integrity of the cap and/or the groundwater remedial measures that shall be installed in the AOC 1 Open Space Area pursuant to the Chromium Remedy or that may impede the long-term monitoring and maintenance of the cap and/or groundwater remedial measures. It is the intention of the Parties to implement different layers of protection, which alone or in concert, impose restrictions on development, run with the land, and survive all parties. Accordingly, the following actions shall be taken pursuant to the Schedule provided in paragraph 54(b):

(a) **Ownership of and Access to the AOC 1 Open Space Area.** Ownership of and access to the AOC 1 Open Space Area shall be in accordance with the following:

(i) Pursuant to the terms of this Consent Decree and paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall become the owner in fee simple absolute of all of the property that comprises the AOC 1 Open Space Area and shall not convey any rights or interests in such property except as provided in this Decree. At the time

of the conveyance from JCRA to Bayfront Redevelopment LLC, Bayfront Redevelopment LLC shall give Jersey City an option to buy AOC 1 Open Space Area prior to the planned transfer pursuant to paragraph 60(a)(iii). Such option to buy shall be subject to the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall exercise the option to buy the AOC 1 Open Space Area in the event that the conditions allowing for withdrawal of funds from the financial assurance mechanisms under paragraphs 84(c) or 84(d) are met;

(ii) At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall grant a conservation restriction for the AOC 1 Open Space Area pursuant to the requirements of paragraph 60(b);

(iii) Upon the final construction of all roads and utility corridors within the AOC 1 Open Space Area, Bayfront Development LLC shall donate good and marketable title to all the land comprising the AOC 1 Open Space Area to Jersey City. In conjunction with such donation, Bayfront Redevelopment LLC shall petition to subdivide the properties within Study Area 6 North to create a new parcel(s) comprising the AOC 1 Open Space Area. At the time of the donation, Jersey City shall grant Honeywell an easement for the purpose of monitoring and maintaining the Chromium Remedy. Jersey City shall also grant Honeywell all necessary access to the AOC 1 Open Space Area by license or such other mechanisms as may be appropriate for purposes of monitoring and maintaining the Chromium Remedy. After it acquires title pursuant to this paragraph, Jersey City shall retain ownership of the AOC 1 Open Space Area unless and until it shall have complied with the requirements of paragraph 60(a)(iv);

(iv) After it acquires title pursuant to this paragraph, Jersey City shall not convey or enter into any lease of the AOC 1 Open Space Area to any other person or entity unless it has first satisfied either of the following conditions:

(1) Jersey City has obtained the Special Master's (or if the Special Master's appointment has expired, the Court's) approval to convey the AOC 1 Open Space Area to a government entity that has the capacity and willingness to fulfill Jersey City's obligations under the Consent Decree with respect to the AOC 1 Open Space Area and such entity agrees to submit to the Court's jurisdiction and to be bound by the requirements of the Consent Decree that Jersey City has committed to fulfill with respect to protection of the AOC 1 Open Space Area pursuant to this paragraph and routine maintenance of the permissible development in the AOC 1 Open Space Area pursuant to paragraph 64(d); or

(2) The AOC 1 Open Space Area has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(b) **Conservation Restriction.** At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, but prior to the grant of the option to buy pursuant to paragraph 60(a)(i), Bayfront Redevelopment LLC shall grant an open space conservation restriction, pursuant to N.J.S.A. 13:8-B-1, *et seq.*, over the AOC 1 Open Space Area substantially in the form set forth in Exhibit D. Exhibit D is a conservation restriction that is consistent with the terms of this paragraph and this Consent Decree. The conservation restriction shall allow for the implementation, maintenance, monitoring, repair and replacement of the Chromium Remedy and development consistent with paragraphs 60(j) and 60(k), including the construction and

placement of roads and utilities. The Hackensack River Watershed Land Trust shall be the primary holder of the conservation restriction, with all rights of monitoring and enforcement. Riverkeeper shall propose an entity to serve as the secondary holder of the conservation restriction subject to comment by the Parties and review by the Special Master. The secondary holder shall have secondary rights of monitoring and enforcement.

(i) The conservation restriction shall be incorporated into this Consent Decree and made part of this Consent Decree. The final, executed conservation restriction shall be lodged with the Court and entered as an order of the Court. The conservation restriction shall be enforceable in this Court, in the same manner as this Consent Decree.

(ii) The conservation restrictions provided under this Consent Decree shall be consistent with the prohibited and permitted development of the AOC 1 Open Space Area as set forth in paragraphs 60(j) and 60(k) below.

(iii) Jersey City shall not take any action, whether through exercise of any power of eminent domain, application to the State of New Jersey for approval of a diversion of public park or recreation land, legal challenge to the validity or enforceability of the conservation restriction, or otherwise, the effect of which would be to in any way terminate, abrogate, or diminish the terms, conditions, or purposes of the conservation restriction. If, notwithstanding the preceding sentence, Jersey City proceeds with a condemnation or other action, the result of which would be to terminate, abrogate, or otherwise diminish the terms, conditions, or purposes of the conservation restriction, Jersey City shall, before taking any such action satisfy all of the conditions set forth in paragraph60(a)(iv)(2).

(iv) Notwithstanding the foregoing, the conservation restriction may be terminated upon application of any Party when no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the

levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive.

(c) **Deed Notice.** Upon completion of the Chromium Remedy, the AOC 1 Open Space Area shall be subjected to the deed notice substantially in the form set forth in Exhibit E that restricts future activities on the AOC 1 Open Space Area. Nothing in the deed notice shall be construed as preventing the imposition of more stringent restrictions on the development allowed in the AOC 1 Open Space Area pursuant to this paragraph and, in particular, the conservation restriction provided for in paragraph 60(b).

(d) **Recording of the Consent Decree, Conservation Restriction, and Deed Notice.** This Consent Decree, the conservation restriction imposed pursuant to paragraph 60(b), and the deed notice imposed pursuant to paragraph 60(c) shall be recorded, pursuant to N.J.S.A. 46:15-1.1, 46:16-1.1, and 46:16-2, in the office of the Hudson County Register and a conspicuous reference to the Consent Decree, conservation restriction, and deed notice shall be included in all instruments concerning title to the AOC 1 Open Space Area. Any Party shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Consent Decree, the conservation restriction, the deed notice, and/or any further orders of the Court related to the AOC 1 Open Space Area in the real estate records related to the AOC 1 Open Space Area.

(e) **Zoning.** Pursuant to the Redevelopment Plan, the AOC 1 Open Space Area is designated for open space and park. Jersey City shall not amend or change this designation unless it first satisfies the requirements of paragraph 60(a)(iv)(2).

(f) **Recreation and Open Space Inventory.** Upon acquiring fee simple absolute title to the AOC 1 Open Space, Jersey City shall add those portions of the AOC 1 Open Space Area not covered by roads, the pedestrian thoroughfare, and utility corridors adjacent to

roads onto its Green Acres Program Recreation and Open Space Inventory ("ROSI") pursuant to N.J.A.C. 7:36 and shall specify in such listing that it is subject to (i) Honeywell's prior easement to monitor, maintain, repair, and replace the Chromium Remedy; (ii) the actions necessary to implement, monitor, maintain, repair, and replace the Chromium Remedy; (iii) the actions necessary to install any development permissible under paragraphs 60(j) and 60(k); and (iv) the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall also take all steps necessary or appropriate to notify the New Jersey Green Acres Program that such portions of the AOC 1 Open Space Area have been added to its ROSI, such that those portions of the AOC 1 Open Space Area shall thereafter be subject to all procedural and regulatory requirements applicable under the Green Acres Program, including prohibitions against diversion.

(g) **Eminent Domain.** If all or part of the AOC 1 Open Space Area is taken in exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, by any public, corporate, or other authority so as to terminate, abrogate, or limit the restrictions created by this Consent Decree or the conservation restriction imposed pursuant to paragraph 60(b), in whole or in part, any Party may take appropriate actions to challenge such taking if there is a reasonable legal basis for doing so. In the event that the Parties are unable to prevent a taking notwithstanding their reasonable and appropriate efforts, any Party may take appropriate actions to recover the full value of the interests in the AOC 1 Open Space Area subject to the taking or in lieu purchase, and all direct and incidental damages, costs, and fees occasioned thereby.

(h) **Environmental Covenant.** In the event that New Jersey enacts the Uniform Environmental Covenants Act or its substantial equivalent, the Parties shall address the issue of whether an environmental covenant shall be established for the AOC 1 Open Space Area under the statute. If the Parties are unable to reach agreement on establishment of an environmental

covenant, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of an environmental covenant if it would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(i) **Future Protections.** Any Party shall have the right to propose consideration of additional or substitute protections for the AOC 1 Open Space Area. If the Parties are unable to reach agreement with regard to the proposal, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of additional or substitute protections for the AOC 1 Open Space Area if they would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(j) **Prohibited Development in AOC 1 Open Space Area.** Only development satisfying the requirements of this paragraph and paragraph 60(k) shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(i) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Area regardless of when the construction or installation of permissible development occurs. The Open Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy.

(ii) The Initial Development in the AOC 1 Open Space Area shall be the

development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Area. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii).

(iii) The Special Master shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(iv) Honeywell shall ensure that the requirements of this paragraph and paragraph 60(k) are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy.

(v) Any development undertaken in the AOC 1 Open Space Area, regardless of when undertaken, shall satisfy each of the following requirements:

(1) It shall not jeopardize the integrity of the Chromium Remedy;

(2) It shall be limited to the types of development permitted under paragraph 60(k);

(3) It shall be consistent with this Consent Decree, including the conservation restriction imposed pursuant to paragraph 60(b), and the Redevelopment Plan;

however, in the event of any conflict or inconsistency between this Decree and the Redevelopment Plan, this Decree shall govern;

(4) In total, at least 75% of the AOC 1 Open Space Area, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi);

(5) The portion of the Open Space Design Standards necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy;

(6) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(7) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(8) No permanent concession facilities shall be permitted.

(vi) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c), except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) shall apply, except that the Special Master need not provide notice to NJDEP.

(vii) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant

to paragraph 60(j)(vi) and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii).

(viii) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(ix) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, and paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement).

(x) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(1) Jersey City satisfies the conditions set forth in paragraph 60(a)(iv)(2);

(2) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, and paragraph 60(j)(v); or

(3) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi), and Jersey City provides notice of its intention to alter or add to the

development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of the conservation restriction shall have the right to move the Court to prohibit such alteration or addition.

(xi) If any of the development features or facilities that Jersey City seeks to add pursuant to paragraph 60(j)(x) require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(xii) Jersey City shall provide Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2), to the development undertaken during the Initial Development Period.

(xiii) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy.

(k) **Permissible Development in the AOC 1 Open Space Area.** The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v):

(i) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Area, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(ii) Curbing and fences;

(iii) Sidewalks, paths, walkways, and nature trails;

(iv) Utilities and utility corridors, lighting, and restrooms;

(v) Irrigation or sprinkler components or systems;

(vi) Water features;

(vii) Above-ground storm water cisterns;

(viii) Signs, including the signs or display required by paragraph 60(l);

(ix) Benches, trash receptacles, and bicycle racks;

(x) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(xi) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4).

(l) **Signs or Displays.** Honeywell shall develop a permanent plan for informing visitors to the AOC 1 Open Space Area of the history of the chromium production, contamination, and its remediation. Such plan shall provide for appropriate signs or displays that communicate this information. Such plan shall be subject to review and comment by the Parties and approval by the Special Master.

61. **Honeywell's Ongoing Responsibility.** Honeywell shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy in perpetuity. Honeywell shall satisfy this responsibility through establishment and implementation of a Long-Term Monitoring Plan. In the event that Honeywell ceases to exist without a

successor-in-interest or its obligations under this Consent Decree are stayed or limited due to a bankruptcy petition, the Court shall appoint an independent third-party fiduciary who shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy pursuant to the requirements of this Consent Decree and the Long-Term Monitoring Plan, unless Jersey City volunteers to assume these responsibilities for the Chromium Remedy.

62. **Long-Term Monitoring Plan.** In consultation with the Parties, and subject to approval by the Special Master and NJDEP, Honeywell shall develop a Long-Term Monitoring Plan to ensure the ongoing effectiveness of the Chromium Remedy to meet the objectives set forth in paragraphs 56, 58, and 63. The Long-Term Monitoring Plan shall be consistent with the applicable EPA policies and guidance, including, among others, EPA's Comprehensive Five Year Review Guidance (2001) (or any subsequent revision) and with NJDEP's Technical Requirements for Site Remediation (or any subsequent revision).

63. **Long-Term Monitoring Plan Objectives.** Honeywell shall design the Long-Term Monitoring Plan to satisfy each of the following objectives:

(a) Provide monitoring to ensure that the integrity and effectiveness of the Chromium Remedy are maintained; and

(b) Provide monitoring to ensure that the restrictions of the institutional controls are being satisfied, including the prohibition on development in the AOC 1 Open Space Area.

64. **Monitoring and Remediation Under the Long-Term Monitoring Plan.** The Long-Term Monitoring Plan shall include the monitoring and remediation activities set forth in this paragraph and other monitoring and remediation activities, if necessary, to meet the objectives of paragraph 63. Honeywell shall provide Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP with annual reports on activities conducted under the Long-Term Monitoring Plan.

(a) **Monitoring Activities in the Long-Term Monitoring Plan.** Honeywell shall undertake the following monitoring activities at intervals to be specified in the Long-Term Monitoring Plan, but no less frequently than set forth below, and, if the monitoring shows it is necessary, Honeywell shall also undertake the remediation activities as set forth below:

(i) Quarterly visual inspection monitoring of the AOC 1 Open Space Area to ensure that it is not being put to any use that is inconsistent with paragraphs 60(j) and 60(k) or any use that may compromise the integrity of the Chromium Remedy. The Long-Term Monitoring Plan shall include an inventory of the prohibited and permissible uses pursuant to paragraph 60 and a corresponding checklist to be used by the individuals conducting the monitoring. If Honeywell determines that the AOC 1 Open Space Area is being used in a manner inconsistent with the protections or the integrity and effectiveness of the Chromium Remedy, Honeywell shall act as soon as possible to cause such use to cease and, if there has been damage to the Chromium Remedy, to repair or replace it to original specifications or to a level of protection equivalent to the original Chromium Remedy;

(ii) Quarterly visual inspection monitoring of the AOC 1 Open Space Area grade and slope to identify whether erosion has occurred or is occurring. Honeywell shall remediate any significant erosion.

(iii) Quarterly visual inspection monitoring to determine whether noticeable differential settlement or subsidence has occurred or is occurring in the AOC 1 Open Space Area such that the integrity of the Chromium Remedy may be materially impaired. If evidence of differential settlement or subsidence is found, Honeywell shall propose further investigative measures. Honeywell shall remediate any differential settlement or subsidence that is beyond the degree of differential settlement/subsidence allowed for in the 100% Design

and repair the cap and/or the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(iv) A baseline topographic survey at the completion of the Chromium Remedy and three additional surveys conducted at five-year intervals beginning five years after the conduct of the baseline survey. The topographic survey shall be of sufficient precision and accuracy to present the results as one-foot contours;

(v) Quarterly visual inspection monitoring to determine whether the Chromium Remedy in the AOC 1 Open Space Area has been disturbed. Any evidence of the distinctive warning layer materials or any other cap materials as described in paragraph 56(a) at the surface is an indication that the cap has been disturbed. In such an event, Honeywell shall propose further investigative measures to evaluate whether the integrity of the cap has been compromised. In the event that the investigative measures show that the cap integrity has been compromised, Honeywell shall repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vi) Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy. If evidence of burrowing animals is found, Honeywell shall follow humane removal procedures and repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vii) Quarterly visual inspection monitoring of the vegetative cover in the AOC 1 Open Space Area to ensure that vegetative cover is in conformance with the landscaping provisions of the 100% Design and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy. Maintenance of the vegetative cover shall include, at a

minimum, mowing to ensure that tree species cannot become established and removal of any other vegetation with the potential to damage the Chromium Remedy;

(viii) Quarterly groundwater monitoring to ensure that groundwater levels are maintained in accordance with the requirement to maintain an outward gradient from Study Area 7 and in accordance with the water level control plan developed pursuant to paragraph 58(e);

(ix) Monitoring of vented gases and the gas venting system to ensure proper operation of the system, to evaluate any degradation of the system, to assess the need for treatment of vented gases, either initial, subsequent, or further depending on whether treatment has been previously provided, and to detect any condition that might endanger public health or safety. Such monitoring shall be conducted on a monthly basis for at least one year and, if the readings are stable, such monitoring may be conducted thereafter on a quarterly basis; and

(x) Any additional monitoring as required by specific details added in the design phase of the AOC 1 Open Space Area.

(b) **Procedures for Proposing Changes to the Long-Term Monitoring Plan.** Any Party may, from time to time, propose changes to the scope of the monitoring activities under the Long-Term Monitoring Plan. If the Parties agree, the Long-Monitoring Plan shall be so changed subject to approval by NJDEP and by the Special Master, if his appointment has not terminated, or otherwise, by the Court. If the Parties are unable to reach agreement over alterations to the monitoring and the Special Master's appointment has not terminated under this Consent Decree, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation. In the event that the dispute arises after the Special Master's appointment has terminated, any Party may file a motion seeking a resolution of the dispute by

the Court.

(c) **Contingency Plan.** As part of the Long-Term Monitoring Plan, Honeywell shall develop a contingency plan to ensure the integrity of the remediation in the event of any planned penetration of the cap or otherwise planned activity that compromises the cap or any unplanned event or accident that penetrates the cap or otherwise compromises the integrity of the Chromium Remedy. The contingency plan shall include, at a minimum, an annually updated plan to notify the relevant persons, including the Special Master, NJDEP, and the Parties, of (i) the event penetrating the cap, compromising the cap, or compromising the integrity of the Chromium Remedy; (ii) the general steps to be taken to identify the extent of the problem; and (iii) the standards for remedying the problem.

(d) **Routine Maintenance.** The title owner of the AOC 1 Open Space Area shall conduct maintenance of the AOC 1 Open Space Area features or facilities that are permissible under paragraphs 60(j) and 60(k). The maintenance workers shall be trained in maintenance procedures that do not jeopardize the integrity of the Chromium Remedy. The training shall include the identification and reporting of any uses or features that are not permissible in the AOC 1 Open Space Area or that may jeopardize the integrity of the Chromium Remedy. Honeywell shall provide all training materials. The title owner of AOC 1 Open Space Area shall annually provide to the other Parties and the Special Master a report describing the training which has been provided to its maintenance workers. The title owner of the AOC 1 Open Space Area shall also provide to the Parties and the Special Master notice of any violations of the restrictions relating to the AOC 1 Open Space Area identified by its workers during routine maintenance.

(e) **Recordkeeping.** Honeywell shall maintain written logs or other records of those monitoring and remediation activities undertaken pursuant to the Long-Term Monitoring

Plan. Such logs shall be provided to Riverkeeper and the Jersey City Entities on a quarterly basis.

65. **Monitoring and Reporting to Riverkeeper and Jersey City Entities.** Riverkeeper and Jersey City Entities shall be provided with all documents submitted to NJDEP and/or the Special Master with respect to the Chromium Remedy, including the documents identified in paragraph 72(c).

66. **Notice to Stakeholders.** All residents, regardless of whether they are owners or lessees, and all commercial tenants on Study Areas 6 and 7 are hereby deemed stakeholders. Honeywell shall ensure that all stakeholders shall be provided at the time of their purchase or lease with notice of the contamination, the remedial actions that have been undertaken or are planned, and the importance of reporting activities that may appear to jeopardize the integrity of the engineering controls. Notice shall be accomplished in the following manner:

(a) Bold or otherwise conspicuous language on the first page of the deed provided to all purchasers in the Residential Area;

(b) A summary notice of the Chromium Remedy which:

(i) Has been subject to review and comment by the Parties and approval by the Special Master; and

(ii) Provides a reference to public websites and libraries and/or the future equivalents thereof, where the following can be found:

(1) Zoning and other Jersey City maps showing the AOC 1 Open Space Area; and

(2) Documents describing the contamination and the remediation, including:

(a) This Consent Decree;

(b) The Remedial Investigation Report and the Final Remedial Action Report,

(c) The annual reports on long-term monitoring and maintenance and repair activities as required by paragraph 64 and annual reports on changes to the Initial Development as required by paragraph 60(j)(xii); and

(d) The Long-Term Monitoring Plan.

(c) The provision of the maps and documents referred to in paragraph 66(b)(ii) to the public via websites and libraries and/or the future equivalents thereof; and

(d) Notices to lessees and commercial tenants in all lease documents.

67. **Annual Letter to Riverkeeper and Jersey City Entities on Notice to Stakeholders.** Each year beginning one year after the issuance of the first notice in a deed or lease pursuant to paragraph 66, Honeywell shall provide a letter to the Riverkeeper and the Jersey City Entities documenting its compliance with paragraph 66.

68. **Future Notice to Stakeholders.** Honeywell shall ensure that all stakeholders are provided with notice, at least annually, of long-term monitoring activities and any additional remediation activities undertaken with respect to the Chromium Remedy. Such notice shall be accomplished by notices on websites or future equivalents thereof, including Jersey City websites, any websites created to provide information about the Chromium Remediation or redevelopment of the Redevelopment Area, and one or more of the following:

(a) Any community message board or other similar site used and/or maintained by stakeholders or the manager(s) of the Redevelopment Area;

(b) Mailings to all stakeholders; and

(c) Posters and flyers throughout the Redevelopment Area.

69. **Stakeholder Enforcement.** Any stakeholder shall have the right to enforce the

remedial obligations of this Consent Decree in the Court, including post-implementation monitoring and maintenance obligations, and the terms of any deed notice or use restriction.

C. Oversight and Enforcement by the Special Master and NJDEP

70. **Federal Court Jurisdiction.** The Court shall retain jurisdiction for the purpose of overseeing and enforcing this Consent Decree and to review any issue or dispute which is not resolved through the oversight process described in Article III.C.

71. **Appointment and Jurisdiction of the Special Master.** The Chromium Remedy provided for in this Consent Decree is hereby referred to a Special Master pursuant to Rule 53 of the Federal Rules of Civil Procedure. The Special Master is appointed in the Consolidated Litigation for the purpose of overseeing and enforcing the Chromium Remedy, the first five years of long-term monitoring of the Chromium Remedy, financial assurances for the Chromium Remedy, and the Initial Development Period for each phase of development in the AOC 1 Open Space Area. The Special Master is also appointed in the Consolidated Litigation for the limited purpose of ensuring that the scheduling and implementation of the Historic Fill Remedy, the site preparation activities, and the site redevelopment activities described in the Jersey City/Honeywell Consent Order, Articles II.B, III, and IV, do not undermine the integrity of, unreasonably interfere with, or unnecessarily delay the effectuation of the Chromium Remedy, the Study Area 7 remedies, and other remedies within his jurisdiction as of the date of entry of this Consent Decree. The Special Master shall have jurisdiction over all matters for which he is appointed.

72. **Oversight of the Chromium Remedy.**

(a) **NJDEP Authority.** NJDEP shall retain its full statutory and regulatory authority with respect to the Study Area 6 North site, including (i) permitting authority; (ii) authority to review and approve the Remedial Action Work Plan, 100% Design, and final

Remedial Action Report for the Chromium Remedy; and (iii) authority to issue a no further action letter.

(b) **Special Master Responsibilities.** The Special Master shall have the following responsibilities:

(i) Ensuring that Honeywell's implementation of the Chromium Remedy satisfies the requirements of this Consent Decree;

(ii) Ensuring that Honeywell's implementation of the Chromium Remedy conforms with federal, state, and local permit requirements;

(iii) Establishing a reasonable schedule for the implementation of the Chromium Remedy and monitoring conformance with it;

(iv) Reviewing monthly progress reports and conducting periodic meetings with the Parties to review the progress of the implementation of the Chromium Remedy. NJDEP shall be invited, but not required, to participate in these meetings and the decision as to whether to participate shall be left to NJDEP's sole discretion;

(v) Submitting quarterly progress reports to the Court;

(vi) Overseeing the financial assurances established pursuant to paragraphs 77 through 86, and, until the expiration of his term pursuant to paragraph 76, overseeing the financial assurances established pursuant to paragraphs 87 through 98;

(vii) Coordinating review of the documents as provided in paragraphs 72(c) through 72(f);

(viii) Overseeing all development undertaken in the AOC 1 Open Space Area during the Initial Development Period pursuant to paragraph 60(j)(iii); and

(ix) To the extent that, in matters within the jurisdiction of the Special Master as set forth herein, a dispute arises between the Parties with respect to implementation of the Chromium Remedy, issuing a recommendation to the Court with respect to the dispute.

(c) **Submission of Documents by Honeywell.** Honeywell shall submit the following documents to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP:

(i) An overall schedule with milestones for the design and implementation of the remedy ("Schedule");

(ii) Design drawings and specifications at the 50% level;

(iii) Design drawings and specifications at the 100% level (after selection of the contractor) (hereafter "100% Design");

(iv) The data validation plan, including quality control and quality assurance protocols;

(v) The site-wide master health and safety plan;

(vi) The Long-Term Monitoring Plan;

(vii) The final Remedial Action Report or final construction report (including as-built drawings and such other reports as may be prepared of the remedy as implemented);

(viii) A report reviewing measured groundwater levels for the groundwater remedy;

(ix) Documents required during the Initial Development Period pursuant to paragraphs 60(j)(vi), 60(j)(vii), and 60(j)(viii) ; and

(x) Other post-implementation monitoring reports as required by the Long-Term Monitoring Plan.

(d) **Comment on Submitted Documents.** For each of the documents submitted by Honeywell pursuant to paragraph 72(c), the Special Master shall establish a schedule for the submission of comments and responses to comments. For each of the documents submitted, Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP shall have the right to submit comments to Honeywell. Honeywell shall address all received comments and submit a revised document. The revised document shall be submitted by Honeywell to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP. The revised document shall be subject to review and approval pursuant to paragraph 72(e).

(e) **Review and Approval of the Submitted/Revised Document**

(i) **Scope of Review.** All documents submitted by Honeywell, pursuant to paragraph 72(c) and 72(d), shall be subject to review and approval by the Special Master in accordance with the following procedure. All such documents, except the Schedule and the 100% Design, shall be subject to the review and approval process and shall not require an order of the Court. The Schedule and 100% Design documents shall be subject to the review and approval process, but shall also require an order of the Court as provided in paragraph 72(f). A document shall be approved if the document (1) complies with this Consent Decree; (2) complies with the Remedial Action Work Plan for the Chromium Remedy; and (3) complies with the Schedule and 100% Design.

(ii) **Procedure.** Prior to making a decision on a document, the Special Master shall notify NJDEP of his intention to rule on the document or make a recommendation to the Court on the document. Such notice shall notify NJDEP that the Special Master will consider any comments NJDEP wishes to submit on the document if such comments are submitted within 30 days of NJDEP's receipt of the notice. NJDEP shall in its sole discretion determine whether to submit comments to the Special Master.

(iii) **Court Review.** If any Party objects to the Special Master's recommendation to the Court or approval of any document pursuant to this paragraph, that Party may seek further relief from the Court with respect to the document.

(f) **Schedule and 100% Design Documents.** As to the Schedule and the 100% Design documents, Honeywell shall have the responsibility, within 30 days of the Special Master's approval of each document, of (i) moving for entry of an order by the Court approving the document as approved by the Special Master; or (ii) filing objections with the Court to the Special Master's approval (and any recommendations contained therein) and moving for entry of the Schedule or 100% Design (including any such recommendations of the Special Master to which Honeywell agrees). Riverkeeper and the Jersey City Entities shall have the right in these proceedings to raise any objections they might have to the Schedule or 100% Design as approved by the Special Master or to the submission by Honeywell to the Court. NJDEP shall receive notice of any motion filed with respect to the Schedule or the 100% Design.

(g) **Flexibility in 50% and 100% Design Documents**. The Parties recognize that work conducted to implement the Chromium Remedy may be conducted by Honeywell contractors and that Honeywell may establish performance-based criteria or specifications for its contractors. As a result, the Parties recognize that the 50% Design and 100% Design documents for the Chromium Remedy may include performance-based standards, criteria, and specifications. These documents shall be sufficiently prescriptive to enable the Parties and the Special Master to evaluate their conformance with the Remedial Action Work Plan and this Consent Decree. The Parties also recognize that the 100% Design will be completed after Honeywell has selected a contractor. The Parties further recognize that completing the 100% Design after the selection of the contractor(s) shall not make the 100% Design subject to any less

stringent or more deferential review. Honeywell's commitment to the contractor(s) shall not be cause to limit review by the Parties and the Special Master.

(h) **Changes to the Schedule**. The Parties recognize that changes to individual line items in the Schedule will occur. To the extent that (i) the Parties and the Special Master agree that such changes do not have a material impact on satisfaction of the Schedule milestones established for items set forth in paragraph 54(b); and (ii) such changes do not require modifications to any necessary permits or authorizations for the Chromium Remedy, such changes may be made upon agreement of the Parties and the Special Master without further order of the Court.

73. **Retention of Professionals.** The Special Master may retain the services of professionals and/or other technical personnel, as reasonably needed, to fulfill his obligations under this Consent Decree, and for which he will be reimbursed pursuant to paragraph 75.

74. **Insurance for the Special Master.** The Special Master shall obtain insurance coverage relating to the performance of the Special Master's duties and responsibilities under this Consent Decree. Such coverage shall be similar to the Special Master's existing coverage in *ICO v. Honeywell*, procured pursuant to the Court's November 11, 2005 Stipulation and Order Regarding Special Master's Application to Procure Insurance Coverage, and as extended to the Consolidated Litigation by the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"). The insurance coverage shall be sufficiently extended in duration and scope to cover all additional duties and responsibilities as set forth hereunder. Honeywell shall pay the premiums and other administrative costs of the Special Master's insurance.

75. **Reimbursement of Special Master Fees and Expenses.** The Special Master shall submit fee applications to the Court for approval of reasonable fees and expenses incurred in the

oversight of matters referred to him pursuant to this Consent Decree. Any Party may raise with the Court objections to such fee applications. Upon approval of a fee application by the Court, the reimbursement of the Special Master's fees and expenses shall be made from the escrow fund previously established by Honeywell for the purpose of paying the Special Master's fees and expenses in *ICO v. Honeywell* pursuant to this Court's September 15, 2003 Order Setting Financial Assurances and extended to the Consolidated Litigation by the Sediment Consent Order.

76. **Expiration of Special Master's Appointment.** The Special Master's appointment under this Consent Decree shall expire after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy and the Initial Development Period for each phase of development has been concluded as provided in paragraph 60(j)(ii). However, solely to the extent that the Special Master is still supervising other portions of the Consolidated Litigation or *ICO v. Honeywell* after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy or the Initial Development Period for each phase of development as provided in paragraph 60(j)(ii), whichever is later, the Special Master shall continue to have jurisdiction under this Consent Decree until he has completed his specifically enumerated responsibilities under the Final Judgment in *ICO v. Honeywell*, the Sediment Consent Order, the Deep Groundwater Consent Order, and any other future orders, decrees, or judgments in *ICO v. Honeywell* and the Consolidated Litigation. Enumerated responsibilities under any order, decree, or judgment shall include only those tasks specifically assigned to the Special Master in the order, decree, or judgment. Enumerated responsibilities shall not include any continued jurisdiction exercised over long-term monitoring beyond the initial period specified in the order, decree, or judgment. For example, the Special Master has jurisdiction over the first five years of long-term monitoring under the Sediment Consent Order. Oversight during these five years shall

be an enumerated responsibility, but any continued oversight of long-term monitoring, pursuant to the extension of the Special Master's jurisdiction beyond the first five years, as provided in paragraph 60 of the Sediment Consent Order, shall not be an enumerated responsibility. Such extensions of jurisdiction shall be effective only so long as specific enumerated responsibilities in any order, decree, or judgment have not been fulfilled.

D. Initial Financial Assurances

77. **Chromium Remedy Letter of Credit.** Honeywell shall obtain a one-year, irrevocable letter of credit (the "Chromium Remedy Letter of Credit") to be automatically renewed annually in an amount equal to the "Remedial Costs Subject to Financial Assurance."

(a) Remedial Costs Subject to Financial Assurance shall mean:

(i) The costs of implementing the Chromium Remedy;

(ii) The costs of monitoring and maintenance activities, as required by the Long-Term Monitoring Plan, for five years; and

(iii) A contingency of 25% with respect to those costs listed in paragraphs 77(a)(i) and 77(a)(ii).

(b) The Chromium Remedy Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution, provided that in either case, the financial institution shall be acceptable to the Special Master.

78. **Procedures for Review of the Proposed Chromium Remedy Letter of Credit.** No later than 60 days after entry by the Court of this Consent Decree, Honeywell shall submit to Riverkeeper, Jersey City Entities, and the Special Master for their review the proposed (a) amount of the Chromium Remedy Letter of Credit; (b) form of the Chromium Remedy Letter of Credit; and (c) name of the institution that will issue the Chromium Remedy Letter of Credit. If

Riverkeeper or the Jersey City Entities do not agree to the terms of the Chromium Remedy Letter of Credit, the Parties shall meet and confer in an effort to resolve their differences. If the Parties are unable to reach agreement over the terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the Chromium Remedy Letter of Credit.

79. **Automatic Renewal.** The Chromium Remedy Letter of Credit shall be automatically renewed annually unless (a) no later than 120 days prior to the anniversary of the Chromium Remedy Letter of Credit issue date, the issuer provides notice of nonrenewal or (b) Honeywell seeks a reduction in the Chromium Remedy Letter of Credit, pursuant to paragraph 80, to correspond to the reduced estimate of Remedial Costs Subject to Financial Assurances. If the issuer provides notice of nonrenewal, Honeywell shall obtain a replacement irrevocable Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit. If Honeywell is not otherwise in default as provided in Article III.D, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit within 91 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit. In the event that the Special Master is entitled to draw upon a Chromium Remedy Letter of Credit because there are two Chromium Remedy Letters of Credit currently in place, the Special Master shall not draw an aggregate amount in excess of the highest valued Chromium Remedy Letter of Credit. Upon Honeywell's request, the Special Master may, at his option, decide not to require overlapping letters of credit in any year based on Honeywell's financial strength in that year, provided that Honeywell has submitted all necessary information so that the Special Master can make his determination at least 150 days prior to the expiration of the Chromium Remedy Letter of Credit.

80. **Annual Right to Seek Reduction in Amount of Chromium Remedy Letter of Credit.** Honeywell shall have the right annually to seek a reduction in the Chromium Remedy Letter of Credit. At the time of seeking such reduction, Honeywell shall submit to the Riverkeeper, the Jersey City Entities, and the Special Master an estimate of the remaining Remedial Costs Subject to Financial Assurance, including the contingency as described in paragraph 77(a)(iii), and shall seek adjustment of the Chromium Remedy Letter of Credit so that the total estimated amount of remaining Remedial Costs Subject to Financial Assurance are covered by the Chromium Remedy Letter of Credit. However, the adjustment shall not result in reducing the Chromium Remedy Letter of Credit to an amount below the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), plus a contingency of 25% of the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), and shall not result in reducing the Chromium Remedy Letter of Credit to an amount less than $20,000,000 as expressed in 2008 dollars unless long-term financial assurances are in place pursuant to Article III.E. Before making any request to reduce the amount or modify the terms of the Chromium Remedy Letter of Credit, Honeywell shall first confer with the Riverkeeper and the Jersey City Entities in an effort to reach agreement on the modified amount or terms of the Chromium Remedy Letter of Credit. If the Parties are unable to reach agreement over the modified amount or terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall resolve the dispute. Any Party shall have the right to seek review by the Court of the Special Master's decision regarding the modified amount or terms of the Chromium Remedy Letter of Credit. Upon agreement on the amount of the reduction or modified terms of the Chromium Remedy Letter of Credit (or upon order of the Court directing that the Chromium Remedy Letter of Credit be reduced to an identified amount or otherwise modified), Honeywell shall obtain a replacement Chromium Remedy Letter of Credit in such amount and with such

terms. If Honeywell is not otherwise in default as provided in Article III.D and the issuer of the primary Chromium Remedy Letter of Credit has not provided notice of non-renewal, within 30 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit.

81. **Bankruptcy Protection.** Neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy. The Chromium Remedy Letter of Credit shall contain the language necessary to assure that neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

82. **Exclusive Court Jurisdiction.** The Chromium Remedy Letter of Credit shall recite that the issuer submits to the exclusive jurisdiction of this Court for any and all disputes arising under the Letter of Credit.

83. **Application of New York Law.** The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Chromium Remedy Letter of Credit.

84. **Procedures upon Honeywell's Material Default of Its Obligations.** During the period in which the Special Master has jurisdiction pursuant to paragraph 71, the Chromium Remedy Letter of Credit shall be payable to the Special Master and shall not, prior to its expiration date, be revoked or terminated except consistent with this Consent Decree and with the consent of the Special Master and approval by the Court. The Special Master's ability to draw upon the Chromium Remedy Letter of Credit shall not be limited by any agreement between Honeywell and the issuer. The Special Master may, without further order or notice to

this Court, draw upon the Chromium Remedy Letter of Credit upon the occurrence of default by Honeywell, which shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 79 to deliver a replacement Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 15 days after written notice to Honeywell thereof and either (i) Honeywell, in the opinion of the Special Master without further input from the Parties, shall have failed to cure the breach; (ii) during the 15-day period, the Court has not entered an order to prevent the Special Master from drawing on the Chromium Remedy Letter of Credit; or (iii) the Court or the Special Master has not granted Honeywell additional time to cure the breach;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if involuntary filing has not been dismissed within 60 days; the appointment of a custodian, receiver, liquidator, or trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under paragraph 84(c) above, and the failure of Honeywell to provide assurance to the Special Master, within 15 days after written notice, that such an event will not impair Honeywell's ability to

carry out the terms of this Consent Decree.

85. **Placement of Proceeds in Court Registry Investment System Account.** In the event that the Special Master draws upon the Chromium Remedy Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Chromium Remedy Letter of Credit which represent the remaining estimated Chromium Remedy costs under paragraphs 77(a)(i), plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), in an account with the Court Registry Investment System in accordance with Local Civil Rule 67.1 and not expend the proceeds of the Letter of Credit without further order of this Court. The Special Master shall place all additional proceeds of the Chromium Remedy Letter of Credit in a trust fund pursuant to paragraph 90(b)(v).

86. **Termination of Chromium Remedy Letter of Credit.** The Chromium Remedy Letter of Credit may be withdrawn in its entirety upon the satisfaction of all of the following:

(a) The implementation of the Chromium Remedy; and

(b) Establishment of long-term financial assurance pursuant to Article III.E.

E. Long-Term Financial Assurances

87. **Long-Term Financial Assurances.** Honeywell shall fund long-term financial assurances to ensure that the activities set forth in paragraph 89(a) are carried out regardless of whether Honeywell is financially able to carry out such activities in perpetuity.

88. **Resolution of the Amount of Long-Term Financial Assurances.** The Parties have agreed to the following options with regard to how the long-term financial assurances shall be determined:

(a) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less,

and agree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E.

(b) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, but disagree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E except that the dispute as to the amount of the long-term financial assurances shall be submitted to the Special Master pursuant to paragraph 91.

(c) If the Parties do not agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, or the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is greater than $10,000,000, the Parties shall seek resolution by the Court of the long-term financial assurances issues, including (i) the type of financial assurances to be provided; (ii) the scope of the financial assurances; (iii) the amount of the financial assurances; and (iv) the duration of the financial assurances. In the event that the Parties seek resolution by the Court, the provisions of paragraphs 90 through 98 shall not apply.

(d) Within 60 days of the entry of this Consent Decree, the Parties shall determine which option under this paragraph shall apply. In the event that the Parties determine that paragraph 88(c) applies, Riverkeeper shall initiate the proceedings by moving the Court for the imposition of long-term financial assurances.

(e) If the Parties determine that they are proceeding under paragraph 88(c), Honeywell shall maintain the Chromium Remedy Letter of Credit required by paragraph 77 in an amount equal to at least $20,000,000 in 2008 dollars until such time as the long-term financial assurances ordered by the Court are in place. In the event of any default by Honeywell pursuant

to paragraph 84 while the Chromium Remedy Letter of Credit is in place, the provisions of paragraph 90(b)(v) for the placement of the proceeds that exceed the remaining estimated Chromium Remedy costs under paragraph 77(a)(i) plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), shall apply.

89. **Costs Subject to Long-Term Financial Assurances.**

(a) Long-term financial assurances shall provide enough funds to cover the costs of the following activities:

(i) Perpetual monitoring and maintenance of the Chromium Remedy, including installation, operation and monitoring of any above-cap-grade gas collection and/or treatment system as may be necessary, but such system is not part of the 100% Design;

(ii) Perpetual operation of the shallow groundwater pump-and-treat remedy;

(iii) Perpetual repair of the cap;

(iv) Perpetual replacement of the cap on a 75-year replacement interval; and

(v) In the event that Honeywell selects a trust fund pursuant to paragraph 90(a), the perpetual administration of the trust fund.

(b) The costs that shall be subject to financial assurances is an amount that will provide the full payment for each of the activities set forth in paragraphs 89(a)(i) through 89(a)(v) plus a 25% contingency when the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to be performed. The costs subject to financial assurances are forward looking because they state an amount valued at the time the funds are needed. As such, they shall be stated in contemporary time as the present value (calculated on the basis of a discount rate of 4.75%) of

the estimated future costs of the activities specified in paragraphs 89(a)(i) through 89(a)(v), plus a 25% contingency on those costs.

90. **Long-Term Financial Assurance Mechanisms.** Honeywell shall provide long-term financial assurances in the amount of the costs subject to long-term financial assurances in the form of a trust fund, a letter of credit, or some combination of the two. The selected mechanism(s) shall satisfy the following requirements:

(a) **Trust Fund.** In the event that Honeywell selects a trust fund, Honeywell shall create a trust fund such that it can provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(i) The trust fund shall be at arm's length from Honeywell and shall not be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The trust fund agreement shall contain the language necessary to assure that neither the trust fund nor the earnings of the trust fund shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The trust fund shall be managed by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution managing the trust fund declares bankruptcy, the Court shall withdraw the funds and appoint another financial institution meeting the requirements of this paragraph to manage the trust.

(iii) No more frequently than once per year, Honeywell may apply to the Court for an order directing the trust manager to reimburse Honeywell for any costs that it has incurred to carry out the activities set forth in paragraphs 89(a)(i) through 89(a)(iv).

(b) **Long-Term Letter of Credit.** In the event that Honeywell selects a letter of credit, Honeywell shall obtain a one-year irrevocable letter of credit (the "Long-Term Letter of Credit") to be automatically renewed annually in an amount that provides sufficient funds such that a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a), could be created. The Long-Term Letter of Credit-funded trust, plus any trust fund established under paragraph 90(a), shall provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The amount of any Long-Term Letter of Credit shall therefore be adjusted periodically as the cap replacement interval is approached because, for example, the money needed in the 10th year to fund a trust that can provide for replacement of the cap in the 75th year is much less than the money that would be needed in the 40th year. Such periodic adjustments shall be proposed and approved by the Court in conjunction with the adjustments under paragraph 92.

(i) Neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The Long-Term Letter of Credit shall contain the language necessary to assure that neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The Long-Term Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution issuing the Long-Term Letter of Credit declares bankruptcy, the Court shall authorize the drawing of funds from the Long-Term Letter of Credit

and shall deposit those funds in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(iii) The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Long-Term Letter of Credit.

(iv) The Long-Term Letter of Credit shall be automatically renewed annually, unless, no later than 120 days prior to the anniversary of the Long-Term Letter of Credit issue date, the issuer provides notice of non-renewal. If the issuer provides notice of non-renewal, Honeywell shall obtain a replacement irrevocable Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit. If Honeywell is not otherwise in default as provided in this Article, the Court shall direct the cancellation of the prior Long-Term Letter of Credit within 91 days after delivery to the Court of any replacement of a Long-Term Letter of Credit. In the event that the Court is entitled to draw upon a Long-Term Letter of Credit when there are two Letters of Credit currently in place, the Court shall not draw an aggregate amount in excess of the highest valued Long-Term Letter of Credit.

(v) Prior to the expiration of the Special Master's appointment pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Special Master. During the time the Long-Term Letter of Credit is payable to the Special Master, the Special Master may draw on the Long-Term Letter of Credit as provided in paragraph 84. In the event that the Special Master draws upon the Long-Term Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a). After the Special Master's appointment expires pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Court and, in the event that the Court draws

on the Long-Term Letter of Credit, the Court shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(vi) Whether the Long-Term Letter of Credit is payable to the Special Master or the Court, it shall not, prior to its expiration date, be revoked or terminated by Honeywell except consistent with this Consent Decree and with the approval of the Court. The ability of the Special Master or the Court to draw upon the Long-Term Letter of Credit shall not be limited by any agreement between Honeywell and the issuer.

(vii) In the event that the Long-Term Letter of Credit is drawn upon and invested pursuant to paragraph 90(b)(ii), 90(b)(v) or 95 and Honeywell has also selected a trust fund pursuant to paragraph 90(a), resulting in the existence of two trust funds, the two trust funds shall be managed so as to ensure that the combined amount of the trust funds is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(c) **Combination.** Honeywell may use some combination of a trust fund and a letter of credit to achieve the requirements of this paragraph. However, if a combination is used, Honeywell shall ensure that the combined amount of financial assurances is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The trust fund and the letter of credit shall otherwise satisfy all the requirements of paragraphs 90(a) and 90(b).

91. **Procedures for Review of the Proposed Long-Term Financial Assurances.** In the event that the Parties have determined that they are proceeding pursuant to paragraph 88(a) or 88(b), no later than 120 days after the determination under paragraph 88(d), Honeywell shall submit to Riverkeeper, the Jersey City Entities, and the Special Master, for their review (a) the

amount of the proposed long-term financial assurances; (b) the form(s) of the proposed long-term financial assurance mechanisms; and (c) the name(s) of the institution proposed to manage or issue the long-term financial assurances. If Riverkeeper and the Jersey City Entities agree to the terms of the proposed long-term financial assurances, within 60 days of such agreement, Honeywell shall create a trust fund and/or secure a Long-Term Letter of Credit on those terms. If the Parties are unable to reach agreement over the terms of the long-term financial assurances, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the financial assurances. In any event, until the long-term financial assurances have been put into place, Honeywell shall maintain the Chromium Remedy Letter of Credit and the requirements of paragraphs 88(e) and 90(b)(v) shall apply to the Chromium Remedy Letter of Credit.

92. **Adjustment of Amount Held in Long-Term Financial Assurances.** Every five years as marked from the establishment of the first long-term financial assurances pursuant to paragraph 90, the Parties shall report to the Court whether the long-term financial assurances are adequately funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. At such time as the Parties report to the Court, any Party may seek an adjustment in the amount of the long-term financial assurances. The Party seeking an adjustment must demonstrate that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Such demonstration shall reflect the actual costs of implementing the remedy and/or any replacement of the remedy, once such actual costs are available. The demonstration shall also reflect the costs of work completed to date and the actual lifetime of the cap, once the

cap has been replaced or has passed a replacement interval without requiring replacement. The demonstration shall further reflect the actual performance of the fund and its ability to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Any demonstration shall be forward looking and shall be based upon estimates of what the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to cost at the time they must be performed and the amount of funding projected to be available to undertake such activities at the time they must be performed. If, after reviewing the submission(s) received from the Parties, the Court determines that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary, the Court shall order an adjustment in the amount held in the long-term financial assurances to overcome the shortage or overage. In the event that the Court determines that the long-term financial assurances are under-funded, it shall order Honeywell to increase the amount held in the long-term financial assurances. In the event that the Court determines that any trust fund established pursuant to paragraph 90(a) is over-funded, the Court shall issue an order directing the trust manager to pay the overage to Honeywell. In the event that the Court determines that the Long-Term Letter of Credit is over-funded, the Court shall issue an order permitting Honeywell to reduce the amount covered during the next annual renewal of the Long-Term Letter of Credit pursuant to paragraph 90(b)(iv). Any adjustment to the amount of the Long-Term Letter of Credit pursuant to this paragraph shall be in addition to any adjustment of the amount of the Long-Term Letter of Credit required pursuant to paragraph 90(b).

93. **Exclusive Court Jurisdiction.** The trust fund agreement and/or the Long-Term Letter of Credit shall recite that the trust fund manager and/or issuer of the Long-Term Letter of Credit submit to the exclusive jurisdiction of this Court for any and all disputes arising under the

trust fund or the Long-Term Letter of Credit. The requirements of this paragraph shall apply whether the trust fund is established pursuant to paragraph 90(a), 90(b)(ii), 90(b)(v), or 95.

94. **Procedures upon Honeywell's Material Default of Its Obligations after the Special Master's Appointment Has Expired.** Upon the occurrence of default by Honeywell, after the Special Master's appointment has expired, Riverkeeper or the Jersey City Entities may move the Court on an expedited basis for an order to withdraw funds from the trust fund or to draw on the Long-Term Letter of Credit. Default shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 90(b)(iv) to deliver a replacement Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 30 days after written notice by Riverkeeper or the Jersey City Entities to Honeywell of the alleged material failure, unless Honeywell cures the alleged breach within the 30-day notice period or such longer period as the Parties may agree to or the Court may order;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if the involuntary filing is not dismissed within 60 days; the appointment of a custodian, receiver, liquidator, trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under

paragraph 94(c), if Honeywell fails to provide assurance to Riverkeeper, the Jersey City Entities, and the Court, within 15 days after written notice, that such an event will not impair Honeywell's ability to carry out the terms of this Consent Decree.

95. **Drawing on the Long-Term Letter of Credit in the Event of Honeywell's Default.** If the Court grants any motion by Riverkeeper or the Jersey City Entities pursuant to paragraph 94 to draw on the Long-Term Letter of Credit, the sum approved by the Court's order granting the motion shall be paid from the Long-Term Letter of Credit into a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

96. **Use of the Trust Fund in the Event of Honeywell's Default**. In the event of Honeywell's default, the money in the trust fund established pursuant to paragraph 90(a) shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

97. **Use of a Trust Fund Established Pursuant to Paragraph 85, 90(b)(ii), 90(b)(v), or 95.** In the event that a trust fund is established pursuant to paragraph 85, 90(b)(ii), 90(b)(v), or 95, the money in the trust fund shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

98. **Termination of the Long-Term Financial Assurances.** Honeywell's obligations

under Article III.E shall be terminated and the long-term financial assurance mechanisms shall be terminated when the Court finds that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area or on the Site, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon determining that long-term financial assurances may be terminated, the Court shall order that any Long-Term Letter of Credit may be withdrawn in its entirety and any trust fund may be terminated. In conjunction with its order terminating any trust fund, the Court in its discretion shall designate a recipient(s) of any remaining trust funds.

ARTICLE IV: IMPLEMENTATION SCHEDULE AND TERMINATION

99. **Schedule for Remedy and Site Preparation Implementation Activities.** The Chromium Remedy under Article III and the Historic Fill Remedy under Article II.B of the Jersey City/Honeywell Consent Order and Site Preparation Activities under Article III of the Jersey City/Honeywell Consent Order shall be undertaken by the Parties in accordance with the following anticipated schedule, recognizing that this schedule may be further modified in writing by agreement of the Parties and with the approval of the Court:

(a) By October 1, 2008, the Jersey City Entities and Honeywell shall develop a Site Preparation Plan, pursuant to paragraph 3.2 of the Jersey City/Honeywell Consent Order, for all Site Preparation Activities necessary to undertake the Chromium Remedy;

(b) No later than June 18, 2009, Honeywell shall submit to NJDEP a remedial design document for the Chromium Remedy;

(c) No later than September 1, 2009, Honeywell shall submit all applications for permits and authorizations for the performance of the Chromium Remedy to all appropriate local, state, and federal government entities;

(d) Honeywell shall use its best efforts to complete the Chromium Remedy no later than four years after all appropriate applications and authorizations for the performance of the Chromium Remedy have been obtained;

(e) By May 1, 2008, Honeywell and the Jersey City Entities shall submit a work plan for further Remedial Investigation for AOC 2 to NJDEP; and

(f) By December 1, 2008, Honeywell and the Jersey City Entities shall submit a Remedial Action Selection Report and Remedial Action Workplan for the Historic Fill Remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order. The Workplan shall contain a schedule for implementation of the Historic Fill Remedy.

100. **Termination of this Consent Decree.** This Consent Decree shall terminate upon the withdrawal of any Party as provided for in this paragraph. Any Party may elect to withdraw from this Consent Decree due to the occurrence of one or more of the following events, provided that such Party provides written notice of withdrawal to the other Parties pursuant to paragraph 108:

(a) The Court fails to enter the Jersey City/Honeywell Consent Order or this Consent Decree or either the Jersey City/Honeywell Consent Order or this Consent Decree is determined to be invalid on appeal;

(b) JCRA fails to take those actions required under paragraphs 4.11(a), (b), and (c) of the Jersey City/Honeywell Consent Order within nine months of entry of this Consent Decree; or

(c) JCRA fails to approve a Redevelopment Agreement between Bayfront Redevelopment LLC and JCRA pursuant to paragraph 4.11(e) of the Jersey City/Honeywell Consent Order within 12 months of entry of this Consent Decree.

101. **Procedures for Withdrawal and Termination.** Any Party electing to withdraw pursuant to paragraph 100 and thereby terminate this Consent Decree shall provide written notice of such withdrawal and termination to all other Parties within 30 days of the occurrence giving rise to the decision to withdraw. If any Party objects to termination of the Consent Decree, or believes that the conditions set forth in paragraph 100 have not been met, such objecting Party may move the Court for an expedited hearing on the issue of whether the conditions for termination have been effectuated.

102. **Good-Faith Obligation to Avoid Termination.** The Parties agree that they will each endeavor to fulfill the terms of this Consent Decree, that they will work diligently and in good faith to meet their obligations hereunder, and that they will promptly and timely take all reasonable steps to give effect to this Consent Decree and to avoid termination under paragraph 100.

103. **Effect of Termination.** If this Consent Decree is terminated pursuant to paragraph 100, the Consent Decree shall no longer be binding on the Parties and shall be of no further effect. In the event that this Consent Decree is terminated by one or more Parties pursuant to paragraph 100, each Party to this Consent Decree reserves all of its rights, claims, and defenses (both legal and factual) against the other Parties with respect to the matters at issue in the Consolidated Litigation and each Party remains free to pursue such rights, claims, and defenses.

ARTICLE V: ADDITIONAL PROVISIONS RELATED TO HISTORIC FILL AND SITE PREPARATION AND REDEVELOPMENT

104. **Historic Fill Remedy**. This Consent Decree shall adopt and incorporate the terms of Article II.B of the Jersey City/Honeywell Consent Order with respect to the Historic Fill Remedy. The Historic Fill Remedy shall not be limited to the activities set forth in Article II.B of the Jersey City/Honeywell Consent Order in the event that NJDEP requires a more extensive remedy. The Historic Fill Remedy shall be compatible with the Chromium Remedy such that no

part of the Historic Fill Remedy shall interfere with the installation, maintenance, and monitoring of the Chromium Remedy. In addition, the Historic Fill Remedy for any discharge of non-chromium contaminants to the Hackensack River shall not interfere with the remedies under the Sediment Consent Order, including the source control remedies. In the event that Jersey City conducts the Historic Fill Remedy instead of Honeywell, the terms of this paragraph shall still apply.

105. **Oversight of Historic Fill Remedy**. Paragraph 2.11 of the Jersey City/Honeywell Consent Order shall apply only to the Historic Fill Remedy, not the Chromium Remedy. The Progress Reports provided for in paragraphs 2.12 and 3.7 of the Jersey City/Honeywell Consent Order shall be provided to Riverkeeper and the Special Master at the time they are submitted.

106. **Transfer of Title of Study Areas 6 North and 7 to and from Bayfront Redevelopment LLC**. The transfer of title of Study Area 6 North and Study Area 7 properties to Bayfront Redevelopment LLC pursuant to the Jersey City/Honeywell Consent Order and any subsequent transfers shall not impede Honeywell's obligations to (a) complete the remediation of Study Area 7 and implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or (b) complete the Chromium Remedy and conduct long-term monitoring and fulfill its other obligations set forth in this Consent Decree. Such transfers of Study Areas 6 North and Study Area 7 shall not include a transfer of Honeywell's obligations to implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or a transfer of Honeywell's obligations under this Consent Decree, but shall include a right of access or any other right required by Honeywell to complete the remediation. Any subsequent transfer of Study Area 6 North or Study Area 7 from Bayfront Redevelopment LLC to a redeveloper or other party shall provide all necessary agreements to allow Honeywell all necessary access to Study Area 6 North and Study Area 7 for purposes of completing Honeywell's obligations with respect to Study Area 6 North under this

Consent Decree and completing the Study Area 7 remediation and implementing the Final Judgment and subsequent orders in *ICO v. Honeywell*.

107. **Dispute Resolution Procedures.** The provisions of Article VIII of the Jersey City/Honeywell Consent Order do not apply to any disputes regarding or impacting the Chromium Remedy, which shall be resolved as provided in paragraph 72. The provisions of Article VIII of the Jersey City/Honeywell Consent Order shall apply to disputes between the Jersey City Entities and Honeywell regarding the Historic Fill Remedy and other obligations provided in the Jersey City/Honeywell Consent Order, except to the extent that such disputes may affect the Chromium Remedy. If any such dispute may affect the Chromium Remedy, it shall be resolved as provided in paragraph 72. Honeywell shall provide Riverkeeper with a copy of each notice of any breach provided under paragraph 8.1 of the Jersey City/Honeywell Consent Order within 10 days of Honeywell's receipt or issuance of such notice. Honeywell shall provide Riverkeeper with a copy of any written resolution of a dispute pursuant to paragraph 8.2 within 10 days of the resolution.

ARTICLE XI: NOTICE

108. **Notice.** Any and all notices given in connection with this Consent Decree shall be deemed adequately given only if in writing and addressed to the Party for whom such notices are intended at the addresses set forth in this paragraph. All notices shall be sent by Federal Express or other nationally recognized overnight messenger service or by first-class registered or certified mail, postage prepaid, return receipt requested. A written notice shall be deemed to have been given to the recipient party on the earlier of (a) the date it shall be delivered to the address set forth in this paragraph; (b) the date delivery shall have been refused at the address set forth in this paragraph; or (c) with respect to notices sent by mail, the date as of which the postal service shall have indicated such notice to be undeliverable at the address set forth in this paragraph.

Any and all notices referred to in this Consent Decree, or which any Party desires to give to the other, shall be addressed as follows:

If to Honeywell and/or
Bayfront Redevelopment LLC :

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

If to Riverkeeper:

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th St., N.W.
Washington, DC 20005-4632
(202) 682-2100

With copies to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-4003

If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

If to JCIA:

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

If to JCMUA:

Sam Della Fera Jr.
Trenk, DiPasquale, Webster,
Della Ferra & Sodono, P.C.
347 Mount Pleasant Ave.
West Orange, NJ 07052
(973) 243-8600

If to JCRA:

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Any party may change its designated recipients or addresses for notice in this paragraph by providing written notice of such change to all other Parties.

ARTICLE XII: RIVERKEEPER'S ATTORNEYS' FEES

109. **Payment of Past Fees and Expenses.** Within 30 days of the entry of this Consent Decree, Honeywell shall pay Terris, Pravlik & Millian, LLP the sum of $1,513,217.15 which represents the following:

(a) A compromise of the attorneys' fees incurred by Riverkeeper in the litigation of Study Area 6 North portion of *Riverkeeper v. Honeywell* through March 27, 2008; and

(b) $187,862.27 in out-of-pocket expenses representing 50% of the expenses incurred by Riverkeeper in *Riverkeeper v. Honeywell* from the inception of the litigation after deducting the expenses to be paid pursuant to the Sediment Consent Order.

Payment of the sum of $1,513,217.15 shall be in full satisfaction of all obligations, duties, and responsibilities of Honeywell with respect to the $1,556,747.46 in fees and expenses that Riverkeeper claimed with regard to the above described fees and expenses.

110. **Future Fees and Expenses.** Honeywell shall reimburse Riverkeeper's attorneys for reasonable fees and expenses incurred: (a) in negotiating this Consent Decree after March 27, 2008; (b) in the monitoring and enforcement of this Consent Decree; and (c) in participation in the Special Master process established pursuant to this Consent Decree. Honeywell shall also reimburse Riverkeeper for reasonable attorneys' fees and expenses for Riverkeeper's review of and participation in the Long-Term Monitoring Plan and monitoring and enforcement of this Consent Decree following the term of the Special Master. In the event that any dispute arises between the Parties under this Consent Decree that must be resolved by the Court, Riverkeeper shall be entitled to recover its attorneys' fees and expenses for litigation of the dispute to the extent allowed by federal law. Riverkeeper and Honeywell shall use the same informal procedure for attempting to settle fees issues as has been used for post-judgment monitoring fees in *ICO v. Honeywell*. In the event that Riverkeeper and Honeywell are unable to reach a

settlement on fees, Riverkeeper shall apply to the Court for an award of attorneys' fees and expenses. If Honeywell objects to only a portion of the Riverkeeper's statement of attorneys' fees and expenses, Honeywell shall pay the undisputed portion within 60 days of Riverkeeper's submittal of the statement to Honeywell. The Court shall resolve any objections to Riverkeeper's statement of attorneys' fees and expenses and shall enter an appropriate Order.

ARTICLE XIII: MISCELLANEOUS PROVISIONS

111. **Force Majeure.** Force Majeure, for the purposes of this Consent Decree, is defined as an event arising from causes beyond the control of any Party or Parties (or their agents, contractors, subcontractors, representatives, or assigns) which could not have been overcome by reasonable diligence and which delays or prevents the performance of any obligation under this Consent Decree. Examples of events which may constitute force majeure include the refusal of any federal or state governmental authority to grant a permit or authorization necessary for the completion of actions required by this Consent Decree, floods, hurricanes, tornadoes, and other extraordinary weather events, earthquakes and other natural disasters, terrorist attacks, war, and other national emergencies. Examples of events that are not force majeure events include normal inclement weather, increased costs or expense, the failure to timely and fully apply for a permit or authorization necessary for the completion of actions required by this Consent Decree, or financial difficulty of any Party. The Party claiming force majeure shall bear the burden of showing an event was a force majeure event.

112. **JCRA and Bayfront Redevelopment LLC as Parties.** As signatories to this Consent Decree, JCRA and Bayfront Redevelopment LLC subject themselves to the Court's jurisdiction for the purpose of enforcing this Consent Decree and agree to be bound by this Consent Decree. This Consent Decree shall be fully enforceable against JCRA and Bayfront Redevelopment LLC.

113. **Successors and Assigns.** This Consent Decree shall be binding upon and shall inure to the benefit of the successors, assigns, heirs, corporate parents, subsidiaries, and affiliates of each Party. No assignment or delegation of the obligations hereunder shall release the assigning Party from its obligations under this Consent Decree.

114. **Successors to Hackensack Riverkeeper, Inc.** In the event that Hackensack Riverkeeper, Inc. disbands or otherwise ceases operations, it shall assign its rights under this Consent Decree to another qualified nonprofit organization. A nonprofit organization shall be qualified for assignment under this Consent Decree if it is a charitable organization under Section 501(c)(3) of the Internal Revenue Code or its substantial equivalent and has an established record of working to enhance or preserve the ecology, natural habitat, or environment. Any such assignment shall be subject to approval by the Court and Honeywell shall have the right to object to any proposed assignment. Any successor organization shall have the duty to assign its rights under this Consent Decree to another qualified nonprofit organization in the event that the successor disbands or otherwise ceases operations. In the event that a successor is not appointed at any given time, the New Jersey Attorney General or equivalent officer shall appoint a successor subject to approval by the Court and objection by Honeywell.

115. **Reservation of Rights and Claims**. Except as set forth expressly herein, this Consent Decree does not affect in any way any of the Parties' claims or defenses against third parties who have not signed the Consent Decree.

116. **Governing Law and Continuing Jurisdiction.** The Court shall retain jurisdiction over the matters addressed in this Consent Decree for purposes of enabling the Parties to apply to the Court for any further order as may be necessary to construe, carry out, or enforce the terms of this Consent Decree. This Consent Decree shall be interpreted and enforced under the laws of

the United States and the State of New Jersey by the United States District Court for the District of New Jersey.

117. **Construction.** Questions regarding the interpretation of this Consent Decree shall not be resolved against any Party on the ground that this Consent Decree has been drafted by that Party. This Consent Decree is the result of review, negotiation, and compromise by each Party.

118. **Authority to Enter into Agreement.** The undersigned representative for each Party represents, certifies, and warrants that he or she is duly authorized by the Party whom he or she represents to enter into the terms of this Consent Decree and bind such Party legally to this Consent Decree.

119. **Measures to Effectuate This Consent Decree.** The Jersey City Entities and JCRA shall take all appropriate steps to ensure that this Consent Decree has been (and that actions required hereunder will be) duly considered, ratified, and approved. Such steps include consideration of this Consent Decree at a meeting of the City Council, open to the public, at which members of the public have the opportunity to comment on all aspects of the Settlement, including the commitments made by Jersey City; and consideration by and approval of the commissioners of the JCIA, JCMUA, and JCRA.

120. **Modifications.** This Consent Decree may be modified by mutual agreement of the Parties but such agreement must be in writing, duly and properly signed by all Parties, and shall be submitted to the Court for approval.

121. **Severability.** Each of the provisions in paragraph 60 of this Consent Decree shall be deemed severable and, in the event that one or more of such provisions is deemed invalid or unenforceable, it shall not affect the validity or enforceability of the other provisions of the Consent Decree.

122. **Signatures.** This Consent Decree may be signed simultaneously or in counterparts by the respective signatories, which shall be as fully valid and binding as if a single document was signed by all of the signatories. This Consent Decree may be signed electronically by any or all signatories, and such electronic signature shall be as fully valid and binding as a hand-written signature.

Consented to and approved for entry:

s/Aurelio Vincitore

William Matsikoudis
Aurelio Vincitore
Corporation Counsel
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Jersey City, NY 07305
(201) 547-4667

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1121 12th Street N.W.
Washington, DC 20005-4632
(202) 682-2100

Counsel for the Hackensack Riverkeeper, William Sheehan, Reverend Winston Clarke, and Lawrence Baker

APPROVED AND ENTERED as an Order of this Court this ___ day of _____, 2012.

_____
Hon. Dennis M. Cavanaugh
United States District Judge

EXHIBITS

Exhibit A: Jersey City/Honeywell Consent Order

Exhibit B: Remedial AOC's and Remedial Approach Map

Exhibit C: NJDEP Chromium Policy

Exhibit D: Conservation Restriction

Exhibit E: Deed Notice

DRAFT DEED NOTICE

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Jersey City Municipal Utilities Authority]

Recorded by:

_____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE CONCERNING CONTROLS INSTALLED FOR CHROMIUM CONTAMINATION UNDERLYING THE PROPERTY

This Deed Notice is made as of the __ day of _____, 2017, by ***Jersey City Municipal Utilities Authority (JCMUA) whose mailing address is 555 NJ Route 440, Jersey City, NJ 07304***. Owner shall mean JCMUA, together with its successors and assigns, including all successors in interest in the Property which is the subject of this Deed Notice as described fully below.

1. THE PROPERTY. JCMUA is the current owner in fee simple of certain real property designated as a portion of ***Block 21901, Lot 10 on the tax map of the City of Jersey City, Hudson County, New Jersey***[1]. The New Jersey Department of Environmental Protection (NJDEP) Program Interest Number for the contaminated site which includes this property is ***Hudson County Chromate Site No. 087 PI # G000008710*** [NJDEP PI# for non-chromium-related contaminants at the Property is #745719]. The Property is also part of the as Site 087 pursuant to the First Amended Consent Decree Regarding the Remediation and Redevelopment of Study Area 6 North ("Consent Decree") which is attached hereto and is entered as an order of the Court in the following consolidated actions *JCMUA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-05955; *JCIA v. Honeywell International, Inc.*, D.N.J., Civ. No. 05-5993; and *Hackensack Riverkeeper, Inc. v. Honeywell International, Inc.*, D.N.J., Civ. No. 06-22. The Consent Decree

[1] All references to Block 21901 Lot 10 in this Deed Notice shall mean those portions of Block 21901 Lot 10 regardless of whether the word "portion(s)" is specifically called out or not.

restricts transfer, use and development of the Property. To the extent that there is any conflict or inconsistency between the terms of this Deed Notice and the terms of the Consent Decree, the Consent Decree shall govern.

2. REMEDIATION.

i. The Department's Bureau of State Case Management (BCM) is the entity within the Department that is responsible for the oversight of the remediation of the SA-6 North. The matter is Case No. Hudson County Chromate Site No. 087 PI# G000008710. The Department has approved this Deed Notice as an institutional control for the Property, which is part of the remediation of the Property.

ii. N.J.A.C. 7:26-C-7 requires the Owner, among other persons, to obtain a soil remedial action permit for the soil remedial action at the Property. That permit will contain the monitoring, maintenance and biennial certification requirements that apply to the Property.

3. SOIL AND GROUNDWATER CONTAMINATION. Honeywell International Inc. ("Honeywell") a corporation of the State of Delaware, licensed to do business in the State of New Jersey whose post office address is 115 Tabor Road, Morris Plains, New Jersey 07950, has remediated the Property to address chromium-related soil and shallow groundwater contamination. The Remedial Action Work Plan (RAWP) was approved by the Department on February 19, 2009 for Hudson County Chromate Site Nos. 087 and 088, which included portions of the Property. Remedial actions were further approved pursuant to the Consent Decree. Under both the Consent Decree and the RAWP soil contamination remains in the Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Property.

Deed Notice #10 encompasses the In-situ Treatment Area 7 (TA-7), an area where a limited amount of shallow soils exceed 20 milligrams per kilogram (mg/kg) for hexavalent chromium. This deed notice area includes chromium only. This area consists of aboveground storage tanks connected by underground piping to a pump island with fuel-dispensing cabinets/pumps which JCMUA uses to fuel vehicles. To prevent disruption to the JCMUA fueling system and due to the depth of chromium-impacted soil and the proximity of the nearby 72-inch forcemain, in-situ treatment was implemented in this area in lieu of excavation. The in-situ treatment implemented reduced the chromium-impacted soils to below 20 mg/kg for hexavalent chromium throughout the area except for at one recalcitrant area with a size of approximately 560 square foot area. As part of facility upgrades, JCMUA plans on relocating their fueling system. Once they do, the limited area where hexavalent chromium soil remains >20 mg/kg will be excavated and the deed notice terminated. This area will not be impacted by Open Space Development.

The soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result of the contamination, there is a statutory requirement for this Deed Notice and engineering controls in accordance with N.J.S.A. 58:10B-13. Under the terms of the Consent Decree and this Deed Notice, Honeywell is responsible for monitoring and maintaining the soil remediation for the Property in perpetuity or until remediation is implemented that renders this Deed Notice unnecessary.

4. CONSIDERATION. In accordance with the Department's approval of the chromium RAWP for the remediation for the Hudson County Chromate Site Nos. 087 and 088 which includes the Property, and in consideration of the terms and conditions of that approval, and in accordance with the Consent Decree, and other good and valuable considerations, Owner has agreed to subject the Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of these contaminants, Owner has agreed, as part of the remedial action for the Property, to restrict the use of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

5B. RESTRICTED LAND USES. The following statutory land use restrictions apply to the Restricted Areas:

i. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(10), prohibits the conversion of a contaminated site, remediated to non-residential soil remediation standards that require the maintenance of engineering or institutional controls, to a child care facility, or public, private, or charter school without the Department's prior written approval, unless a presumptive remedy is implemented; and

ii. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12.g(12), prohibits the conversion of a landfill, with gas venting systems and or leachate collection systems, to a single family residence or a child care facility without the Department's prior written approval.

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property. A narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C. Honeywell shall be responsible for monitoring and maintenance of engineering controls and biennial certification requirements as specified in Paragraphs 8A and 8B.

5D. LONG TERM MONITORING PLAN. Honeywell has prepared a Long Term Monitoring Plan (LTMP) which sets forth requirements for monitoring of the chromium remedial measures including engineering controls within the Property and shallow groundwater, and requirements for notification and reporting pursuant to the Consent Decree, Deed Notice and Soil Remedial Action Permit. A copy of the LTMP is maintained by Honeywell at 115 Mount Tabor Road, Morris Plains, NJ 07950. This Deed Notice is appended to the LTMP.

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person of whom it has knowledge, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of known contamination in the Restricted Areas, and, of the precautions necessary to protect the engineering controls and minimize potential human exposure to contaminants.

ii. Except as provided in the Consent Decree and Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property except as (a) permitted in the Consent Decree and (b) without first obtaining the express written consent of the Department. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

iii. Notwithstanding subparagraph 7A.ii., above, a Soil Remedial Action Permit modification is not required for any alteration, improvement, or disturbance provided that:

(A) Takes such action in conformance with the Consent Decree; and

(B) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance; and

(C) Notifies Honeywell of the activity by calling 855-727-2658; and

(D) Honeywell and/or the owner, lessee or operator restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance; and

(E) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration; and

(F) Ensures that human exposure to contamination in excess of the applicable remediation standards does not occur; and

(G) The next biennial certification includes a description of the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Immediately notifies Honeywell of the emergency by calling 855-727-2658;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

vi. Notifies Honeywell when the emergency has ended by calling 855-727-2658; and

vii. Honeywell restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within sixty (60) calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent recurrence of such conditions in the future. Honeywell shall submit the report to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

8A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the persons responsible for conducting the remediation, Honeywell, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. Honeywell shall certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and

consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

8B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. Honeywell shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implementing any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C-1.2 (a)1, every two years on the anniversary of the date stamped on the Deed Notice that indicates when the Deed Notice was recorded.

9. ACCESS. The Owner agrees to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the persons responsible for monitoring the protectiveness of the remedial action, as described in Paragraph 8, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. NOTICES.

i. Owner shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner shall notify any person intending to conduct invasive work or excavate within the Property on its behalf of the nature and location of contamination and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. Owner shall provide written notice to the Department of Environmental Protection at least thirty (30) calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area. Any such conveyance, grant or gift must be consistent with the terms of the Consent Decree.

iv. Owner shall provide written notice to the Department within thirty (30) calendar days following the Owner's receiving notice of any petition for a rezoning of the Property. Any such rezoning must be consistent with the terms of the Consent Decree. The Owner shall submit the written notice to:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413.

11. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this Property.

ii. The restrictions provided herein may be enforceable by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

12. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as if the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. Any person seeking a modification or termination of this Deed Notice must also have such modification approved by the United States District Court for the District of New Jersey pursuant to the Consent Decree until such time as the Consent Decree terminates with regard to the Property pursuant to the Consent Decree.

iv. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the Hudson County Register, New Jersey, expressly modifying or terminating this Deed Notice.

v. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

14A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property;

ii. Exhibit A-2: Metes and Bounds Description - A metes and bounds description of the Property, including reference to tax lot and block numbers for the Property and a Tax Map;

iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; the map(s) shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B-1: Restricted Area Map - Maps for the Property that include, as applicable:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, ground water monitoring wells, and ground water pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and/or sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described below.

ii. Exhibit B-2 (Table B-2): Restricted Area Data Tables - Table for the Property that includes:

(A) Sample location designation from Restricted Area maps (Exhibit B-1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E-4.6, Table 4-2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls and engineering controls as follows:

i. Exhibit C-1A through C-1C. Exhibit C-1-A: Deed Notice as Institutional Control; Exhibit C-1-B: Consent Decree as Institutional Control; and Exhibit C-1C Zoning as Institutional Control: Exhibit C-1 includes a narrative description of the restrictions and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:
(1) Description and estimated size of the Restricted Areas as described above;
(2) Description of the restrictions on the Property by operation of this Deed Notice and the other Institutional Controls; and
(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:
(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;
(2) There have been any land use changes subsequent to the filing of this Deed Notice and the other Institutional Controls or the most recent biennial certification, whichever is more recent;
(3) The current land use on the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls;
(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the Property; and
(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice and the other Institutional Controls, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of

the remedial action that includes this Deed Notice and the other Institutional Controls;
(2) Land use at the Property is consistent with the restrictions in this Deed Notice and the other Institutional Controls; and
(3) The remedial action that includes this Deed Notice and the other Institutional Controls continues to be protective of the public health and safety and of the environment.

ii. Exhibit C-2. Exhibit C-2: Engineering Controls: Asphalt Cover;

Exhibit C-2 includes a narrative description of the engineering controls as follows:

(A) General Description of the engineering control:
(1) Description of the engineering control;
(2) The objective of the engineering control; and
(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:
(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;
(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
(4) The engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering control; and
(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:
(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;
(2) The engineering control continues to operate as designed; and
(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 2016,2017, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20162017

_____, Notary Public

_____
[Print name and title]

16. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By_____

_____ _____
[Print name and title] [Signature]

STATE OF NEW JERSEY SS.:
COUNTY OF HUDSON

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

_____
[Signature]

_____
[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

_____
[Print name and title]

EXHIBIT A
Deed Notice #10 SA-6 North TA-7

A-1 Vicinity Map

A-2 Metes and Bounds Description and Tax Map

A-3 Property Map Portions of Block 21901, Lot 10, City of Jersey City, New Jersey

Exhibit A-1 Vicinity Map consists of a road map for the vicinity of the Property.

Exhibit A-2 consists of metes and bounds and a tax map for the Property.

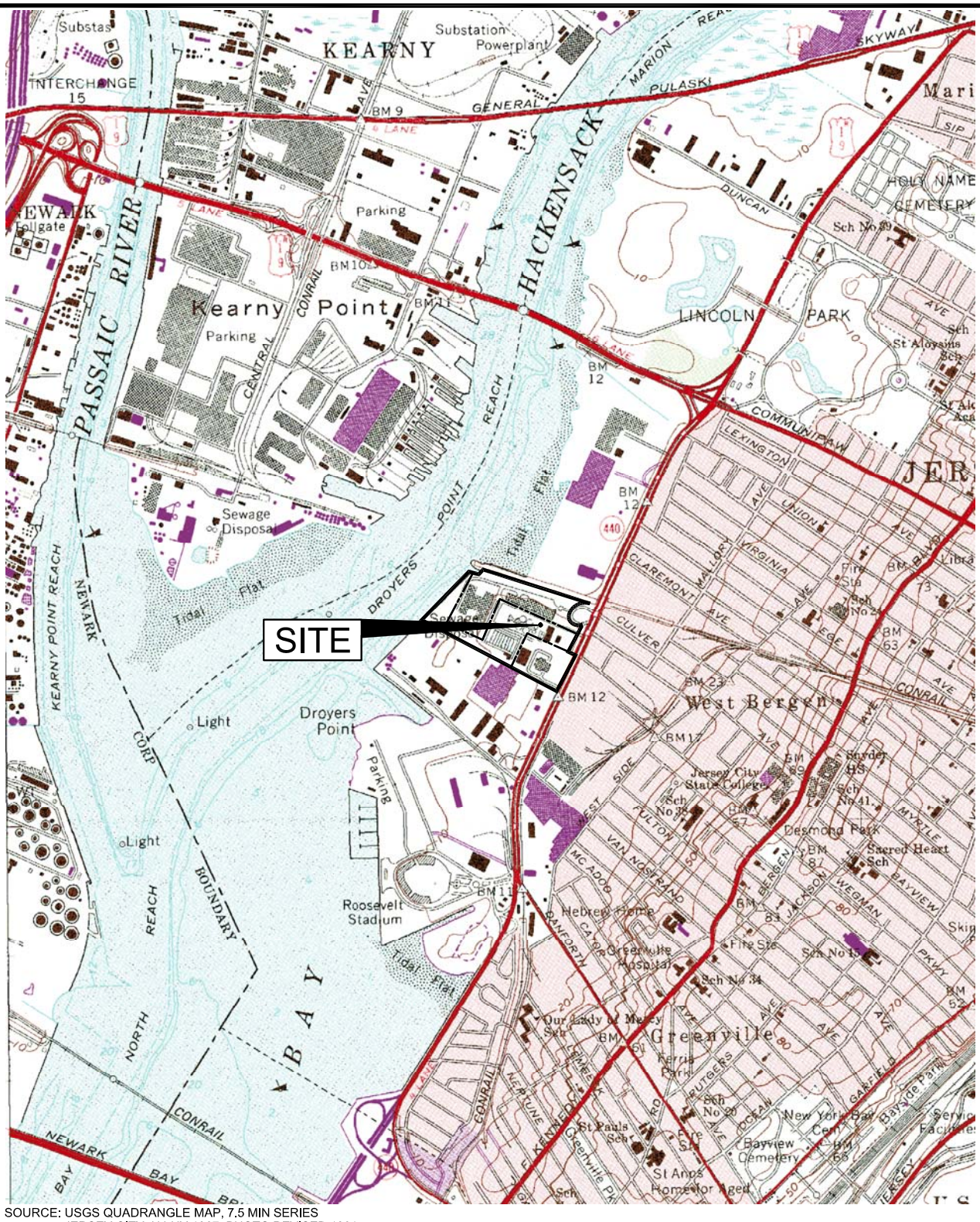
Exhibit A-3 Property Map consists of a figure indicating major surface features and engineering control for the Property.

Exhibit A-1
Site Vicinity Map
Jersey City, New Jersey

EXHIBIT A-1
SITE VICINITY MAP
PORTIONS OF STUDY AREA 6 NORTH SITE 087
JERSEY CITY, NEW JERSEY

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 10\3480150487-6100-A110-0000.dwg Wed, 01 Feb 2017 - 1:33pm vandana.muddu



SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

RESTRICTED AREA

0 1000 2000 4000
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150483 *DRAWING:* 3480150487-6100-A110-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE, Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-1
VICINITY MAP
BLOCK 21901, LOT 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #10

Exhibit A-2
Deed Notice #10 SA-6 North TA-7

Metes and Bounds Description of Property: See Attached
Tax Map: See Attached

A-2 Metes and Bounds Description of Property Portions of Block 21901, Lot 10
City of Jersey City, New Jersey

If there is any discrepancy between the Metes and Bounds and the tax map; the Metes and Bounds prevails.

The Property is identified as a portion of Block 21901, Lot 10 on the City of Jersey City tax maps, the Property being presently owned by JCMUA. A copy of the current tax map showing the TA-7 Property is included as Exhibit A-2.

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners • Surveyors • Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 • Fax: 732.383.1984

DESCRIPTION OF PROPERTY
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY
PROJECT NO. 10000292R

DEED NOTICE AREA 10
LOT 10 BLOCK 21901
OCTOBER 13, 2016

All that certain lot, tract or parcel of land situate lying and being in the City of Jersey, in the County of Hudson and State of New Jersey, and being a portion of Lot 10 in Block 21901, designated as Deed Notice Area 10 as shown on an exhibit entitled, "Deed Notice Area 10, SA6 North, Block 21901 Lot 10, City of Jersey City, Hudson County, New Jersey," prepared by Maser Consulting P.A., dated October 12, 2016 and being more particularly bounded and described as follows, to wit:

COMMENCING at the intersection of the division line between Lots 9 and 10 in Block 21901 with the northwesterly line of Lot 4 in Block 21901, as shown on the aforesaid exhibit; thence-

A. **S 24° 46'55" W, 49.08 feet**, along said northwesterly line to the intersection of the same with the northerly line of proposed Block 6; thence-

B. **N 67° 01'59" E, 567.84 feet**, along said northerly line; thence-

C. **S 22° 52' 09" W, 1.33 feet**, running through said proposed Block 6 to the True Point of **BEGINNING**, and running; thence-

Continuing through said proposed Block 6 the following four (4) courses:

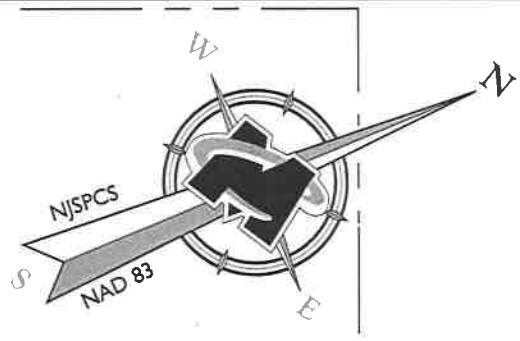
1. **S 40° 08' 40" E, 25.46 feet**; thence-
2. **S 48° 14' 31" W, 22.69 feet,** thence -
3. **N 44° 42' 54" W, 21.93 feet,** thence –
4. **N 39° 59' 38" E, 24.79 feet,** to the Point and Place of **BEGINNING.**

CONTAINING: 559 S.F. of land more or less or 0.013 acre of land more or less.

10/13/16

GLEN J. LLOYD, P.L.S. — DATE SIGNED
NEW JERSEY PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER GS037598

\\HQFAS1\General\Projects\2010\10000292R\Survey\Description\Metes & Bounds-Deed Notice 10.docx



BLOCK 21901
LOT 10

DEED NOTICE AREA 10
(HATCH AREA)
AREA=559± S.F.
0.013 Ac.

POINT OF BEGINNING

S 22°52'09" W
1.33'
(TIE)

BLOCK LIMIT LINE

L1
L2
L3
L4

DEED NOTICE 10 LINE TABLE		
SEGMENT	DIRECTION	LENGTH
L1	S 40° 08' 40" E	25.46'
L2	S 48° 14' 31" W	22.69'
L3	N 44° 42' 54" W	21.93'
L4	N 39° 59' 38" E	24.79'

BLOCK 21901
LOT 1

PROPOSED
BLOCK 6

N 67°01'59" W 567.84' (TIE)

NEW BLOCK LIMIT LINE

BLOCK 21901
LOT 5

BLOCK LIMIT LINE

BLOCK LIMIT LINE

BLOCK 21901
LOT 4
N/F PAUL TRENK

S 24°46'55" W
49.08' (TIE)

CULVER
CIRCLE

CENTERLINE

61'

NEW JERSEY STATE HIGHWAY ROUTE 440
(112' WIDE R.O.W.)

51'

CULVER AVENUE

100 80 60 40 20 0 50 100 200

SCALE : 1" = 100'

MASER CONSULTING P.A.
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REV	DATE	DRAWN BY	DESCRIPTION
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

DEED NOTICE AREA 10 SA6
NORTH

BLOCK 21901
LOT 10

CITY OF JERSEY CITY
HUDSON COUNTY
NEW JERSEY

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	10/07/16	KAN	GJL
PROJECT NUMBER:	DRAWING NAME:		
10000292Q	V-EXBT-DN-10		

SHEET TITLE:
DEED NOTICE EXHIBIT

SHEET NUMBER:
1 of 1

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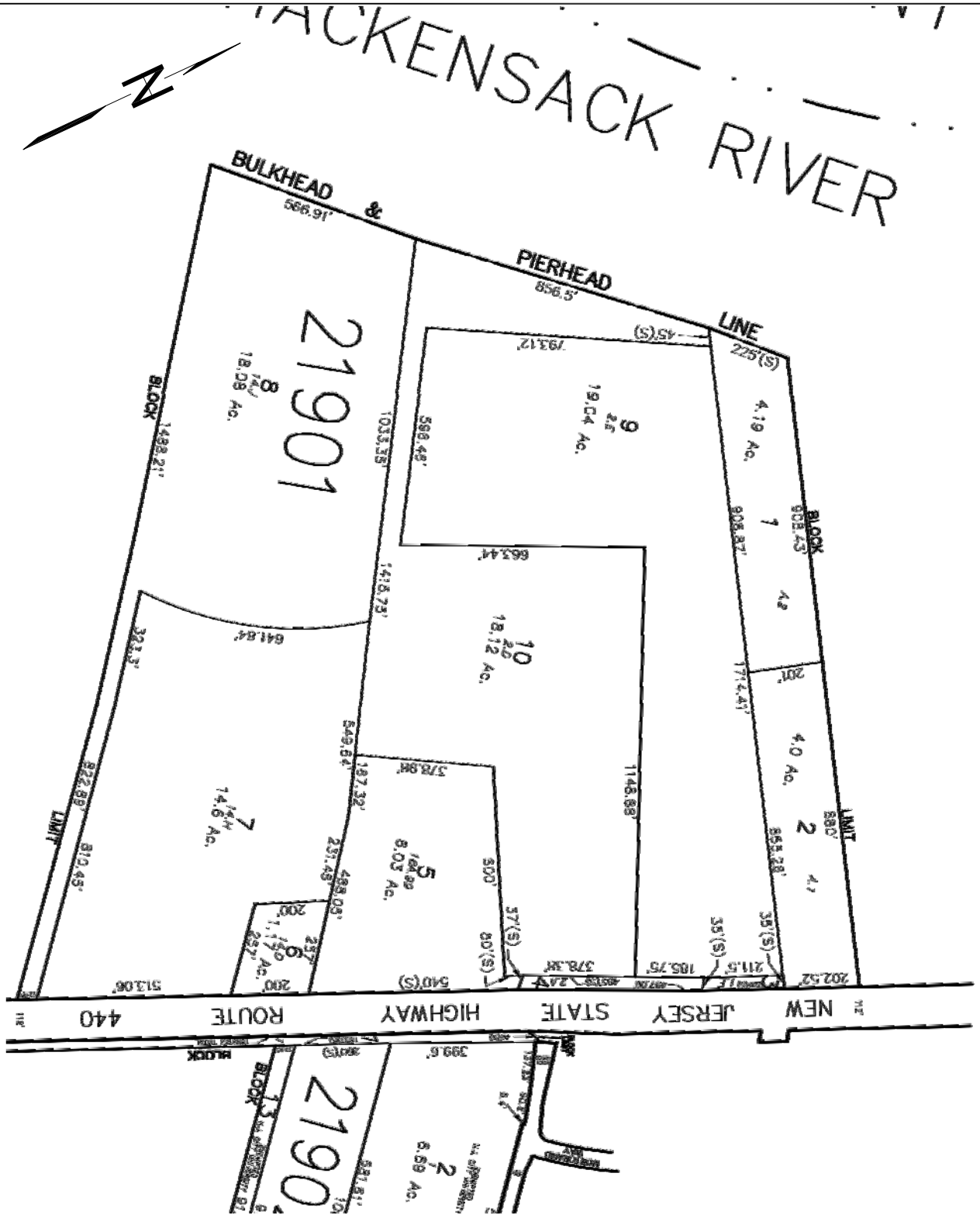
W:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 10\3480150487-6100-A210-0000.dwg Wed, 01 Feb 2017 - 1:46pm vandona.muddu



SOURCE:
DRAWING TITLED: "TAX MAP CITY OF JERSEY CITY", PREPARED BY T&M ASSOCIATED, MIDDLETOWN TWP., NJ SHEET 219, DATED AUGUST, 2006; NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF TAXATION PROPERTY ADMINISTRATION DATED MAY 8, 2009 SERIAL NO.: 934.

0 150 300 600
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A210-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	

EXHIBIT A-2
TAX MAP
BLOCK 21901, LOT 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #10

Exhibit A-3
Property Map

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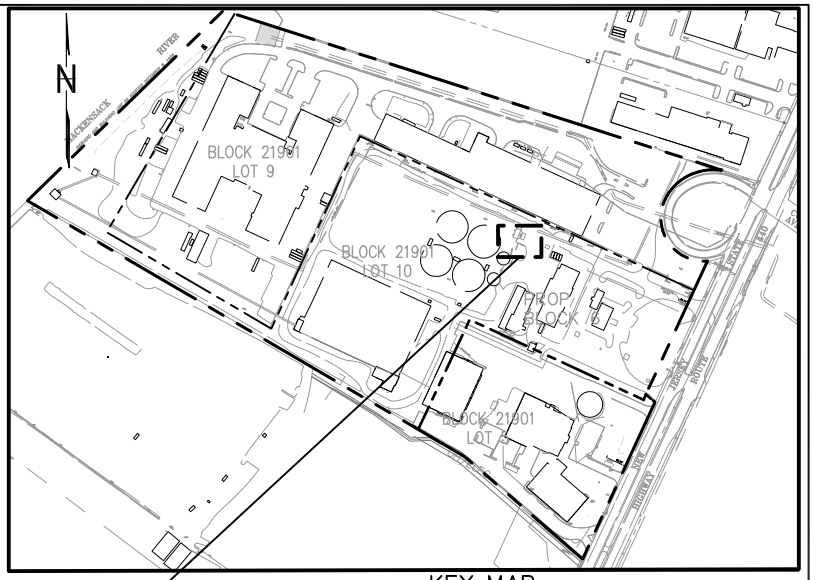
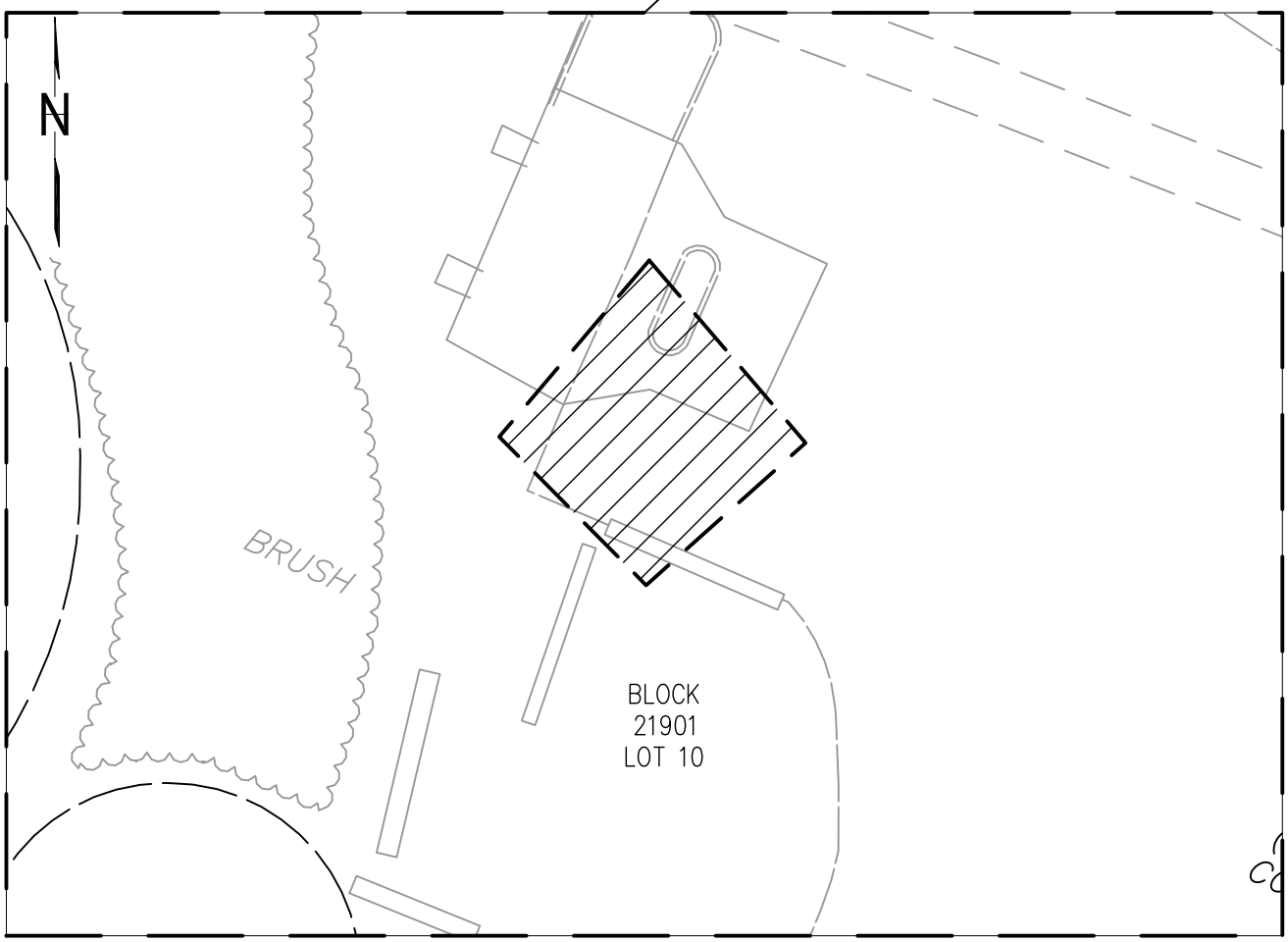
LEGEND

PROPERTY BOUNDARY

RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

0 10 20 40
SCALE IN FEET

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487-6100-A310-0000	
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

EXHIBIT A-3
PROPERTY AREA MAP
BLOCK 21901, LOT 10
SA-6 NORTH
JERSEY CITY, NEW JERSEY
DEED NOTICE #10

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EXHIBIT B
Deed Notice #10 SA-6 North TA-7

B-1 Restricted Area Map
B-2 Restricted Area Data Table
Portions of Block 21901, Lot 10
City of Jersey City, New Jersey

Exhibit B-1 Restricted Area Map includes Exhibit B-1 (Restricted Area and Soil Sample Locations).

Exhibit B-2 is a Restricted Area Data Table indicating soil sample locations with concentrations remaining above the NJDEP Chromium Policy.

Restricted Area Map Notes:

Exhibit B-1 indicates engineering controls chromium remedy components. For soils with hexavalent chromium concentrations above 20 mg/kg, the engineering control consists of 2 feet of clean soil and an asphalt/concrete cap.

Exhibit B-1
Restricted Area Map

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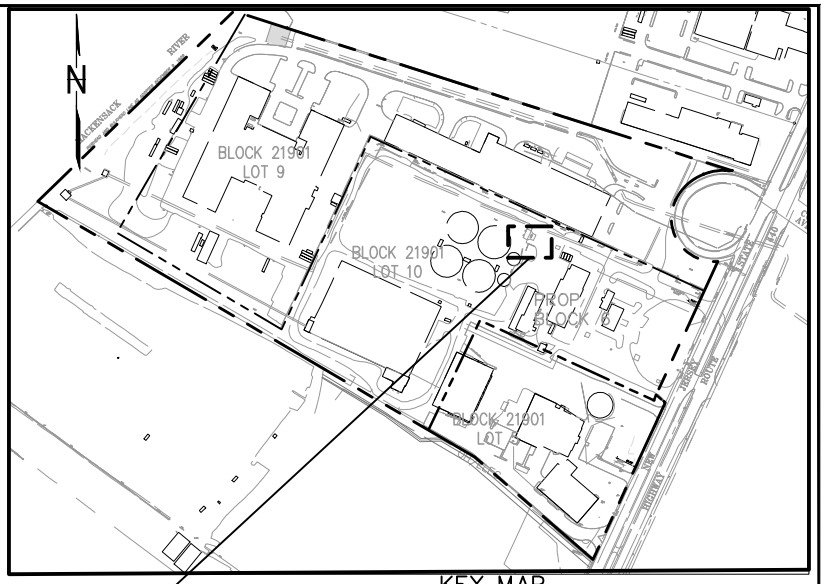
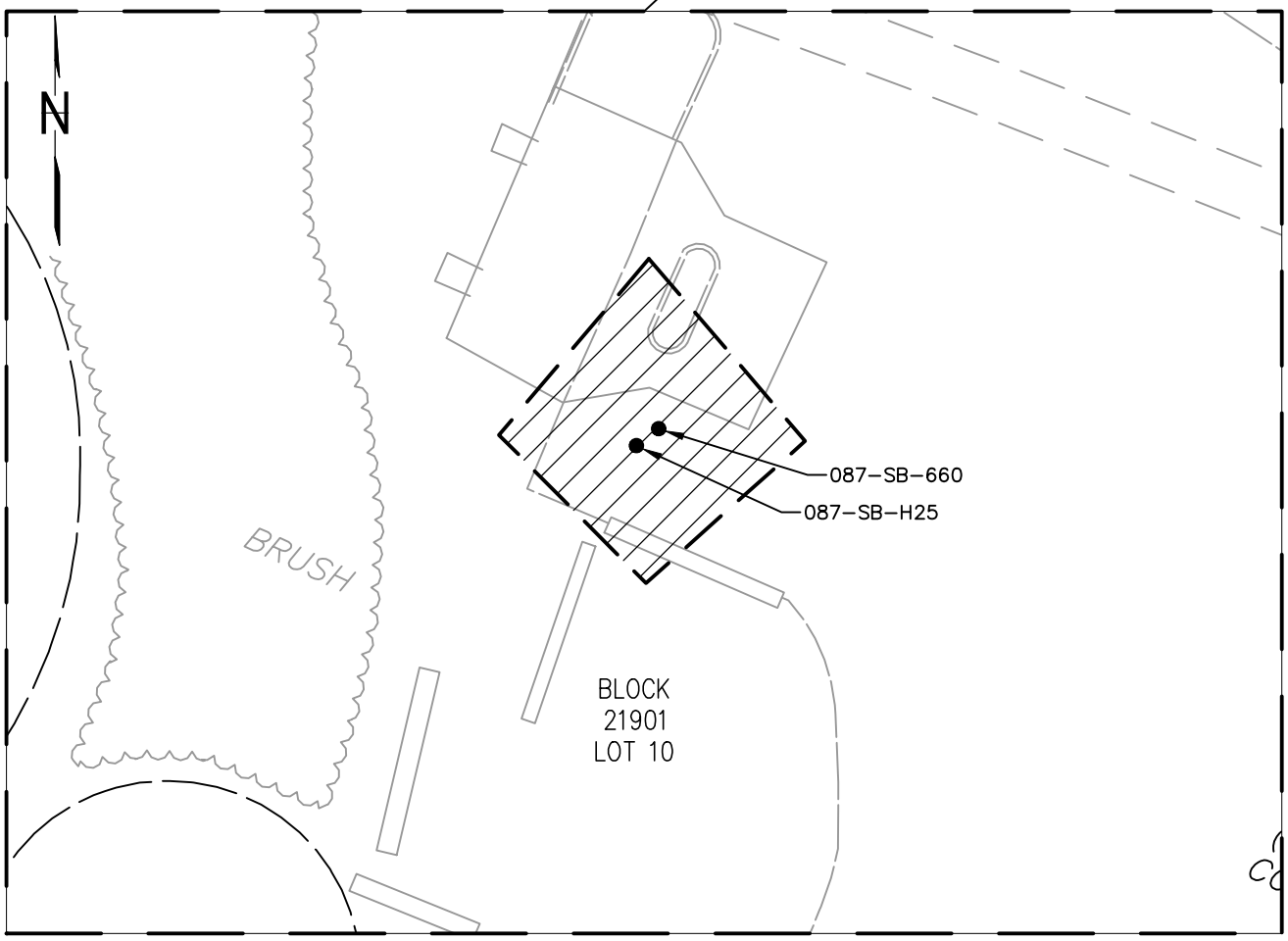
P:\JOBS\YONKERS\JERSEY CITY\SA 6 NORTH\3480150487\6100\01001\USED NOTICES\DN 15\3480150487-6100-B010-0000.dwg Wed, 15 Feb 2017 - 10:43am scottrudkin Layout: Layout1

LEGEND

- SOIL SAMPLE LOCATION HEXAVALENT CHROMIUM > 20 mg/kg (SEE EXHIBIT B–2)
- PROPERTY BOUNDARY
- RESTRICTED AREA



KEY MAP
SCALE: 1" = 600'



SOURCE REFERENCE:

DRAWING TITLED: "ALTA/ASCM LAND TITLE SURVEY FOR BAYFRONT REDEVELOPMENT, LLC., BLOCK 21901 LOTS 5 THRU 10, PREPARED BY MASER CONSULTING, P.A. DATED 10/16/15 CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY

DATUM:
HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NGVD29

DRAFT

0 10 20 40
SCALE IN FEET

Amec Foster Wheeler PROJECT No. 3480150487 *DRAWING:* 3480150487–6100–B010–0000	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1A** RESTRICTED AREA MAP BLOCK 21901; LOT 10 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □10
PREPARED/DATE: STR 12/15/16	*CHECKED/DATE:* NW 01/31/17	

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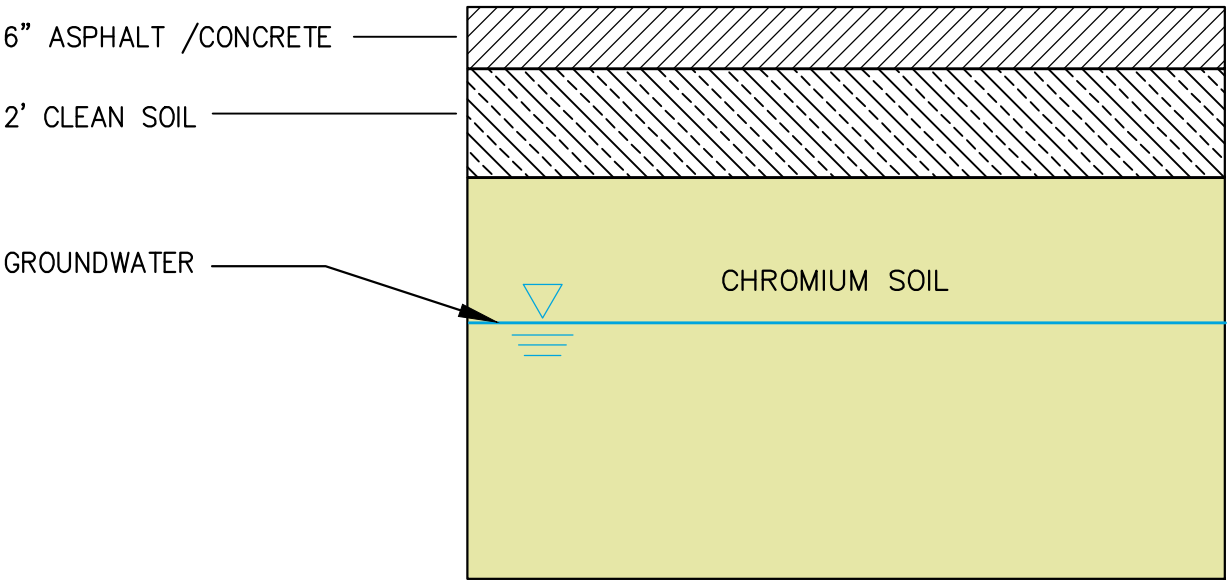
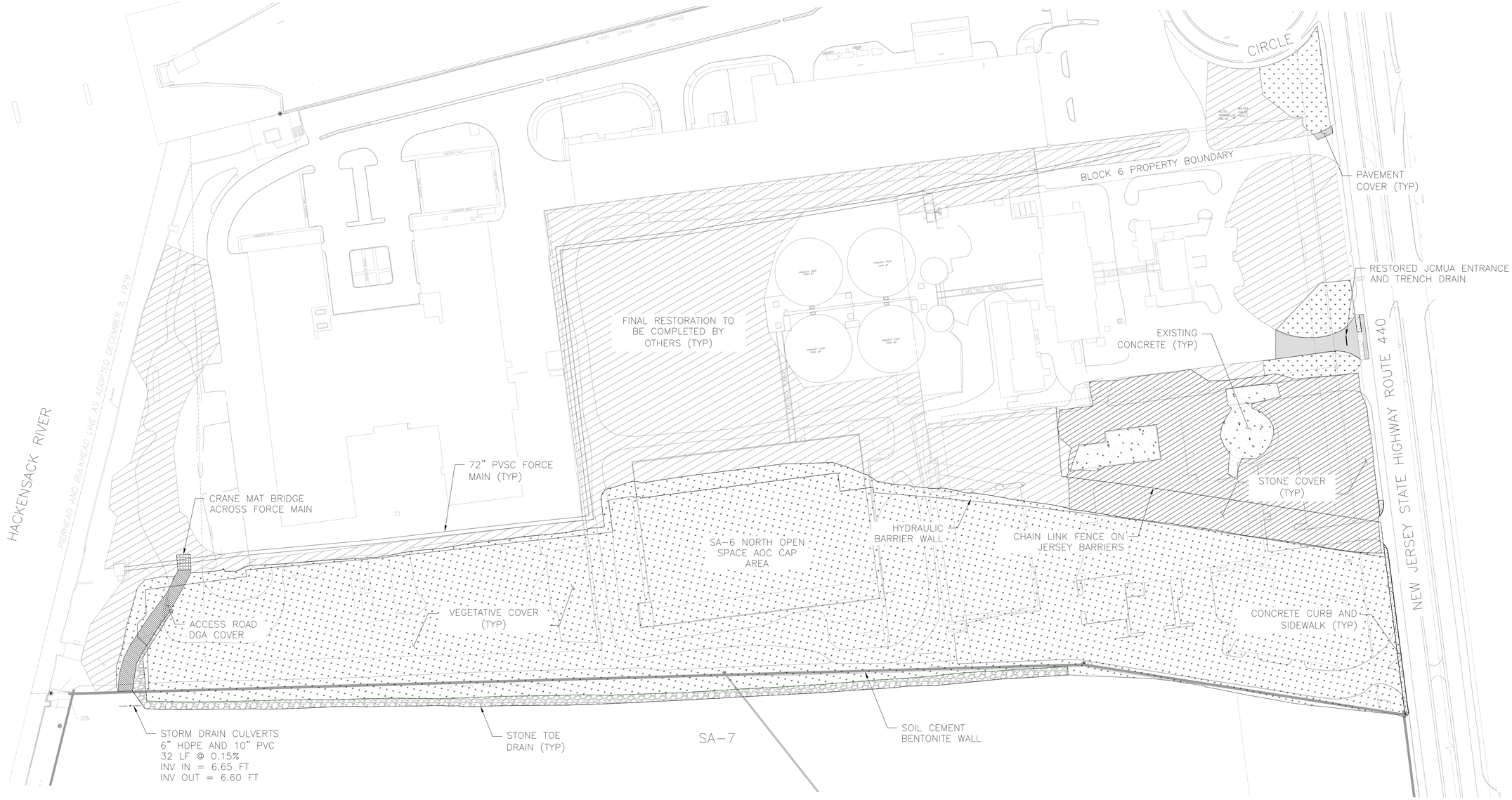
P:\CADD\HONEYWELL\JERSEY CITY\SA 6 NORTH\3480150487\6100\610001\DEED NOTICE\DN 10\3480150487-6100-B210-0000.dwg Tue, 14 Feb 2017 - 12:30pm scott.rudkin



CAP SYSTEM DETAIL
NTS

DRAFT

Amec Foster Wheeler PROJECT No. 3480150488 *DRAWING:* 3480150487-6100-B210-0000		amec foster wheeler ENVIRONMENT & INFRASTRUCTURE. Inc. 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	**EXHIBIT B-1B** CAP SYSTEM DETAIL BLOCK 21901; LOT 10 SA-6 NORTH JERSEY CITY, NEW JERSEY DEED NOTICE □10
PREPARED/DATE: STR 01/25/17	*CHECKED/DATE:* NW 01/31/17		



NOTE:

1. REFER TO CONSTRUCTION CONTROL GRID FIGURE AND ATTACHED TABLES FOR SURVEY DOCUMENTATION OF 6 INCH GRAVEL HISTORIC FILL CAP INSTALLATION.
2. OPEN SPACE CAP AREA WITHIN LIMITS OF THE BARRIER WALLS IS COVERED WITH CLEAN IMPORTED SOILS TO THE DEPTHS IDENTIFIED IN THE DESIGN. THE VEGETATED SLOPE WITHIN THE DEVELOPMENT AREA IS COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN IMPORTED FILL. THE VEGETATED SLOPE ALONG SA-7 WAS CONSTRUCTED ENTIRELY FROM CLEAN IMPORTED FILL.
3. REMAINING RESTORATION AREAS IDENTIFIED ON THE CHROMIUM REMEDY 100% DESIGN DRAWINGS WILL BE ADDRESSED AS PART OF THE NON CHROMIUM REMEDIATION WORK CURRENTLY BEING COMPLETED. FINAL RESTORATION OF ALL AREAS IS SCHEDULED TO BE COMPLETE IN MARCH 2017.

STONE COVER
DGA COVER
VEGETATED COVER
RESTORATION BY OTHERS
PAVEMENT COVER
STONE TOE DRAIN
CONCRETE COVER
SD — STORM DRAIN PIPE

0 80 160 FEET
SCALE

REV	DATE	BY	CHKD	APVD	DESCRIPTION
0	1/7/17	EJP	AE	AE	AS BUILT RESTORATION PLAN

ENTACT 302 Unity Plaza Latrobe, PA 15650

DRAWING NAME
AS BUILT RESTORATION PLAN
SA-6 NORTH – SHEET 001
1/6/17

PROJECT NAME & LOCATION
HONEYWELL SA-6 REMEDIATION
JERSEY CITY, NJ

Exhibit B-2: Table B-2
Soil Sample Data Table (Hexavalent Chromium)

EXHIBIT B-2
Restricted Area Data Table
Study Area 6 North
Portions of Block 21901, Lot 10
Deed Notice #10 TA-7
Jersey City, New Jersey

Location ID	Sample Depth (feet bgs)	Sample Elevation (feet msl NAVD88)	Contaminant	CASR#	NJDEP Chromium SCC (mg/kg)	Concentration (mg/kg)	Q
087-SB-660	2-3	10	Hexavalent Chromium	18540-29-9	20	**26.3**	
087-SB-H25	2-3	10	Hexavalent Chromium	18540-29-9	20	**43.6**	J

Notes:
Results reported in milligrams/kilogram (mg/kg).

Data Qualifiers:
J - Data indicates the presence of a compound that meets the identification criteria. The concentration given is an approximate value.

Abbreviations:
Feet bgs - Feet below ground surface
feet msl = feet mean sea level NAVD88 - North American Vertical Datum of 1988
NJDEP Chromium SCC - New Jersey Department of Environmental Protection Chromium Soil Cleanup Criteria, revised April 2010
CASR# - Chemical Abstract Service Number

EXHIBIT C
Deed Notice #10 SA-6 North TA-7

C-1 Institutional Controls
C-2 Engineering Controls
Portion of Block 21901, Lot 10
City of Jersey City, New Jersey

C-1 Institutional Controls

C-1 Deed Notice, Consent Decree, Zoning as Institutional Controls: Exhibit C-1 (A through C) for that portion of Block 21901, Lot 10, City of Jersey City, New Jersey known as the Deferred Area

Exhibits C-1A through C-1C. Exhibit C-1-A: Deed Notice as Institutional Control; Exhibit C-1-B: Consent Decree as Institutional Control; Exhibit C-1C Zoning as Institutional Control: Exhibits C-1A through C-1C include a narrative description of the restrictions and obligations of this Deed Notice and the other Institutional Controls that are in addition to those described above, as follows:

(A) General Description of the Institutional Control:

(1) Description and estimated size of the Restricted Areas as described above;

The Property constitutes a portion of Block 21901, Lot 10. The estimated size of the Area containing chromium-impacted soils (hexavalent chromium above 20 mg/kg) is identified on Exhibit B-1 is estimated at approximately 560 square feet or approximately 0.013 acres.

(2) Description of the restrictions on the Property by operation of the Institutional Control;

The Property shall only be used for activities consistent with this Deed Notice, the Consent Decree, including, but not limited to, Paragraphs 60(j) and 60(k) of the Consent Decree, and the applicable zoning standards. Intrusive activities (i.e., excavation or digging) that breach the engineering controls (as described in Exhibit C-2) will not be permitted on the Property except in compliance with the terms of the Consent Decree, and this Deed Notice. See Deed Notice for additional information; subsections 7A Alterations, Improvements, Disturbances, and 7B, Emergencies.

(3) The objective of the restrictions;

The restrictions will prohibit contact with soils above the NJDEP Soil Cleanup Criteria for hexavalent chromium.

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

Visual inspections of the Property and other monitoring as set forth in the Consent Decree.

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

Same as (B)(1).

(3) The current land use on the Property is consistent with the restrictions in this Deed Notice;

Same as (B)(1).

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

Review of newly promulgated or modified requirements of applicable regulations or laws that potentially may apply to the site.

(5) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

Same as (B)(4).

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Property is consistent with the restrictions in the Consent Decree, this Deed Notice, the applicable zoning standards; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including evaluation of any available documents as a result of changes in land use or incidents.***
- ***A report that determines whether or not the land use at the Property has remained consistent with the restrictions in the Consent Decree, this Deed Notice,* and *the applicable zoning standards.***
- ***A report that determines whether or not the Deed Notice continues to be protective of the public health and safety and the environment.***

C-2 Engineering Controls
Deed Notice #10 SA-6 North TA-7

Portion of Block 21901, Lot 10
City of Jersey City, New Jersey

ii. Exhibits C-2A through C: Narrative description of the Engineering Controls including Clean Fill as follows:

(A) General Description of the engineering controls:

(1) Description of the engineering controls;

The Engineering Control consists of 2 feet of clean soil and an asphalt/concrete cap.

(2) The objective of the engineering controls; and

The objective of the controls is to prevent contact with soils above the NJDEP Chromium Policy for hexavalent chromium.

(3) How the engineering controls are intended to function.

The soil engineering controls are intended to function as a barrier to underlying and adjacent soils that exceed the NJDEP Chromium Policy Criteria within the Property.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

Honeywell will perform monitoring by visual inspection of the Property pursuant to the Consent Decree.

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

Same as (B)(1) above.

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering controls;

Same as (B)(1) above. Also, see the Consent Decree and the Deed Notice for additional information: subsections 7A Alterations, Improvements, Disturbances, and 7B Emergencies.

(4) The engineering controls are being inspected and maintained and their integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

Same as (B)(1) above.

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of the engineering controls. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of the engineering controls; and

Records of the inspections are to be maintained as listed in (5).

(6) Any new standards, regulations, or laws apply to the Property that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

A review of any new standards, regulations, or laws will be conducted. Should the review indicate that other activities are necessary, those activities will be listed and executed.

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

The monitoring report will be included in the biennial certification. Components of the monitoring report will include the following:

- ***A report of all conditions set forth in sections (A) and (B) above to assure that they have been adhered to, including an evaluation to determine whether or not the engineering controls are continuing to meet the original objective and intended function.***
- ***A report to determine whether or not the engineering controls continue to operate as designed.***
- ***A report to determine whether or not the engineering controls continue to be protective of the public health and safety and of the environment***

APPENDIX III

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

JERSEY CITY MUNICIPAL UTILITIES AUTHORITY, Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5955 Consolidated under Docket No. 95-2097 (DMC)
JERSEY CITY INCINERATOR AUTHORITY Plaintiff, v. HONEYWELL INTERNATIONAL INC., Defendant.	Civil Action No. 05-5993 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)
HACKENSACK RIVERKEEPER, INC., *et al.* Plaintiffs, v. HONEYWELL INTERNATIONAL INC., *et al.* Defendants.	Civil Action No. 06-22 Consolidated under Docket No. 05-5955 (DMC) under Docket No. 95-2097 (DMC)

FIRST AMENDED CONSENT DECREE REGARDING REMEDIATION AND REDEVELOPMENT OF STUDY AREA 6 NORTH

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RECITALS

Whereas, on June 30, 2003, the district court for the District of New Jersey issued a Final Judgment in *Interfaith Community Organization v. Honeywell International Inc.*, Civ. No. 95-2097 (DMC) ("*ICO v. Honeywell*"), ordering the remediation of an area designated by the New Jersey Department of Environmental Protection ("NJDEP") as Study Area 7 by excavation of all chromium contamination on the property, under the oversight of a court-appointed Special Master;

Whereas, on or about December 23, 2005, the Jersey City Municipal Utilities Authority ("JCMUA") filed litigation styled *Jersey City Municipal Utilities Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), bringing claims against Honeywell International Inc. ("Honeywell") under, *inter alia*, Section 6972 of the Resource Conservation and Recovery Act ("RCRA"), and seeking remediation of chromium contamination on property owned by JCMUA and other relief;

Whereas, on or about December 28, 2005, the Jersey City Incinerator Authority ("JCIA") filed litigation styled *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), bringing claims against Honeywell under, *inter alia*, Section 6972 of RCRA, and seeking remediation of chromium contamination on property owned by JCIA and other relief;

Whereas, on or about January 4, 2006, the Hackensack Riverkeeper, Inc., Captain William Sheehan, Reverend Winston Clarke, and Lawrence Baker ("Riverkeeper") filed litigation styled *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC), bringing a claim against Honeywell under RCRA and seeking remediation of chromium contamination to soils, groundwater, surface waters, and sediments associated with various properties collectively designated by NJDEP as Study Areas 5, 6 North, and 6 South;

Whereas, Study Areas 6 North and South are directly adjacent to Study Area 7 on the north and south sides, respectively;

Whereas, Study Area 5 is comprised of properties to the east of Study Areas 6 North, 6 South, and 7 across Route 440;

Whereas, the property owned by JCIA and JCMUA and collectively the subject of *JCMUA v. Honeywell* and *JCIA v. Honeywell* comprises a part of Study Area 6 North;

Whereas, the City of Jersey City ("Jersey City") also owns property that comprises a part of Study Area 6 North;

Whereas, Riverkeeper also named as defendants in *Riverkeeper v. Honeywell* Jersey City, JCMUA, and JCIA (collectively the "Jersey City Entities");

Whereas, the Jersey City Entities and Honeywell also asserted cross-claims against each other in *Riverkeeper v. Honeywell*;

Whereas, *JCMUA v. Honeywell*, *JCIA v. Honeywell,* and *Riverkeeper v. Honeywell* were consolidated by the United States District Court for the District of New Jersey (hereinafter the "Consolidated Litigation");

Whereas, in the Consolidated Litigation, the Jersey City Entities and Riverkeeper have alleged that Honeywell bears responsibility for the presence and remediation of chromite ore processing residue ("COPR") and chromium in soils and groundwater on the Study Area 6 North property;

Whereas, in the Consolidated Litigation, Honeywell has alleged that the Jersey City Entities bear full responsibility for lead and other contamination on the Study Area 6 North property, and also bear an equitable share of liability for the presence and remediation of COPR and chromium in soils and groundwater on the Study Area 6 North property and for chromium and other contamination in Hackensack River sediments in the vicinity of Study Area 6 North;

Whereas, on October 9, 2007, Honeywell and Riverkeeper submitted the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"), resolving issues related to the remediation of chromium contaminated sediments in the Hackensack River in the vicinity of Study Areas 5, 6, and 7;

Whereas, the Parties to this Consent Decree each believe that it is in their mutual interest to move forward productively to resolve their differences so that they can implement environmental remediation at Study Area 6 North that ensures the continued protection of human health and the environment and so that Study Area 6 and Study Area 7 can be redeveloped in keeping with Jersey City's vision for a revitalized West Side;

Whereas, the Local Redevelopment and Housing Law, N.J.S.A. 40A:12A-1, *et seq*., as amended and supplemented (the "Redevelopment Law") provides for municipalities to participate in the redevelopment and improvement of areas in need of redevelopment;

Whereas, the portions of Study Area 6 and Study Area 7 (i) which are owned by the Jersey City Entities, (ii) which are owned by Honeywell, (iii) as to which Honeywell has a purchase and sale agreement with the current owner, or (iv) which hereafter will be acquired by a Jersey City Entity and/or Honeywell are parcels which by ordinance adopted by the City Council of Jersey City on February 27, 2008, have been determined to be "areas in need of redevelopment" under the criteria of the Redevelopment Law because of conditions prevalent on those parcels;

Whereas, the settlement which is the subject matter of this Consent Decree contemplates the environmental remediation of Study Area 6 North and redevelopment of the parcels that comprise Study Areas 6 and 7 to create a major mixed use project in an important section of Jersey City;

Whereas, each of the actions to implement this Consent Decree have been fully considered by the Parties as a means to accomplish the aforesaid purposes of this settlement;

Whereas, the consent of each of the Jersey City Entities to this Consent Decree was considered at a duly noticed and appropriate meeting of their respective governing bodies, open to the public, at which members of the public were provided an opportunity to comment on all aspects of the settlement, including, without limitation, the commitments made by the Jersey City Entities herein; and

Whereas, Honeywell and the Jersey City Entities are settling their claims, cross-claims, or counter-claims in the Consolidated Litigation against each other in the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* (hereafter "Jersey City/Honeywell Consent Order"), filed in the Consolidated Litigation simultaneously with this Consent Decree and attached as Exhibit A to this Consent Decree:

NOW, THEREFORE, IT IS HEREBY ORDERED AND DECREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For purposes of this Consent Decree, the following terms shall have the meanings set forth in this Article:

1. **AOC 1** shall mean that area of Study Area 6 North in which the hexavalent chromium concentration in the top 20 feet of soil below existing ground surfaces exceeds concentrations of 20 mg/kg and the Chromium Remedy will be implemented pursuant to Article III. AOC 1 is shown on Exhibit B.

2. **AOC 1 Additional Excavation Areas** shall mean those areas of Study Area 6 North which require excavation pursuant to paragraph 57. The AOC 1 Additional Excavation Areas are not contiguous to AOC 1. The AOC 1 Additional Excavation Areas are shown on Exhibit B.

3. **AOC 1 Open Space Area** shall mean the AOC 1 Open Space Area, as defined by paragraph 53, consisting of approximately 11 acres enclosed by the hydraulic barrier walls constructed under the Chromium Remedy, and which shall be subject to paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B.

4. **AOC 2** shall mean that area of Study Area 6 North on which the Historic Fill Remedy will be implemented pursuant to Article II.B of the Jersey City/Honeywell Consent Order. AOC 2 is shown on Exhibit B.

5. **Bayfront Redevelopment LLC** shall have the meaning set forth in paragraph 4.1 of the Jersey City/Honeywell Consent Order.

6. **COPR** shall mean Chromite Ore Processing Residue.

7. **Chromium Remedy** or **Chromium Remediation** shall mean the remedy set forth in Article III.

8. **Consolidated Litigation** shall mean *Jersey City Municipal Utility Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5955 (DMC), *Jersey City Incinerator Authority v. Honeywell International Inc.,* D.N.J., Civ. No. 05-5993 (DMC), and *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.,* D.N.J., Civ. No. 06-022 (DMC).

9. The **Court** shall mean the United States District Court of the District of New Jersey, which has jurisdiction over the Consolidated Litigation.

10. **Deep Groundwater Remedy** shall mean the deep overburden and bedrock groundwater pump and treat remedy as required by the Order Approving the Deep Overburden Groundwater Remediation, entered on October 6, 2006, and the Stipulation on Consent Regarding the Schedule for Implementation of Deep Groundwater Remedial Actions, currently pending before the Special Master in *ICO v. Honeywell.* In the event that Riverkeeper and Honeywell reach a settlement on source control issues, the Deep Groundwater Remedy shall

include the remedy to which Riverkeeper and Honeywell have agreed. In the event that Riverkeeper and Honeywell do not reach a settlement on source control issues, the Deep Groundwater Remedy shall include the remedy ordered by the Special Master or the Court in *ICO v. Honeywell* for source control.

11. **Hackensack River Watershed Land Trust** shall mean the dedicated fund of the Hackensack Riverkeeper, Inc., established under Section 501(c) of the Internal Revenue Code for the purpose of acquiring and preserving open space within the Hackensack River watershed and administered by the Board of Trustees of the Hackensack Riverkeeper, Inc.

12. **Historic Fill** shall have the definition provided in the NJDEP Technical Requirements for Site Remediation.

13. **Historic Fill Remedy or Historic Fill Remediation** shall mean the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order, except that the Historic Fill Remedy shall not be limited to the remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order if NJDEP requires a more stringent remedy.

14. **Honeywell** shall mean Honeywell International Inc. and its affiliates, including Kellogg Street 80 Property LLC, Kellogg Street 60 Property LLC, and Kellogg Street/440 Property LLC.

15. **Honeywell's Treatment Plant** shall mean the treatment plant currently located at 80 Kellogg Street that is used to treat, *inter alia*, chromium contaminated groundwater.

16. ***ICO v. Honeywell*** shall mean *Interfaith Community Organization v. Honeywell International Inc.,* D.N.J., Civ. No. 95-2097 (DMC).

17. **Including** shall mean including, but not limited to.

18. **JCIA** shall mean the Jersey City Incinerator Authority.

19. **JCMUA** shall mean the Jersey City Municipal Utilities Authority.

20. **JCRA** shall mean the Jersey City Redevelopment Agency.

21. **Jersey City Entities** shall mean the City of Jersey City, including the Department of Public Works ("DPW") and other agencies and branches thereof, the JCIA, and the JCMUA.

22. **Jersey City/Honeywell Consent Order** shall mean the *Settlement Consent Order by and between the Jersey City Entities and Honeywell International Inc.* entered in the Consolidated Litigation simultaneously with this Consent Decree.

23. **NJDEP** shall mean the New Jersey Department of Environmental Protection.

24. **NJDEP Chromium Directive** shall mean the Chromium Directive issued by NJDEP on February 8, 2007, and attached as Exhibit C.

25. **Party or Parties** shall mean any one or all of the signatories to this Consent Decree.

26. **RCRA** shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*, as amended.

27. **Redevelopment Agreement** shall have the meaning set forth in paragraph 4.11(e) of the Jersey City/Honeywell Consent Order.

28. **Redevelopment Area** shall mean Study Area 6 North, Study Area 6 South, and Study Area 7, collectively.

29. **Redevelopment Law** shall mean the New Jersey Local Redevelopment and Housing Law, N.J.S.A. 40A:12A1, *et seq.*, as amended and supplemented.

30. **Redevelopment Plan** shall mean the Bayfront I Redevelopment Plan as adopted by Jersey City on March 12, 2008.

31. **Riverkeeper** shall mean the plaintiffs in *Hackensack Riverkeeper, Inc. v. Honeywell International Inc.*, D.N.J., Civ. No. 06-22 (DMC), and includes the Hackensack Riverkeeper, Inc., William Sheehan, Reverend Winston Clarke, and Lawrence Baker.

32. **Sediment Consent Order** shall mean the Consent Order on Sediment Remediation and Financial Assurances, which the Parties expect will be entered by the Court in *ICO v. Honeywell* and this Consolidated Litigation.

33. **Shallow Groundwater** or **Shallow Level of Groundwater** shall mean groundwater above the meadow mat, groundwater at stratigraphically equivalent depths in locations where there is no meadow mat, and groundwater that is contaminated by recent contact with COPR or other chromium soil contamination above the meadow mat and subsequently flows downward through or past the meadow mat into the upper portion of the lacustrine sediments. This does not include groundwater found in the bedrock, the deep zone, or any plume of contamination that is in both the intermediate and deep zones, as those zones are defined in the Final Groundwater Investigation Report, prepared in *ICO v. Honeywell*, dated February 2007, p. 1-2.

34. **Site** shall mean Study Area 6 North.

35. **Site Preparation Activities** shall have the meaning set forth in paragraph 3.1 of the Jersey City/Honeywell Consent Order.

36. **Site Preparation Plan** shall have the meaning set forth in paragraph 3.2 of the Jersey City/Honeywell Consent Order.

37. **Soil** shall mean soils, historic fill, and/or COPR.

38. The **Special Master** shall mean Senator Robert G. Torricelli, appointed as the Special Master in *ICO v. Honeywell* and the Consolidated Litigation, and his successors or whomever the Court may appoint as Special Master.

39. **Stratum O** shall mean the layer composed of soft brown silty fine sand interlayered with soft gray silty clay and fine sandy to clayey silt generally located above the meadow mat below the Historic Fill and/or COPR.

40. **Study Area 6 North** shall mean that property comprising Sites 87 and 88 of the Chromate Chemical Production Waste Sites designated by NJDEP, comprising approximately 41.58 acres and including: (a) all such property owned by JCMUA located at 555 Route 440, Jersey City, New Jersey, (b) all such property owned by JCIA located at 501 Route 440, Jersey City, New Jersey; (c) all such property owned by Jersey City or its Department of Public Works and located at 575 Route 440, Jersey City, New Jersey; and (d) all such property owned by Paul Trenk consisting of Block 1290.1, Lot 2A, Jersey City, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

41. **Study Area 6 South** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC consisting of Site 73, located at 200 Kellogg Street Jersey City, Hudson County, New Jersey; (b) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 134, located at 100 Kellogg Street Jersey City, Hudson County, New Jersey; (c) that property currently owned by Kellogg Street 80 Property LLC consisting of Site 140 located at 80 Kellogg Street Jersey City, Hudson County, New Jersey; (d) that property currently owned by Kellogg Street 60 LLC consisting of Site 125, located at 60 Kellogg Street Jersey City, Hudson County, New Jersey; (e) that property currently owned by Kellogg Street/440 Property LLC consisting of Site 124, Jersey City, Hudson County, New Jersey; (f) that property currently owned by Kellogg St/Harsimus Cove Realty located at 150 Kellogg Street, Jersey City, Hudson County, New Jersey, (g) that property currently owned by Cordova Enterprises Ltd located at 38 Kellogg Street, Jersey City, Hudson County, New Jersey, and (g) that property currently owned by Cordova Enterprises Ltd located at 28 Kellogg Street, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

42. **Study Area 6** shall mean Study Area 6 North and Study Area 6 South, collectively.

43. **Study Area 7** shall mean (a) that property currently owned by 425/445 Route 440 Property LLC located at 425 and 445 Route 440, Jersey City, Hudson County, New Jersey, and (b) that property currently owned by Roned Realty/Edward Navlen located at 465 Route 440, Jersey City, Hudson County, New Jersey. Such properties are more fully described in Exhibit H to the Jersey City/Honeywell Consent Order.

44. **Technical Requirements for Site Remediation** shall mean the NJDEP Technical Requirements for Site Remediation, N.J.A.C. Chapter 26E, as duly and properly promulgated and amended.

45. **Unrestricted Use** shall mean that the contaminated medium is restored to a condition or quality suitable for all uses.

ARTICLE II: SCOPE OF THE CONSENT DECREE, JURISDICTION, AND CLAIMS RESOLVED

46. Except as provided in this paragraph, the terms of the Jersey City/Honeywell Consent Order shall remain in full force and effect. To the extent that any provision in the Jersey City/Honeywell Consent Order refers to the Chromium Remedy or Chromium Remediation, it shall be construed as referring to Article III of this Decree. In the event of any conflict or inconsistency between the terms of this Decree and the Jersey City/Honeywell Consent Order, the terms of this Decree govern. In the event that any action taken pursuant to the Jersey City/Honeywell Consent Order is in conflict with or inconsistent with the terms of this Decree, the terms of this Decree shall govern.

47. This Court has jurisdiction over the Parties and subject matter of the Consolidated Litigation pursuant to Section 6972 of RCRA.

48. For purposes of this Consent Decree, the Complaints in the Consolidated Litigation each state claims upon which relief may be granted against Honeywell.

49. In the event that this Decree is not terminated by one or more Parties pursuant to paragraph 100, this Consent Decree resolves, settles, and satisfies all claims by Riverkeeper against Honeywell with respect to soils and shallow groundwater at Study Area 6 North. This Consent Decree does not resolve any claims by Riverkeeper against Honeywell with respect to Study Area 6 South, Study Area 5, or groundwater at Study Area 6 North other than shallow groundwater.

50. Nothing in this Consent Decree shall be construed or interpreted to waive any claim or defense any Party has asserted or may assert against any third party in the Consolidated Litigation except as explicitly stated herein.

51. This Consent Decree does not constitute an admission of liability on the part of any Party with respect to any claims, cross-claims, or counter-claims in the Consolidated Litigation.

ARTICLE III: CHROMIUM REMEDIATION

A. Chromium Remedy

52. **Responsibility for Implementation of Chromium Remediation.** As between the Parties, Honeywell shall be responsible for and shall undertake remediation of COPR and chromium present in Study Area 6 North at Honeywell's sole cost and expense. Remediation of COPR and chromium present in Study Area 6 North shall be undertaken in accordance with the terms of this Consent Decree.

53. **AOC 1 and AOC 2.** For the purposes of remediation, Study Area 6 North shall consist of two Areas of Concern ("AOCs"), designated as AOC 1 and AOC 2 as shown on Exhibit B. AOC 1 is set forth on Exhibit B and consists of that portion of Study Area 6 North for which chromium remediation is required pursuant to paragraphs 55, 56, and 57. AOC 2 consists of the entirety of Study Area 6 North, including AOC 1, to the extent that historic fill is present in any area of Study Area 6 North. For AOC 1, the intended land use will determine the types

of remedial measures taken in the Chromium Remedy. There are two distinct land uses for AOC 1: open space and residential. As a result, AOC 1 will be further subdivided into:

(a) The AOC 1 Open Space Area, which shall comprise that portion of AOC 1 for which future use shall be restricted as provided in paragraph 60. The AOC 1 Open Space Area is shown on Exhibit B;

(b) The AOC 1 Residential Area, which shall comprise that portion of AOC 1 for which future use shall allow for residential and/or commercial and retail uses, but for which the remedial measures shall assume only a residential use . The AOC 1 Residential Area is shown on Exhibit B; and

(c) The AOC 1 Additional Excavation Areas, which consist of those portions of Study Area 6 North that require remediation pursuant to paragraph 57. The planned land use for the AOC 1 Additional Excavation Areas is residential and/or commercial and retail uses, but the remedial measures shall assume only a residential use.

54. **Scope and General Requirements of the Chromium Remedy.** The Chromium Remedy shall address shallow groundwater and soil containing hexavalent chromium in AOC 1, and shall be consistent with the requirements set forth in this Article. The Chromium Remedy set forth in this Consent Decree addresses only the shallow level of groundwater (see paragraph 58). The deep overburden and bedrock groundwater remediation, including source control, shall be addressed in a separate consent order, which shall place these issues within the jurisdiction of the Special Master in conjunction with the groundwater remedies for Study Area 7.

(a) The Chromium Remedy shall be consistent with the NJDEP Technical Requirements for Site Remediation, the Chromium Directive as issued by NJDEP on February 8, 2007 ("the NJDEP Chromium Directive"), and the Remedial Action Work Plan (with addenda) approved by NJDEP on or about February 19, 2008. This Consent Decree shall have precedence

over the Remedial Action Work Plan in the event of any inconsistency.

(b) The Chromium Remedy shall be carried out diligently, and the development and implementation of the Historic Fill Remedy shall not delay satisfaction of the milestones in the Schedule established pursuant to this paragraph. Honeywell shall propose a master Schedule for the implementation of the Chromium Remedy within 90 days of the entry of this Consent Decree, which shall include, at a minimum, the following milestones:

(i) Submission to the Special Master for all documents subject to review by the Special Master pursuant to paragraph 72(c);

(ii) Relocation of the Jersey City Entities' Study Area 6 North Operations as shall be required prior to the implementation of the Chromium Remedy;

(iii) Completion of those Site Preparation Activities necessary for the implementation of the Chromium Remedy, including remediation of the AOC 1 Additional Excavation Areas;

(iv) A final date for Honeywell's proposal of *in situ* treatment for any part of the AOC 1 Residential Area pursuant to paragraph 55(d) and a date for the final decision as to whether excavation or *in situ* treatment shall be used in the event of such a proposal;

(v) The initiation of work related to the Chromium Remedy;

(vi) The date for completion of the installation of the Chromium Remedy;

(vii) Implementation of the long-term protections of the AOC 1 Open Space Area established pursuant to paragraph 60; and

(viii) Transfer of the AOC 1 Open Space Area to Jersey City pursuant to paragraph 60(a)(iii).

(c) **Demolition and Grading Activities.** During demolition and grading activities, adequate protective measures shall be taken to protect site workers and the community

from airborne dusts and exposures to contaminated soils.

(d) **Vegetation of Clean Fill.** All clean soil fill in areas that will not involve paved roads, sidewalks, paths, walkways, or building structures shall be vegetated in such a manner to protect and maintain the required depth of clean soil fill.

55. **AOC 1 Residential Area Soil Remedy.** In the AOC 1 Residential Area, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive.

(a) Those soils excavated from the AOC 1 Residential Area in which hexavalent chromium concentrations exceed 240 mg/kg shall be disposed of off-site at a waste disposal facility licensed to accept such waste.

(b) Those soils excavated from the AOC 1 Residential Area in which the hexavalent chromium concentration is less than 240 mg/kg, but greater than 20 mg/kg, shall be consolidated within the AOC 1 Open Space Area. However, any such soils which would require venting of gases shall be disposed of off-site.

(c) Soils excavated from the AOC 1 Residential Area shall be replaced with existing soils from AOC 2 or backfill soil. Any backfill soil brought to the Site shall either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master.

(d) In the AOC 1 Residential Area, excavation of soils containing hexavalent chromium greater than 20 mg/kg shall be the presumptive remedy. Around remaining active underground utilities or other structures, such as the bulkhead, *in situ* treatment may be considered in lieu of excavation only if Honeywell demonstrates, and all Parties, the Special

Master, and NJDEP agree that (1) excavation is technically impracticable and (2) treatment will result in hexavalent chromium concentrations of 20 mg/kg or less and no rebound will occur. If no treatment option is available, Honeywell shall propose an alternative remedial approach, subject to review and comment by the Parties and approval by the Special Master.

(e) Honeywell shall excavate all soils containing hexavalent chromium greater than 20 mg/kg in conjunction with the placement of the piping for the Deep Groundwater Remedy. Honeywell shall not propose treatment in lieu of excavation based on the location of the pipes for the Deep Groundwater Remedy or any apparent impracticability of excavating in conjunction with their installation.

56. **AOC 1 Open Space Area Soil Remedy.** In the AOC 1 Open Space Area, the soil remedy shall consist of an engineered RCRA cap to isolate contaminated soils, with gas venting, if necessary, to address the generation of methane and other naturally occurring gases in the Stratum O and/or Stratum D in the Open Space AOC. Soils consolidated under the cap, shall not require gas venting and shall not be the basis for the inclusion of gas venting as a component of the cap. The cap shall be designed and constructed so that:

(a) The cap shall consist of gas collection system, if gas venting is necessary, a base protective layer, an impervious geomembrane liner with a minimum thickness of 40 mil; a geocomposite drainage layer; a filter fabric; and a distinctive colored warning layer with markings in English and Spanish that would deter penetration of the cap in the event that digging occurred in the vicinity of the cap;

(b) All utilities, including those supporting the pump-and-treat system for groundwater remediation, with the exception of any extraction wells or collection trenches, shall be placed above the cap (but may be below the ground surface and/or contained within utility corridors). In the event that above-cap-grade gas collection and treatment is selected or is

needed to meet current or future regulatory requirements, such collection and treatment facilities are prohibited in the Open Space AOC, except for piping to connect the sub-liner collection system with the treatment facilities. Honeywell shall configure the cap so that all active piping for the wastewater treatment system operated by JCMUA, including all force mains and any connections to the emergency outfall, shall be outside the capped area. Honeywell may propose, subject to the review process in paragraph 72, to use treatment in lieu of excavation in the vicinity of the emergency outfall line if the criteria of paragraph 55(d) are satisfied; and

(c) Exclusive of roadways, the cap shall be overlain by layers of clean fill, backfill and/or overburden with an average depth of at least three feet and a minimum depth of at least two feet provided that any layer that incorporates overburden shall be below at least two feet of clean fill. Any clean fill or backfill soil brought to the Site will either meet all applicable federal and NJDEP criteria, including NJDEP residential soil criteria, or comply with a beneficial soil reuse plan that is approved by NJDEP and subject to review and comment by the Parties and approval by the Special Master. One foot of clean fill, covered with bituminous blacktop, shall be sufficient cover where roads, walkways, or other paved surfaces are located within the AOC 1 Open Space Area. All clean soil fill in areas that will not involve paved roads, walkways, or other paved surfaces shall be vegetated in such a manner as to protect and maintain the required depth of the clean soil fill and to ensure that such vegetation shall not cause any interference with or penetration of the cap.

(d) The existing overburden soils in the AOC 1 Open Space Area shall first be stripped off and set aside for use. If hexavalent chromium concentrations in the overburden exceed 20 mg/kg, the overburden shall be placed under the cap. If hexavalent chromium concentrations in the overburden do not exceed 20 mg/kg, the overburden may be placed above the cap but below the two feet of clean fill required by paragraph 56(c). Excavated hexavalent

chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the AOC 1 Residential Area shall be placed and spread in the AOC 1 Open Space Area under the cap. Excavated hexavalent chromium impacted soils (with concentrations between 20 mg/kg and 240 mg/kg) from the Study Area 6 South Development AOC (as defined in the First Amended Consent Decree Regarding Remediation and Redevelopment of Study Area 6 South and including only those portions of Study Area 6 South for which the future uses of the property may include commercial or residential development) may be placed and spread in the AOC 1 Open Space Area under the cap, provided that such soils do not require venting of gases and shall not serve as the basis for the inclusion of gas venting as part of the Study Area 6 North AOC 1 Open Space Area remedy. Both the chromium impacted soils and the previously stripped overburden shall be suitably compacted according to design specifications. Debris, to the extent it would interfere with the compaction specification requirements of the 100% Design, shall not be placed under the cap. The engineered cap shall be installed over the chromium-impacted soils exceeding 20 mg/kg hexavalent chromium.

57. **AOC 1 Additional Excavation Areas Remedy.** For those AOC 1 Additional Excavation Areas, soils containing hexavalent chromium at concentrations greater than 20 mg/kg shall be excavated to a depth of 20 feet below the current ground surface in accordance with the NJDEP Chromium Directive. Excavation of those areas comprising the AOC 1 Additional Excavation Areas shall initially be conducted in the 50-foot by 50-foot area planned in the RAWP but shall not be so limited in the event that confirmation sampling indicates that hexavalent chromium concentrations continue to exceed 20 mg/kg. Honeywell shall excavate laterally and vertically (to depths of up to 20 feet below current ground surface) until the hexavalent chromium is less than 20 mg/kg based on the results of confirmation sampling. Confirmation sampling for the AOC 1 Additional Excavation Areas shall be taken from the side

walls and bottom of the excavation, in accordance with the Technical Requirements for Site Remediation, to confirm complete removal of contaminated soils.

58. **Shallow Groundwater Remedy.** The shallow groundwater remedy shall consist of hydraulic barriers with a pump-and-treat system designed to isolate shallow groundwater and to intercept and treat shallow groundwater flowing above the meadow mat in the AOC 1 Open Space Area. The shallow groundwater remedy shall consist of the following:

(a) The existing soil/cement/bentonite wall on the boundary of Study Area 6 North and Study Area 7 shall be incorporated into the other engineering controls;

(b) Subterranean slurry walls or other hydraulic barriers shall be installed along the northern, eastern and western sides of the AOC 1 Open Space Area and keyed into the meadow mat or Stratum O or to comparable depths below ground surface;

(c) A groundwater extraction system shall be established that will consist of (i) one or more shallow extraction wells, sumps, or french drains within the AOC 1 Open Space Area; (ii) pumps; and (iii) underground piping to convey any extracted water to Honeywell's Treatment Plant;

(d) The capture zone for the shallow groundwater remedy shall include at least the entire area of contaminated shallow groundwater (except for shallow groundwater that penetrates the meadow mat and is captured by the Deep Groundwater Remedy);

(e) A plan for control of water levels shall be developed;

(f) In the event that underground structures are demolished, the plans shall address the need for special attention for structures that extend below the meadow mat in order to control needed water levels; and

(g) Honeywell shall submit such information as is required to allow NJDEP to establish a classification exception area for groundwater at the Site, in accordance with NJDEP

regulations.

59. **Permits and Authorizations.** Honeywell shall obtain all necessary federal, state, and local permits and authorizations to carry out the Chromium Remedy as set forth in this Article. The Jersey City Entities agree to cooperate with Honeywell in the applications for any such permits, authorizations, or approvals. Such cooperation shall include providing information or data with respect to permit applications, co-signing permit applications, and allowing access to Study Area 6 North to obtain information necessary for the permits.

B. Long-Term Monitoring, Maintenance, and Protection of Engineering and Institutional Controls

60. **Protection of the AOC 1 Open Space Area.** Except as provided in paragraphs 60(j) and 60(k), development in the AOC 1 Open Space Area shall be prohibited. The AOC 1 Open Space Area shall be protected against activities that may jeopardize the integrity of the cap and/or the groundwater remedial measures that shall be installed in the AOC 1 Open Space Area pursuant to the Chromium Remedy or that may impede the long-term monitoring and maintenance of the cap and/or groundwater remedial measures. It is the intention of the Parties to implement different layers of protection, which alone or in concert, impose restrictions on development, run with the land, and survive all parties. Accordingly, the following actions shall be taken pursuant to the Schedule provided in paragraph 54(b):

(a) **Ownership of and Access to the AOC 1 Open Space Area.** Ownership of and access to the AOC 1 Open Space Area shall be in accordance with the following:

(i) Pursuant to the terms of this Consent Decree and paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall become the owner in fee simple absolute of all of the property that comprises the AOC 1 Open Space Area and shall not convey any rights or interests in such property except as provided in this Decree. At the time

of the conveyance from JCRA to Bayfront Redevelopment LLC, Bayfront Redevelopment LLC shall give Jersey City an option to buy AOC 1 Open Space Area prior to the planned transfer pursuant to paragraph 60(a)(iii). Such option to buy shall be subject to the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall exercise the option to buy the AOC 1 Open Space Area in the event that the conditions allowing for withdrawal of funds from the financial assurance mechanisms under paragraphs 84(c) or 84(d) are met;

(ii) At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, Bayfront Redevelopment LLC shall grant a conservation restriction for the AOC 1 Open Space Area pursuant to the requirements of paragraph 60(b);

(iii) Upon the final construction of all roads and utility corridors within the AOC 1 Open Space Area, Bayfront Development LLC shall donate good and marketable title to all the land comprising the AOC 1 Open Space Area to Jersey City. In conjunction with such donation, Bayfront Redevelopment LLC shall petition to subdivide the properties within Study Area 6 North to create a new parcel(s) comprising the AOC 1 Open Space Area. At the time of the donation, Jersey City shall grant Honeywell an easement for the purpose of monitoring and maintaining the Chromium Remedy. Jersey City shall also grant Honeywell all necessary access to the AOC 1 Open Space Area by license or such other mechanisms as may be appropriate for purposes of monitoring and maintaining the Chromium Remedy. After it acquires title pursuant to this paragraph, Jersey City shall retain ownership of the AOC 1 Open Space Area unless and until it shall have complied with the requirements of paragraph 60(a)(iv);

(iv) After it acquires title pursuant to this paragraph, Jersey City shall not convey or enter into any lease of the AOC 1 Open Space Area to any other person or entity unless it has first satisfied either of the following conditions:

(1) Jersey City has obtained the Special Master's (or if the Special Master's appointment has expired, the Court's) approval to convey the AOC 1 Open Space Area to a government entity that has the capacity and willingness to fulfill Jersey City's obligations under the Consent Decree with respect to the AOC 1 Open Space Area and such entity agrees to submit to the Court's jurisdiction and to be bound by the requirements of the Consent Decree that Jersey City has committed to fulfill with respect to protection of the AOC 1 Open Space Area pursuant to this paragraph and routine maintenance of the permissible development in the AOC 1 Open Space Area pursuant to paragraph 64(d); or

(2) The AOC 1 Open Space Area has been remediated such that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive, and Jersey City has demonstrated to the Special Master and/or the Court, as appropriate, that such remediation has been completed in accordance with all applicable requirements.

(b) **Conservation Restriction.** At the time the JCRA conveys the Study Area 6 North property to Bayfront Redevelopment LLC pursuant to paragraph 4.3 of the Jersey City/Honeywell Consent Order, but prior to the grant of the option to buy pursuant to paragraph 60(a)(i), Bayfront Redevelopment LLC shall grant an open space conservation restriction, pursuant to N.J.S.A. 13:8-B-1, *et seq.*, over the AOC 1 Open Space Area substantially in the form set forth in Exhibit D. Exhibit D is a conservation restriction that is consistent with the terms of this paragraph and this Consent Decree. The conservation restriction shall allow for the implementation, maintenance, monitoring, repair and replacement of the Chromium Remedy and development consistent with paragraphs 60(j) and 60(k), including the construction and

placement of roads and utilities. The Hackensack River Watershed Land Trust shall be the primary holder of the conservation restriction, with all rights of monitoring and enforcement. Riverkeeper shall propose an entity to serve as the secondary holder of the conservation restriction subject to comment by the Parties and review by the Special Master. The secondary holder shall have secondary rights of monitoring and enforcement.

(i) The conservation restriction shall be incorporated into this Consent Decree and made part of this Consent Decree. The final, executed conservation restriction shall be lodged with the Court and entered as an order of the Court. The conservation restriction shall be enforceable in this Court, in the same manner as this Consent Decree.

(ii) The conservation restrictions provided under this Consent Decree shall be consistent with the prohibited and permitted development of the AOC 1 Open Space Area as set forth in paragraphs 60(j) and 60(k) below.

(iii) Jersey City shall not take any action, whether through exercise of any power of eminent domain, application to the State of New Jersey for approval of a diversion of public park or recreation land, legal challenge to the validity or enforceability of the conservation restriction, or otherwise, the effect of which would be to in any way terminate, abrogate, or diminish the terms, conditions, or purposes of the conservation restriction. If, notwithstanding the preceding sentence, Jersey City proceeds with a condemnation or other action, the result of which would be to terminate, abrogate, or otherwise diminish the terms, conditions, or purposes of the conservation restriction, Jersey City shall, before taking any such action satisfy all of the conditions set forth in paragraph60(a)(iv)(2).

(iv) Notwithstanding the foregoing, the conservation restriction may be terminated upon application of any Party when no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area, whether in soils or in groundwater, in excess of the

levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive.

(c) **Deed Notice.** Upon completion of the Chromium Remedy, the AOC 1 Open Space Area shall be subjected to the deed notice substantially in the form set forth in Exhibit E that restricts future activities on the AOC 1 Open Space Area. Nothing in the deed notice shall be construed as preventing the imposition of more stringent restrictions on the development allowed in the AOC 1 Open Space Area pursuant to this paragraph and, in particular, the conservation restriction provided for in paragraph 60(b).

(d) **Recording of the Consent Decree, Conservation Restriction, and Deed Notice.** This Consent Decree, the conservation restriction imposed pursuant to paragraph 60(b), and the deed notice imposed pursuant to paragraph 60(c) shall be recorded, pursuant to N.J.S.A. 46:15-1.1, 46:16-1.1, and 46:16-2, in the office of the Hudson County Register and a conspicuous reference to the Consent Decree, conservation restriction, and deed notice shall be included in all instruments concerning title to the AOC 1 Open Space Area. Any Party shall have the right, periodically, but no more than once every 25 years, to record memoranda or other instruments that reference, incorporate, or attach this Consent Decree, the conservation restriction, the deed notice, and/or any further orders of the Court related to the AOC 1 Open Space Area in the real estate records related to the AOC 1 Open Space Area.

(e) **Zoning.** Pursuant to the Redevelopment Plan, the AOC 1 Open Space Area is designated for open space and park. Jersey City shall not amend or change this designation unless it first satisfies the requirements of paragraph 60(a)(iv)(2).

(f) **Recreation and Open Space Inventory.** Upon acquiring fee simple absolute title to the AOC 1 Open Space, Jersey City shall add those portions of the AOC 1 Open Space Area not covered by roads, the pedestrian thoroughfare, and utility corridors adjacent to

roads onto its Green Acres Program Recreation and Open Space Inventory ("ROSI") pursuant to N.J.A.C. 7:36 and shall specify in such listing that it is subject to (i) Honeywell's prior easement to monitor, maintain, repair, and replace the Chromium Remedy; (ii) the actions necessary to implement, monitor, maintain, repair, and replace the Chromium Remedy; (iii) the actions necessary to install any development permissible under paragraphs 60(j) and 60(k); and (iv) the conservation restriction imposed pursuant to paragraph 60(b). Jersey City shall also take all steps necessary or appropriate to notify the New Jersey Green Acres Program that such portions of the AOC 1 Open Space Area have been added to its ROSI, such that those portions of the AOC 1 Open Space Area shall thereafter be subject to all procedural and regulatory requirements applicable under the Green Acres Program, including prohibitions against diversion.

(g) **Eminent Domain.** If all or part of the AOC 1 Open Space Area is taken in exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, by any public, corporate, or other authority so as to terminate, abrogate, or limit the restrictions created by this Consent Decree or the conservation restriction imposed pursuant to paragraph 60(b), in whole or in part, any Party may take appropriate actions to challenge such taking if there is a reasonable legal basis for doing so. In the event that the Parties are unable to prevent a taking notwithstanding their reasonable and appropriate efforts, any Party may take appropriate actions to recover the full value of the interests in the AOC 1 Open Space Area subject to the taking or in lieu purchase, and all direct and incidental damages, costs, and fees occasioned thereby.

(h) **Environmental Covenant.** In the event that New Jersey enacts the Uniform Environmental Covenants Act or its substantial equivalent, the Parties shall address the issue of whether an environmental covenant shall be established for the AOC 1 Open Space Area under the statute. If the Parties are unable to reach agreement on establishment of an environmental

covenant, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of an environmental covenant if it would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(i) **Future Protections.** Any Party shall have the right to propose consideration of additional or substitute protections for the AOC 1 Open Space Area. If the Parties are unable to reach agreement with regard to the proposal, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. The Special Master shall recommend adoption of additional or substitute protections for the AOC 1 Open Space Area if they would provide substantial additional protection for the AOC 1 Open Space Area without unreasonably harming the interests of any Party. Any Party shall have the right to seek review by the Court of the Special Master's recommendation or consideration by the Court of the dispute in the event that the Special Master's appointment has expired.

(j) **Prohibited Development in AOC 1 Open Space Area.** Only development satisfying the requirements of this paragraph and paragraph 60(k) shall be permitted in the AOC 1 Open Space Area. All other development in the AOC 1 Open Space Area shall be prohibited.

(i) Honeywell shall establish Open Space Design Standards that shall govern all development in the AOC 1 Open Space Area regardless of when the construction or installation of permissible development occurs. The Open Space Design Standards shall satisfy each of the requirements set forth in paragraph 60(j)(v) and shall set forth the requirements for development that are necessary for the protection of the integrity of the Chromium Remedy.

(ii) The Initial Development in the AOC 1 Open Space Area shall be the

development undertaken following the completion of the Chromium Remedy in the AOC 1 Open Space Area. The Initial Development may occur in one or more phases. Honeywell and Bayfront Redevelopment LLC shall prepare a Development Plan before the initiation of each phase of the Initial Development. The Initial Development Period for each phase shall consist of the period covered by the Initial Development, plus a period of 10 years following the submission of the as-built documentation for the phase pursuant to paragraph 60(j)(viii).

(iii) The Special Master shall have jurisdiction to review the Open Space Design Standards and the Development Plan(s) solely for the purpose of ensuring that any development undertaken during the Initial Development Period is consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy. The Special Master's jurisdiction with regard to development in the AOC 1 Open Space Area shall run through the Initial Development Period for each phase.

(iv) Honeywell shall ensure that the requirements of this paragraph and paragraph 60(k) are satisfied with regard to any development undertaken within the Initial Development Period. Honeywell shall also ensure that any development undertaken within the Initial Development Period is designed and installed in a manner consistent with this Consent Decree and with protection of the integrity of the Chromium Remedy.

(v) Any development undertaken in the AOC 1 Open Space Area, regardless of when undertaken, shall satisfy each of the following requirements:

(1) It shall not jeopardize the integrity of the Chromium Remedy;

(2) It shall be limited to the types of development permitted under paragraph 60(k);

(3) It shall be consistent with this Consent Decree, including the conservation restriction imposed pursuant to paragraph 60(b), and the Redevelopment Plan;

however, in the event of any conflict or inconsistency between this Decree and the Redevelopment Plan, this Decree shall govern;

(4) In total, at least 75% of the AOC 1 Open Space Area, exclusive of the acreage used for roads and the pedestrian thoroughfare, shall be comprised of landscaping, as defined by paragraph 60(k)(xi);

(5) The portion of the Open Space Design Standards necessary for protection of the Chromium Remedy as related to all roads, the pedestrian thoroughfare and associated utility corridors as well as the general location of such items shall be included in the 100% Design of the Chromium Remedy;

(6) If the lowest elevation for the bedding for any utility line, including irrigation or sprinkler lines, is two feet from the top of the warning layer of the cap, the utility line shall be placed in a utility corridor;

(7) In any event, there shall be two feet of soil or more between the warning layer of the cap and the lowest elevation of the bedding for any irrigation or sprinkler lines; and

(8) No permanent concession facilities shall be permitted.

(vi) Honeywell shall submit the Open Space Design Standards and the Development Plan(s) for any development undertaken during the Initial Development Period pursuant to the requirements of paragraph 72(c), except that such documents need not be submitted to NJDEP. Following Honeywell's submission of such documents, the procedures of paragraphs 72(d) and 72(e) shall apply, except that the Special Master need not provide notice to NJDEP.

(vii) During the Initial Development Period, any development in the AOC 1 Open Space Area shall require the preparation and submission of a Development Plan pursuant

to paragraph 60(j)(vi) and such Development Plan shall be subject to review by the Special Master pursuant to paragraph 60(j)(iii).

(viii) Upon completion of each phase of the Initial Development, Honeywell shall provide as-built documentation for the Initial Development to the Special Master, Riverkeeper, and the Jersey City Entities. Upon completion of any further development during the Initial Development Period for the phase, Honeywell shall also provide as-built documentation to the Special Master, Riverkeeper, and the Jersey City Entities for the additional development. Such additional as-built documentation for a phase shall not affect the running of the Initial Development Period for the phase.

(ix) During the Initial Development Period, replacement in-kind of development features or facilities included in the Initial Development or minor modifications to the development features or facilities included in the Initial Development shall not require the preparation of a Development Plan or be subject to review by the Special Master, provided that such replacement or modification satisfies the requirements of the Open Space Design Standards, the applicable Development Plan, and paragraphs 60(j)(v) and 60(j)(x)(3)(notice requirement).

(x) After the Initial Development Period, all development is prohibited unless one of the following conditions is met:

(1) Jersey City satisfies the conditions set forth in paragraph 60(a)(iv)(2);

(2) The development is a replacement in-kind and such replacement is made in conformance with the specifications of the Open Space Design Standards, the applicable Development Plan, and paragraph 60(j)(v); or

(3) The development meets the requirements of paragraphs 60(j)(v) and 60(j)(xi), and Jersey City provides notice of its intention to alter or add to the

development undertaken in the Initial Development Period. Such notice shall be provided in writing to Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) at least 30 days prior to Jersey City's alteration or addition to development undertaken in the Initial Development Period. Honeywell, Riverkeeper, or any holder of the conservation restriction shall have the right to move the Court to prohibit such alteration or addition.

(xi) If any of the development features or facilities that Jersey City seeks to add pursuant to paragraph 60(j)(x) require utilities that would require utility corridors other than the utility corridors installed during the Initial Development Period, Jersey City shall obtain approval from the Court before installing such new utility corridors.

(xii) Jersey City shall provide Honeywell, Riverkeeper, and the holders of the conservation restriction established pursuant to paragraph 60(b) with an annual report that describes any alterations or additions, including those activities under paragraph 60(j)(x)(2), to the development undertaken during the Initial Development Period.

(xiii) All development features or facilities, whether included in the Initial Development or added subsequent thereto, are subject to demolition and/or removal to the extent necessary to maintain, replace, or repair the Chromium Remedy.

(k) **Permissible Development in the AOC 1 Open Space Area.** The Initial Development or any subsequent addition or alteration thereto may include any or all of the following types of development features or facilities, provided that such development features or facilities satisfy the conditions set forth in paragraph 60(j)(v):

(i) Roads and the pedestrian thoroughfare -- both crossing and running along the AOC 1 Open Space Area, but no more extensive than provided for in the diagram on page 39 of the Redevelopment Plan;

(ii) Curbing and fences;

(iii) Sidewalks, paths, walkways, and nature trails;

(iv) Utilities and utility corridors, lighting, and restrooms;

(v) Irrigation or sprinkler components or systems;

(vi) Water features;

(vii) Above-ground storm water cisterns;

(viii) Signs, including the signs or display required by paragraph 60(l);

(ix) Benches, trash receptacles, and bicycle racks;

(x) Recreational facilities, such as playground equipment, bocce ball courts, tennis courts, basketball courts, and athletic fields; and

(xi) Landscaping, including natural grasses, small trees, shrubbery, flowers, and potted plants, provided that such landscaping and the anticipated root structure of each landscaping component do not and will not jeopardize the integrity of the Chromium Remedy. Any portion of an athletic field that is covered in natural grass shall be considered landscaping for purposes of the percentage set forth in paragraph 60(j)(v)(4).

(l) **Signs or Displays.** Honeywell shall develop a permanent plan for informing visitors to the AOC 1 Open Space Area of the history of the chromium production, contamination, and its remediation. Such plan shall provide for appropriate signs or displays that communicate this information. Such plan shall be subject to review and comment by the Parties and approval by the Special Master.

61. **Honeywell's Ongoing Responsibility.** Honeywell shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy in perpetuity. Honeywell shall satisfy this responsibility through establishment and implementation of a Long-Term Monitoring Plan. In the event that Honeywell ceases to exist without a

successor-in-interest or its obligations under this Consent Decree are stayed or limited due to a bankruptcy petition, the Court shall appoint an independent third-party fiduciary who shall be responsible for implementing, monitoring, maintaining, repairing and replacing the Chromium Remedy pursuant to the requirements of this Consent Decree and the Long-Term Monitoring Plan, unless Jersey City volunteers to assume these responsibilities for the Chromium Remedy.

62. **Long-Term Monitoring Plan.** In consultation with the Parties, and subject to approval by the Special Master and NJDEP, Honeywell shall develop a Long-Term Monitoring Plan to ensure the ongoing effectiveness of the Chromium Remedy to meet the objectives set forth in paragraphs 56, 58, and 63. The Long-Term Monitoring Plan shall be consistent with the applicable EPA policies and guidance, including, among others, EPA's Comprehensive Five Year Review Guidance (2001) (or any subsequent revision) and with NJDEP's Technical Requirements for Site Remediation (or any subsequent revision).

63. **Long-Term Monitoring Plan Objectives.** Honeywell shall design the Long-Term Monitoring Plan to satisfy each of the following objectives:

(a) Provide monitoring to ensure that the integrity and effectiveness of the Chromium Remedy are maintained; and

(b) Provide monitoring to ensure that the restrictions of the institutional controls are being satisfied, including the prohibition on development in the AOC 1 Open Space Area.

64. **Monitoring and Remediation Under the Long-Term Monitoring Plan.** The Long-Term Monitoring Plan shall include the monitoring and remediation activities set forth in this paragraph and other monitoring and remediation activities, if necessary, to meet the objectives of paragraph 63. Honeywell shall provide Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP with annual reports on activities conducted under the Long-Term Monitoring Plan.

(a) **Monitoring Activities in the Long-Term Monitoring Plan.** Honeywell shall undertake the following monitoring activities at intervals to be specified in the Long-Term Monitoring Plan, but no less frequently than set forth below, and, if the monitoring shows it is necessary, Honeywell shall also undertake the remediation activities as set forth below:

(i) Quarterly visual inspection monitoring of the AOC 1 Open Space Area to ensure that it is not being put to any use that is inconsistent with paragraphs 60(j) and 60(k) or any use that may compromise the integrity of the Chromium Remedy. The Long-Term Monitoring Plan shall include an inventory of the prohibited and permissible uses pursuant to paragraph 60 and a corresponding checklist to be used by the individuals conducting the monitoring. If Honeywell determines that the AOC 1 Open Space Area is being used in a manner inconsistent with the protections or the integrity and effectiveness of the Chromium Remedy, Honeywell shall act as soon as possible to cause such use to cease and, if there has been damage to the Chromium Remedy, to repair or replace it to original specifications or to a level of protection equivalent to the original Chromium Remedy;

(ii) Quarterly visual inspection monitoring of the AOC 1 Open Space Area grade and slope to identify whether erosion has occurred or is occurring. Honeywell shall remediate any significant erosion.

(iii) Quarterly visual inspection monitoring to determine whether noticeable differential settlement or subsidence has occurred or is occurring in the AOC 1 Open Space Area such that the integrity of the Chromium Remedy may be materially impaired. If evidence of differential settlement or subsidence is found, Honeywell shall propose further investigative measures. Honeywell shall remediate any differential settlement or subsidence that is beyond the degree of differential settlement/subsidence allowed for in the 100% Design

and repair the cap and/or the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(iv) A baseline topographic survey at the completion of the Chromium Remedy and three additional surveys conducted at five-year intervals beginning five years after the conduct of the baseline survey. The topographic survey shall be of sufficient precision and accuracy to present the results as one-foot contours;

(v) Quarterly visual inspection monitoring to determine whether the Chromium Remedy in the AOC 1 Open Space Area has been disturbed. Any evidence of the distinctive warning layer materials or any other cap materials as described in paragraph 56(a) at the surface is an indication that the cap has been disturbed. In such an event, Honeywell shall propose further investigative measures to evaluate whether the integrity of the cap has been compromised. In the event that the investigative measures show that the cap integrity has been compromised, Honeywell shall repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vi) Quarterly visual inspection monitoring to ensure that burrowing animals are not materially impairing the integrity of the Chromium Remedy. If evidence of burrowing animals is found, Honeywell shall follow humane removal procedures and repair or replace the cap and the overlying layers to original 100% Design specifications or to a level of protection at least equivalent to the original Chromium Remedy;

(vii) Quarterly visual inspection monitoring of the vegetative cover in the AOC 1 Open Space Area to ensure that vegetative cover is in conformance with the landscaping provisions of the 100% Design and the Redevelopment Plan and will not materially impair the integrity of the Chromium Remedy. Maintenance of the vegetative cover shall include, at a

minimum, mowing to ensure that tree species cannot become established and removal of any other vegetation with the potential to damage the Chromium Remedy;

(viii) Quarterly groundwater monitoring to ensure that groundwater levels are maintained in accordance with the requirement to maintain an outward gradient from Study Area 7 and in accordance with the water level control plan developed pursuant to paragraph 58(e);

(ix) Monitoring of vented gases and the gas venting system to ensure proper operation of the system, to evaluate any degradation of the system, to assess the need for treatment of vented gases, either initial, subsequent, or further depending on whether treatment has been previously provided, and to detect any condition that might endanger public health or safety. Such monitoring shall be conducted on a monthly basis for at least one year and, if the readings are stable, such monitoring may be conducted thereafter on a quarterly basis; and

(x) Any additional monitoring as required by specific details added in the design phase of the AOC 1 Open Space Area.

(b) **Procedures for Proposing Changes to the Long-Term Monitoring Plan.** Any Party may, from time to time, propose changes to the scope of the monitoring activities under the Long-Term Monitoring Plan. If the Parties agree, the Long-Monitoring Plan shall be so changed subject to approval by NJDEP and by the Special Master, if his appointment has not terminated, or otherwise, by the Court. If the Parties are unable to reach agreement over alterations to the monitoring and the Special Master's appointment has not terminated under this Consent Decree, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation. In the event that the dispute arises after the Special Master's appointment has terminated, any Party may file a motion seeking a resolution of the dispute by

the Court.

(c) **Contingency Plan.** As part of the Long-Term Monitoring Plan, Honeywell shall develop a contingency plan to ensure the integrity of the remediation in the event of any planned penetration of the cap or otherwise planned activity that compromises the cap or any unplanned event or accident that penetrates the cap or otherwise compromises the integrity of the Chromium Remedy. The contingency plan shall include, at a minimum, an annually updated plan to notify the relevant persons, including the Special Master, NJDEP, and the Parties, of (i) the event penetrating the cap, compromising the cap, or compromising the integrity of the Chromium Remedy; (ii) the general steps to be taken to identify the extent of the problem; and (iii) the standards for remedying the problem.

(d) **Routine Maintenance.** The title owner of the AOC 1 Open Space Area shall conduct maintenance of the AOC 1 Open Space Area features or facilities that are permissible under paragraphs 60(j) and 60(k). The maintenance workers shall be trained in maintenance procedures that do not jeopardize the integrity of the Chromium Remedy. The training shall include the identification and reporting of any uses or features that are not permissible in the AOC 1 Open Space Area or that may jeopardize the integrity of the Chromium Remedy. Honeywell shall provide all training materials. The title owner of AOC 1 Open Space Area shall annually provide to the other Parties and the Special Master a report describing the training which has been provided to its maintenance workers. The title owner of the AOC 1 Open Space Area shall also provide to the Parties and the Special Master notice of any violations of the restrictions relating to the AOC 1 Open Space Area identified by its workers during routine maintenance.

(e) **Recordkeeping.** Honeywell shall maintain written logs or other records of those monitoring and remediation activities undertaken pursuant to the Long-Term Monitoring

Plan. Such logs shall be provided to Riverkeeper and the Jersey City Entities on a quarterly basis.

65. **Monitoring and Reporting to Riverkeeper and Jersey City Entities.** Riverkeeper and Jersey City Entities shall be provided with all documents submitted to NJDEP and/or the Special Master with respect to the Chromium Remedy, including the documents identified in paragraph 72(c).

66. **Notice to Stakeholders.** All residents, regardless of whether they are owners or lessees, and all commercial tenants on Study Areas 6 and 7 are hereby deemed stakeholders. Honeywell shall ensure that all stakeholders shall be provided at the time of their purchase or lease with notice of the contamination, the remedial actions that have been undertaken or are planned, and the importance of reporting activities that may appear to jeopardize the integrity of the engineering controls. Notice shall be accomplished in the following manner:

(a) Bold or otherwise conspicuous language on the first page of the deed provided to all purchasers in the Residential Area;

(b) A summary notice of the Chromium Remedy which:

(i) Has been subject to review and comment by the Parties and approval by the Special Master; and

(ii) Provides a reference to public websites and libraries and/or the future equivalents thereof, where the following can be found:

(1) Zoning and other Jersey City maps showing the AOC 1 Open Space Area; and

(2) Documents describing the contamination and the remediation, including:

(a) This Consent Decree;

(b) The Remedial Investigation Report and the Final Remedial Action Report,

(c) The annual reports on long-term monitoring and maintenance and repair activities as required by paragraph 64 and annual reports on changes to the Initial Development as required by paragraph 60(j)(xii); and

(d) The Long-Term Monitoring Plan.

(c) The provision of the maps and documents referred to in paragraph 66(b)(ii) to the public via websites and libraries and/or the future equivalents thereof; and

(d) Notices to lessees and commercial tenants in all lease documents.

67. **Annual Letter to Riverkeeper and Jersey City Entities on Notice to Stakeholders.** Each year beginning one year after the issuance of the first notice in a deed or lease pursuant to paragraph 66, Honeywell shall provide a letter to the Riverkeeper and the Jersey City Entities documenting its compliance with paragraph 66.

68. **Future Notice to Stakeholders.** Honeywell shall ensure that all stakeholders are provided with notice, at least annually, of long-term monitoring activities and any additional remediation activities undertaken with respect to the Chromium Remedy. Such notice shall be accomplished by notices on websites or future equivalents thereof, including Jersey City websites, any websites created to provide information about the Chromium Remediation or redevelopment of the Redevelopment Area, and one or more of the following:

(a) Any community message board or other similar site used and/or maintained by stakeholders or the manager(s) of the Redevelopment Area;

(b) Mailings to all stakeholders; and

(c) Posters and flyers throughout the Redevelopment Area.

69. **Stakeholder Enforcement.** Any stakeholder shall have the right to enforce the

remedial obligations of this Consent Decree in the Court, including post-implementation monitoring and maintenance obligations, and the terms of any deed notice or use restriction.

C. Oversight and Enforcement by the Special Master and NJDEP

70. **Federal Court Jurisdiction.** The Court shall retain jurisdiction for the purpose of overseeing and enforcing this Consent Decree and to review any issue or dispute which is not resolved through the oversight process described in Article III.C.

71. **Appointment and Jurisdiction of the Special Master.** The Chromium Remedy provided for in this Consent Decree is hereby referred to a Special Master pursuant to Rule 53 of the Federal Rules of Civil Procedure. The Special Master is appointed in the Consolidated Litigation for the purpose of overseeing and enforcing the Chromium Remedy, the first five years of long-term monitoring of the Chromium Remedy, financial assurances for the Chromium Remedy, and the Initial Development Period for each phase of development in the AOC 1 Open Space Area. The Special Master is also appointed in the Consolidated Litigation for the limited purpose of ensuring that the scheduling and implementation of the Historic Fill Remedy, the site preparation activities, and the site redevelopment activities described in the Jersey City/Honeywell Consent Order, Articles II.B, III, and IV, do not undermine the integrity of, unreasonably interfere with, or unnecessarily delay the effectuation of the Chromium Remedy, the Study Area 7 remedies, and other remedies within his jurisdiction as of the date of entry of this Consent Decree. The Special Master shall have jurisdiction over all matters for which he is appointed.

72. **Oversight of the Chromium Remedy.**

(a) **NJDEP Authority.** NJDEP shall retain its full statutory and regulatory authority with respect to the Study Area 6 North site, including (i) permitting authority; (ii) authority to review and approve the Remedial Action Work Plan, 100% Design, and final

Remedial Action Report for the Chromium Remedy; and (iii) authority to issue a no further action letter.

(b) **Special Master Responsibilities.** The Special Master shall have the following responsibilities:

(i) Ensuring that Honeywell's implementation of the Chromium Remedy satisfies the requirements of this Consent Decree;

(ii) Ensuring that Honeywell's implementation of the Chromium Remedy conforms with federal, state, and local permit requirements;

(iii) Establishing a reasonable schedule for the implementation of the Chromium Remedy and monitoring conformance with it;

(iv) Reviewing monthly progress reports and conducting periodic meetings with the Parties to review the progress of the implementation of the Chromium Remedy. NJDEP shall be invited, but not required, to participate in these meetings and the decision as to whether to participate shall be left to NJDEP's sole discretion;

(v) Submitting quarterly progress reports to the Court;

(vi) Overseeing the financial assurances established pursuant to paragraphs 77 through 86, and, until the expiration of his term pursuant to paragraph 76, overseeing the financial assurances established pursuant to paragraphs 87 through 98;

(vii) Coordinating review of the documents as provided in paragraphs 72(c) through 72(f);

(viii) Overseeing all development undertaken in the AOC 1 Open Space Area during the Initial Development Period pursuant to paragraph 60(j)(iii); and

(ix) To the extent that, in matters within the jurisdiction of the Special Master as set forth herein, a dispute arises between the Parties with respect to implementation of the Chromium Remedy, issuing a recommendation to the Court with respect to the dispute.

(c) **Submission of Documents by Honeywell.** Honeywell shall submit the following documents to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP:

(i) An overall schedule with milestones for the design and implementation of the remedy ("Schedule");

(ii) Design drawings and specifications at the 50% level;

(iii) Design drawings and specifications at the 100% level (after selection of the contractor) (hereafter "100% Design");

(iv) The data validation plan, including quality control and quality assurance protocols;

(v) The site-wide master health and safety plan;

(vi) The Long-Term Monitoring Plan;

(vii) The final Remedial Action Report or final construction report (including as-built drawings and such other reports as may be prepared of the remedy as implemented);

(viii) A report reviewing measured groundwater levels for the groundwater remedy;

(ix) Documents required during the Initial Development Period pursuant to paragraphs 60(j)(vi), 60(j)(vii), and 60(j)(viii) ; and

(x) Other post-implementation monitoring reports as required by the Long-Term Monitoring Plan.

(d) **Comment on Submitted Documents.** For each of the documents submitted by Honeywell pursuant to paragraph 72(c), the Special Master shall establish a schedule for the submission of comments and responses to comments. For each of the documents submitted, Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP shall have the right to submit comments to Honeywell. Honeywell shall address all received comments and submit a revised document. The revised document shall be submitted by Honeywell to Riverkeeper, the Jersey City Entities, the Special Master, and NJDEP. The revised document shall be subject to review and approval pursuant to paragraph 72(e).

(e) **Review and Approval of the Submitted/Revised Document**

(i) **Scope of Review.** All documents submitted by Honeywell, pursuant to paragraph 72(c) and 72(d), shall be subject to review and approval by the Special Master in accordance with the following procedure. All such documents, except the Schedule and the 100% Design, shall be subject to the review and approval process and shall not require an order of the Court. The Schedule and 100% Design documents shall be subject to the review and approval process, but shall also require an order of the Court as provided in paragraph 72(f). A document shall be approved if the document (1) complies with this Consent Decree; (2) complies with the Remedial Action Work Plan for the Chromium Remedy; and (3) complies with the Schedule and 100% Design.

(ii) **Procedure.** Prior to making a decision on a document, the Special Master shall notify NJDEP of his intention to rule on the document or make a recommendation to the Court on the document. Such notice shall notify NJDEP that the Special Master will consider any comments NJDEP wishes to submit on the document if such comments are submitted within 30 days of NJDEP's receipt of the notice. NJDEP shall in its sole discretion determine whether to submit comments to the Special Master.

(iii) **Court Review.** If any Party objects to the Special Master's recommendation to the Court or approval of any document pursuant to this paragraph, that Party may seek further relief from the Court with respect to the document.

(f) **Schedule and 100% Design Documents.** As to the Schedule and the 100% Design documents, Honeywell shall have the responsibility, within 30 days of the Special Master's approval of each document, of (i) moving for entry of an order by the Court approving the document as approved by the Special Master; or (ii) filing objections with the Court to the Special Master's approval (and any recommendations contained therein) and moving for entry of the Schedule or 100% Design (including any such recommendations of the Special Master to which Honeywell agrees). Riverkeeper and the Jersey City Entities shall have the right in these proceedings to raise any objections they might have to the Schedule or 100% Design as approved by the Special Master or to the submission by Honeywell to the Court. NJDEP shall receive notice of any motion filed with respect to the Schedule or the 100% Design.

(g) **Flexibility in 50% and 100% Design Documents**. The Parties recognize that work conducted to implement the Chromium Remedy may be conducted by Honeywell contractors and that Honeywell may establish performance-based criteria or specifications for its contractors. As a result, the Parties recognize that the 50% Design and 100% Design documents for the Chromium Remedy may include performance-based standards, criteria, and specifications. These documents shall be sufficiently prescriptive to enable the Parties and the Special Master to evaluate their conformance with the Remedial Action Work Plan and this Consent Decree. The Parties also recognize that the 100% Design will be completed after Honeywell has selected a contractor. The Parties further recognize that completing the 100% Design after the selection of the contractor(s) shall not make the 100% Design subject to any less

stringent or more deferential review. Honeywell's commitment to the contractor(s) shall not be cause to limit review by the Parties and the Special Master.

(h) **Changes to the Schedule**. The Parties recognize that changes to individual line items in the Schedule will occur. To the extent that (i) the Parties and the Special Master agree that such changes do not have a material impact on satisfaction of the Schedule milestones established for items set forth in paragraph 54(b); and (ii) such changes do not require modifications to any necessary permits or authorizations for the Chromium Remedy, such changes may be made upon agreement of the Parties and the Special Master without further order of the Court.

73. **Retention of Professionals.** The Special Master may retain the services of professionals and/or other technical personnel, as reasonably needed, to fulfill his obligations under this Consent Decree, and for which he will be reimbursed pursuant to paragraph 75.

74. **Insurance for the Special Master.** The Special Master shall obtain insurance coverage relating to the performance of the Special Master's duties and responsibilities under this Consent Decree. Such coverage shall be similar to the Special Master's existing coverage in *ICO v. Honeywell*, procured pursuant to the Court's November 11, 2005 Stipulation and Order Regarding Special Master's Application to Procure Insurance Coverage, and as extended to the Consolidated Litigation by the Consent Order on Sediment Remediation and Financial Assurances ("Sediment Consent Order"). The insurance coverage shall be sufficiently extended in duration and scope to cover all additional duties and responsibilities as set forth hereunder. Honeywell shall pay the premiums and other administrative costs of the Special Master's insurance.

75. **Reimbursement of Special Master Fees and Expenses.** The Special Master shall submit fee applications to the Court for approval of reasonable fees and expenses incurred in the

oversight of matters referred to him pursuant to this Consent Decree. Any Party may raise with the Court objections to such fee applications. Upon approval of a fee application by the Court, the reimbursement of the Special Master's fees and expenses shall be made from the escrow fund previously established by Honeywell for the purpose of paying the Special Master's fees and expenses in *ICO v. Honeywell* pursuant to this Court's September 15, 2003 Order Setting Financial Assurances and extended to the Consolidated Litigation by the Sediment Consent Order.

76. **Expiration of Special Master's Appointment.** The Special Master's appointment under this Consent Decree shall expire after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy and the Initial Development Period for each phase of development has been concluded as provided in paragraph 60(j)(ii). However, solely to the extent that the Special Master is still supervising other portions of the Consolidated Litigation or *ICO v. Honeywell* after Honeywell has completed the first five years of long-term monitoring of the Chromium Remedy or the Initial Development Period for each phase of development as provided in paragraph 60(j)(ii), whichever is later, the Special Master shall continue to have jurisdiction under this Consent Decree until he has completed his specifically enumerated responsibilities under the Final Judgment in *ICO v. Honeywell*, the Sediment Consent Order, the Deep Groundwater Consent Order, and any other future orders, decrees, or judgments in *ICO v. Honeywell* and the Consolidated Litigation. Enumerated responsibilities under any order, decree, or judgment shall include only those tasks specifically assigned to the Special Master in the order, decree, or judgment. Enumerated responsibilities shall not include any continued jurisdiction exercised over long-term monitoring beyond the initial period specified in the order, decree, or judgment. For example, the Special Master has jurisdiction over the first five years of long-term monitoring under the Sediment Consent Order. Oversight during these five years shall

be an enumerated responsibility, but any continued oversight of long-term monitoring, pursuant to the extension of the Special Master's jurisdiction beyond the first five years, as provided in paragraph 60 of the Sediment Consent Order, shall not be an enumerated responsibility. Such extensions of jurisdiction shall be effective only so long as specific enumerated responsibilities in any order, decree, or judgment have not been fulfilled.

D. Initial Financial Assurances

77. **Chromium Remedy Letter of Credit.** Honeywell shall obtain a one-year, irrevocable letter of credit (the "Chromium Remedy Letter of Credit") to be automatically renewed annually in an amount equal to the "Remedial Costs Subject to Financial Assurance."

(a) Remedial Costs Subject to Financial Assurance shall mean:

(i) The costs of implementing the Chromium Remedy;

(ii) The costs of monitoring and maintenance activities, as required by the Long-Term Monitoring Plan, for five years; and

(iii) A contingency of 25% with respect to those costs listed in paragraphs 77(a)(i) and 77(a)(ii).

(b) The Chromium Remedy Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution, provided that in either case, the financial institution shall be acceptable to the Special Master.

78. **Procedures for Review of the Proposed Chromium Remedy Letter of Credit.** No later than 60 days after entry by the Court of this Consent Decree, Honeywell shall submit to Riverkeeper, Jersey City Entities, and the Special Master for their review the proposed (a) amount of the Chromium Remedy Letter of Credit; (b) form of the Chromium Remedy Letter of Credit; and (c) name of the institution that will issue the Chromium Remedy Letter of Credit. If

Riverkeeper or the Jersey City Entities do not agree to the terms of the Chromium Remedy Letter of Credit, the Parties shall meet and confer in an effort to resolve their differences. If the Parties are unable to reach agreement over the terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the Chromium Remedy Letter of Credit.

79. **Automatic Renewal.** The Chromium Remedy Letter of Credit shall be automatically renewed annually unless (a) no later than 120 days prior to the anniversary of the Chromium Remedy Letter of Credit issue date, the issuer provides notice of nonrenewal or (b) Honeywell seeks a reduction in the Chromium Remedy Letter of Credit, pursuant to paragraph 80, to correspond to the reduced estimate of Remedial Costs Subject to Financial Assurances. If the issuer provides notice of nonrenewal, Honeywell shall obtain a replacement irrevocable Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit. If Honeywell is not otherwise in default as provided in Article III.D, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit within 91 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit. In the event that the Special Master is entitled to draw upon a Chromium Remedy Letter of Credit because there are two Chromium Remedy Letters of Credit currently in place, the Special Master shall not draw an aggregate amount in excess of the highest valued Chromium Remedy Letter of Credit. Upon Honeywell's request, the Special Master may, at his option, decide not to require overlapping letters of credit in any year based on Honeywell's financial strength in that year, provided that Honeywell has submitted all necessary information so that the Special Master can make his determination at least 150 days prior to the expiration of the Chromium Remedy Letter of Credit.

80. **Annual Right to Seek Reduction in Amount of Chromium Remedy Letter of Credit.** Honeywell shall have the right annually to seek a reduction in the Chromium Remedy Letter of Credit. At the time of seeking such reduction, Honeywell shall submit to the Riverkeeper, the Jersey City Entities, and the Special Master an estimate of the remaining Remedial Costs Subject to Financial Assurance, including the contingency as described in paragraph 77(a)(iii), and shall seek adjustment of the Chromium Remedy Letter of Credit so that the total estimated amount of remaining Remedial Costs Subject to Financial Assurance are covered by the Chromium Remedy Letter of Credit. However, the adjustment shall not result in reducing the Chromium Remedy Letter of Credit to an amount below the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), plus a contingency of 25% of the remaining estimated costs under paragraphs 77(a)(i) and 77(a)(ii), and shall not result in reducing the Chromium Remedy Letter of Credit to an amount less than $20,000,000 as expressed in 2008 dollars unless long-term financial assurances are in place pursuant to Article III.E. Before making any request to reduce the amount or modify the terms of the Chromium Remedy Letter of Credit, Honeywell shall first confer with the Riverkeeper and the Jersey City Entities in an effort to reach agreement on the modified amount or terms of the Chromium Remedy Letter of Credit. If the Parties are unable to reach agreement over the modified amount or terms of the Chromium Remedy Letter of Credit, the Parties shall submit the dispute to the Special Master, who shall resolve the dispute. Any Party shall have the right to seek review by the Court of the Special Master's decision regarding the modified amount or terms of the Chromium Remedy Letter of Credit. Upon agreement on the amount of the reduction or modified terms of the Chromium Remedy Letter of Credit (or upon order of the Court directing that the Chromium Remedy Letter of Credit be reduced to an identified amount or otherwise modified), Honeywell shall obtain a replacement Chromium Remedy Letter of Credit in such amount and with such

terms. If Honeywell is not otherwise in default as provided in Article III.D and the issuer of the primary Chromium Remedy Letter of Credit has not provided notice of non-renewal, within 30 days after delivery to the Special Master of any replacement of a Chromium Remedy Letter of Credit, the Special Master shall direct the cancellation of the prior Chromium Remedy Letter of Credit.

81. **Bankruptcy Protection.** Neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy. The Chromium Remedy Letter of Credit shall contain the language necessary to assure that neither the Chromium Remedy Letter of Credit nor the proceeds of the Chromium Remedy Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

82. **Exclusive Court Jurisdiction.** The Chromium Remedy Letter of Credit shall recite that the issuer submits to the exclusive jurisdiction of this Court for any and all disputes arising under the Letter of Credit.

83. **Application of New York Law.** The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Chromium Remedy Letter of Credit.

84. **Procedures upon Honeywell's Material Default of Its Obligations.** During the period in which the Special Master has jurisdiction pursuant to paragraph 71, the Chromium Remedy Letter of Credit shall be payable to the Special Master and shall not, prior to its expiration date, be revoked or terminated except consistent with this Consent Decree and with the consent of the Special Master and approval by the Court. The Special Master's ability to draw upon the Chromium Remedy Letter of Credit shall not be limited by any agreement between Honeywell and the issuer. The Special Master may, without further order or notice to

this Court, draw upon the Chromium Remedy Letter of Credit upon the occurrence of default by Honeywell, which shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 79 to deliver a replacement Chromium Remedy Letter of Credit at least 95 days prior to the expiration date of the existing Chromium Remedy Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 15 days after written notice to Honeywell thereof and either (i) Honeywell, in the opinion of the Special Master without further input from the Parties, shall have failed to cure the breach; (ii) during the 15-day period, the Court has not entered an order to prevent the Special Master from drawing on the Chromium Remedy Letter of Credit; or (iii) the Court or the Special Master has not granted Honeywell additional time to cure the breach;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if involuntary filing has not been dismissed within 60 days; the appointment of a custodian, receiver, liquidator, or trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under paragraph 84(c) above, and the failure of Honeywell to provide assurance to the Special Master, within 15 days after written notice, that such an event will not impair Honeywell's ability to

carry out the terms of this Consent Decree.

85. **Placement of Proceeds in Court Registry Investment System Account.** In the event that the Special Master draws upon the Chromium Remedy Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Chromium Remedy Letter of Credit which represent the remaining estimated Chromium Remedy costs under paragraphs 77(a)(i), plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), in an account with the Court Registry Investment System in accordance with Local Civil Rule 67.1 and not expend the proceeds of the Letter of Credit without further order of this Court. The Special Master shall place all additional proceeds of the Chromium Remedy Letter of Credit in a trust fund pursuant to paragraph 90(b)(v).

86. **Termination of Chromium Remedy Letter of Credit.** The Chromium Remedy Letter of Credit may be withdrawn in its entirety upon the satisfaction of all of the following:

(a) The implementation of the Chromium Remedy; and

(b) Establishment of long-term financial assurance pursuant to Article III.E.

E. Long-Term Financial Assurances

87. **Long-Term Financial Assurances.** Honeywell shall fund long-term financial assurances to ensure that the activities set forth in paragraph 89(a) are carried out regardless of whether Honeywell is financially able to carry out such activities in perpetuity.

88. **Resolution of the Amount of Long-Term Financial Assurances.** The Parties have agreed to the following options with regard to how the long-term financial assurances shall be determined:

(a) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less,

and agree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E.

(b) If the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, but disagree on the amount of funding needed, Honeywell shall provide long-term financial assurances as required by Article III.E except that the dispute as to the amount of the long-term financial assurances shall be submitted to the Special Master pursuant to paragraph 91.

(c) If the Parties do not agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is $10,000,000 or less, or the Parties agree that the current amount necessary to cover the costs to be subject to long-term financial assurances, as set forth in paragraph 89(b), is greater than $10,000,000, the Parties shall seek resolution by the Court of the long-term financial assurances issues, including (i) the type of financial assurances to be provided; (ii) the scope of the financial assurances; (iii) the amount of the financial assurances; and (iv) the duration of the financial assurances. In the event that the Parties seek resolution by the Court, the provisions of paragraphs 90 through 98 shall not apply.

(d) Within 60 days of the entry of this Consent Decree, the Parties shall determine which option under this paragraph shall apply. In the event that the Parties determine that paragraph 88(c) applies, Riverkeeper shall initiate the proceedings by moving the Court for the imposition of long-term financial assurances.

(e) If the Parties determine that they are proceeding under paragraph 88(c), Honeywell shall maintain the Chromium Remedy Letter of Credit required by paragraph 77 in an amount equal to at least $20,000,000 in 2008 dollars until such time as the long-term financial assurances ordered by the Court are in place. In the event of any default by Honeywell pursuant

to paragraph 84 while the Chromium Remedy Letter of Credit is in place, the provisions of paragraph 90(b)(v) for the placement of the proceeds that exceed the remaining estimated Chromium Remedy costs under paragraph 77(a)(i) plus a contingency of 25% of the remaining estimated costs under paragraph 77(a)(i), shall apply.

89. **Costs Subject to Long-Term Financial Assurances.**

(a) Long-term financial assurances shall provide enough funds to cover the costs of the following activities:

(i) Perpetual monitoring and maintenance of the Chromium Remedy, including installation, operation and monitoring of any above-cap-grade gas collection and/or treatment system as may be necessary, but such system is not part of the 100% Design;

(ii) Perpetual operation of the shallow groundwater pump-and-treat remedy;

(iii) Perpetual repair of the cap;

(iv) Perpetual replacement of the cap on a 75-year replacement interval; and

(v) In the event that Honeywell selects a trust fund pursuant to paragraph 90(a), the perpetual administration of the trust fund.

(b) The costs that shall be subject to financial assurances is an amount that will provide the full payment for each of the activities set forth in paragraphs 89(a)(i) through 89(a)(v) plus a 25% contingency when the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to be performed. The costs subject to financial assurances are forward looking because they state an amount valued at the time the funds are needed. As such, they shall be stated in contemporary time as the present value (calculated on the basis of a discount rate of 4.75%) of

the estimated future costs of the activities specified in paragraphs 89(a)(i) through 89(a)(v), plus a 25% contingency on those costs.

90. **Long-Term Financial Assurance Mechanisms.** Honeywell shall provide long-term financial assurances in the amount of the costs subject to long-term financial assurances in the form of a trust fund, a letter of credit, or some combination of the two. The selected mechanism(s) shall satisfy the following requirements:

(a) **Trust Fund.** In the event that Honeywell selects a trust fund, Honeywell shall create a trust fund such that it can provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(i) The trust fund shall be at arm's length from Honeywell and shall not be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The trust fund agreement shall contain the language necessary to assure that neither the trust fund nor the earnings of the trust fund shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The trust fund shall be managed by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution managing the trust fund declares bankruptcy, the Court shall withdraw the funds and appoint another financial institution meeting the requirements of this paragraph to manage the trust.

(iii) No more frequently than once per year, Honeywell may apply to the Court for an order directing the trust manager to reimburse Honeywell for any costs that it has incurred to carry out the activities set forth in paragraphs 89(a)(i) through 89(a)(iv).

(b) **Long-Term Letter of Credit.** In the event that Honeywell selects a letter of credit, Honeywell shall obtain a one-year irrevocable letter of credit (the "Long-Term Letter of Credit") to be automatically renewed annually in an amount that provides sufficient funds such that a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a), could be created. The Long-Term Letter of Credit-funded trust, plus any trust fund established under paragraph 90(a), shall provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The amount of any Long-Term Letter of Credit shall therefore be adjusted periodically as the cap replacement interval is approached because, for example, the money needed in the 10th year to fund a trust that can provide for replacement of the cap in the 75th year is much less than the money that would be needed in the 40th year. Such periodic adjustments shall be proposed and approved by the Court in conjunction with the adjustments under paragraph 92.

(i) Neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be considered the property of Honeywell or property of the estate in the event of Honeywell's bankruptcy, dissolution, privatization, or sale. The Long-Term Letter of Credit shall contain the language necessary to assure that neither the Long-Term Letter of Credit nor the proceeds of the Long-Term Letter of Credit shall be affected or restricted in any way by operation of the automatic stay in 11 U.S.C. 362.

(ii) The Long-Term Letter of Credit shall be issued by a financial institution domiciled in the United States or by a United States subsidiary of a non-U.S. financial institution acceptable to Riverkeeper and the Jersey City Entities or approved by the Court. In the event that the financial institution issuing the Long-Term Letter of Credit declares bankruptcy, the Court shall authorize the drawing of funds from the Long-Term Letter of Credit

and shall deposit those funds in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(iii) The provisions of the Uniform Customs and Practice ("UCP") for Documentary Credits (1993 Revision) International Chamber of Commerce Publication #500 and New York law shall apply to the Long-Term Letter of Credit.

(iv) The Long-Term Letter of Credit shall be automatically renewed annually, unless, no later than 120 days prior to the anniversary of the Long-Term Letter of Credit issue date, the issuer provides notice of non-renewal. If the issuer provides notice of non-renewal, Honeywell shall obtain a replacement irrevocable Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit. If Honeywell is not otherwise in default as provided in this Article, the Court shall direct the cancellation of the prior Long-Term Letter of Credit within 91 days after delivery to the Court of any replacement of a Long-Term Letter of Credit. In the event that the Court is entitled to draw upon a Long-Term Letter of Credit when there are two Letters of Credit currently in place, the Court shall not draw an aggregate amount in excess of the highest valued Long-Term Letter of Credit.

(v) Prior to the expiration of the Special Master's appointment pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Special Master. During the time the Long-Term Letter of Credit is payable to the Special Master, the Special Master may draw on the Long-Term Letter of Credit as provided in paragraph 84. In the event that the Special Master draws upon the Long-Term Letter of Credit due to an event of default, the Special Master shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a). After the Special Master's appointment expires pursuant to paragraph 76, the Long-Term Letter of Credit shall be payable to the Court and, in the event that the Court draws

on the Long-Term Letter of Credit, the Court shall place the proceeds of the Long-Term Letter of Credit in a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

(vi) Whether the Long-Term Letter of Credit is payable to the Special Master or the Court, it shall not, prior to its expiration date, be revoked or terminated by Honeywell except consistent with this Consent Decree and with the approval of the Court. The ability of the Special Master or the Court to draw upon the Long-Term Letter of Credit shall not be limited by any agreement between Honeywell and the issuer.

(vii) In the event that the Long-Term Letter of Credit is drawn upon and invested pursuant to paragraph 90(b)(ii), 90(b)(v) or 95 and Honeywell has also selected a trust fund pursuant to paragraph 90(a), resulting in the existence of two trust funds, the two trust funds shall be managed so as to ensure that the combined amount of the trust funds is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary.

(c) **Combination.** Honeywell may use some combination of a trust fund and a letter of credit to achieve the requirements of this paragraph. However, if a combination is used, Honeywell shall ensure that the combined amount of financial assurances is sufficient to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. The trust fund and the letter of credit shall otherwise satisfy all the requirements of paragraphs 90(a) and 90(b).

91. **Procedures for Review of the Proposed Long-Term Financial Assurances.** In the event that the Parties have determined that they are proceeding pursuant to paragraph 88(a) or 88(b), no later than 120 days after the determination under paragraph 88(d), Honeywell shall submit to Riverkeeper, the Jersey City Entities, and the Special Master, for their review (a) the

amount of the proposed long-term financial assurances; (b) the form(s) of the proposed long-term financial assurance mechanisms; and (c) the name(s) of the institution proposed to manage or issue the long-term financial assurances. If Riverkeeper and the Jersey City Entities agree to the terms of the proposed long-term financial assurances, within 60 days of such agreement, Honeywell shall create a trust fund and/or secure a Long-Term Letter of Credit on those terms. If the Parties are unable to reach agreement over the terms of the long-term financial assurances, the Parties shall submit the dispute to the Special Master, who shall recommend a resolution of the dispute. Any Party shall have the right to seek review by the Court of the Special Master's recommendation regarding the terms of the financial assurances. In any event, until the long-term financial assurances have been put into place, Honeywell shall maintain the Chromium Remedy Letter of Credit and the requirements of paragraphs 88(e) and 90(b)(v) shall apply to the Chromium Remedy Letter of Credit.

92. **Adjustment of Amount Held in Long-Term Financial Assurances.** Every five years as marked from the establishment of the first long-term financial assurances pursuant to paragraph 90, the Parties shall report to the Court whether the long-term financial assurances are adequately funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. At such time as the Parties report to the Court, any Party may seek an adjustment in the amount of the long-term financial assurances. The Party seeking an adjustment must demonstrate that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Such demonstration shall reflect the actual costs of implementing the remedy and/or any replacement of the remedy, once such actual costs are available. The demonstration shall also reflect the costs of work completed to date and the actual lifetime of the cap, once the

cap has been replaced or has passed a replacement interval without requiring replacement. The demonstration shall further reflect the actual performance of the fund and its ability to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary. Any demonstration shall be forward looking and shall be based upon estimates of what the activities in paragraphs 89(a)(i) through 89(a)(v) are expected to cost at the time they must be performed and the amount of funding projected to be available to undertake such activities at the time they must be performed. If, after reviewing the submission(s) received from the Parties, the Court determines that the long-term financial assurances are under-funded or over-funded to provide the full amount of the costs subject to long-term financial assurances, as set forth in paragraph 89(b), at the time those funds are necessary, the Court shall order an adjustment in the amount held in the long-term financial assurances to overcome the shortage or overage. In the event that the Court determines that the long-term financial assurances are under-funded, it shall order Honeywell to increase the amount held in the long-term financial assurances. In the event that the Court determines that any trust fund established pursuant to paragraph 90(a) is over-funded, the Court shall issue an order directing the trust manager to pay the overage to Honeywell. In the event that the Court determines that the Long-Term Letter of Credit is over-funded, the Court shall issue an order permitting Honeywell to reduce the amount covered during the next annual renewal of the Long-Term Letter of Credit pursuant to paragraph 90(b)(iv). Any adjustment to the amount of the Long-Term Letter of Credit pursuant to this paragraph shall be in addition to any adjustment of the amount of the Long-Term Letter of Credit required pursuant to paragraph 90(b).

93. **Exclusive Court Jurisdiction.** The trust fund agreement and/or the Long-Term Letter of Credit shall recite that the trust fund manager and/or issuer of the Long-Term Letter of Credit submit to the exclusive jurisdiction of this Court for any and all disputes arising under the

trust fund or the Long-Term Letter of Credit. The requirements of this paragraph shall apply whether the trust fund is established pursuant to paragraph 90(a), 90(b)(ii), 90(b)(v), or 95.

94. **Procedures upon Honeywell's Material Default of Its Obligations after the Special Master's Appointment Has Expired.** Upon the occurrence of default by Honeywell, after the Special Master's appointment has expired, Riverkeeper or the Jersey City Entities may move the Court on an expedited basis for an order to withdraw funds from the trust fund or to draw on the Long-Term Letter of Credit. Default shall include:

(a) The failure of Honeywell, in the event that notice is given pursuant to paragraph 90(b)(iv) to deliver a replacement Long-Term Letter of Credit at least 95 days prior to the expiration date of the existing Long-Term Letter of Credit;

(b) The material failure of Honeywell to proceed with diligence and in good faith to carry out the terms of this Consent Decree and the continuance of such a material breach for a period of 30 days after written notice by Riverkeeper or the Jersey City Entities to Honeywell of the alleged material failure, unless Honeywell cures the alleged breach within the 30-day notice period or such longer period as the Parties may agree to or the Court may order;

(c) The filing by Honeywell of a petition seeking relief, or the granting of relief, under the Federal Bankruptcy Code or any similar federal or state statute; any assignment for the benefit of creditors made by Honeywell; the involuntary filing of any of the foregoing against Honeywell if the involuntary filing is not dismissed within 60 days; the appointment of a custodian, receiver, liquidator, trustee, or other similar official for Honeywell or for a substantial part of Honeywell's property; any action by Honeywell to effect any of the foregoing; or if Honeywell becomes insolvent as defined in Section 101(32) of the Federal Bankruptcy Code; or

(d) The dissolution, liquidation, merger, consolidation, or reorganization of Honeywell or the institution of any proceeding to effect any of the foregoing, other than under

paragraph 94(c), if Honeywell fails to provide assurance to Riverkeeper, the Jersey City Entities, and the Court, within 15 days after written notice, that such an event will not impair Honeywell's ability to carry out the terms of this Consent Decree.

95. **Drawing on the Long-Term Letter of Credit in the Event of Honeywell's Default.** If the Court grants any motion by Riverkeeper or the Jersey City Entities pursuant to paragraph 94 to draw on the Long-Term Letter of Credit, the sum approved by the Court's order granting the motion shall be paid from the Long-Term Letter of Credit into a trust fund, separate from any trust fund created under paragraph 90(a) but satisfying the requirements of paragraph 90(a).

96. **Use of the Trust Fund in the Event of Honeywell's Default**. In the event of Honeywell's default, the money in the trust fund established pursuant to paragraph 90(a) shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

97. **Use of a Trust Fund Established Pursuant to Paragraph 85, 90(b)(ii), 90(b)(v), or 95.** In the event that a trust fund is established pursuant to paragraph 85, 90(b)(ii), 90(b)(v), or 95, the money in the trust fund shall be available to meet the obligations of paragraph 89(a). Riverkeeper and/or the Jersey City Entities shall file motions with the Court seeking orders directing how the money in the trust fund shall be used. The Court shall consider motions on an expedited basis and shall enter appropriate orders. The Court may enter an order allowing for automatic withdrawal of regular expenses without separate motion to the Court by Riverkeeper or the Jersey City Entities.

98. **Termination of the Long-Term Financial Assurances.** Honeywell's obligations

under Article III.E shall be terminated and the long-term financial assurance mechanisms shall be terminated when the Court finds that no hexavalent or total chromium contamination remains in the AOC 1 Open Space Area or on the Site, whether in soils or in groundwater, in excess of the levels specified for Unrestricted Use in the NJDEP Chromium Directive or any more restrictive standards for Unrestricted Use in place at the time, whichever is more restrictive. Upon determining that long-term financial assurances may be terminated, the Court shall order that any Long-Term Letter of Credit may be withdrawn in its entirety and any trust fund may be terminated. In conjunction with its order terminating any trust fund, the Court in its discretion shall designate a recipient(s) of any remaining trust funds.

ARTICLE IV: IMPLEMENTATION SCHEDULE AND TERMINATION

99. **Schedule for Remedy and Site Preparation Implementation Activities.** The Chromium Remedy under Article III and the Historic Fill Remedy under Article II.B of the Jersey City/Honeywell Consent Order and Site Preparation Activities under Article III of the Jersey City/Honeywell Consent Order shall be undertaken by the Parties in accordance with the following anticipated schedule, recognizing that this schedule may be further modified in writing by agreement of the Parties and with the approval of the Court:

(a) By October 1, 2008, the Jersey City Entities and Honeywell shall develop a Site Preparation Plan, pursuant to paragraph 3.2 of the Jersey City/Honeywell Consent Order, for all Site Preparation Activities necessary to undertake the Chromium Remedy;

(b) No later than June 18, 2009, Honeywell shall submit to NJDEP a remedial design document for the Chromium Remedy;

(c) No later than September 1, 2009, Honeywell shall submit all applications for permits and authorizations for the performance of the Chromium Remedy to all appropriate local, state, and federal government entities;

(d) Honeywell shall use its best efforts to complete the Chromium Remedy no later than four years after all appropriate applications and authorizations for the performance of the Chromium Remedy have been obtained;

(e) By May 1, 2008, Honeywell and the Jersey City Entities shall submit a work plan for further Remedial Investigation for AOC 2 to NJDEP; and

(f) By December 1, 2008, Honeywell and the Jersey City Entities shall submit a Remedial Action Selection Report and Remedial Action Workplan for the Historic Fill Remedy set forth in Article II.B of the Jersey City/Honeywell Consent Order. The Workplan shall contain a schedule for implementation of the Historic Fill Remedy.

100. **Termination of this Consent Decree.** This Consent Decree shall terminate upon the withdrawal of any Party as provided for in this paragraph. Any Party may elect to withdraw from this Consent Decree due to the occurrence of one or more of the following events, provided that such Party provides written notice of withdrawal to the other Parties pursuant to paragraph 108:

(a) The Court fails to enter the Jersey City/Honeywell Consent Order or this Consent Decree or either the Jersey City/Honeywell Consent Order or this Consent Decree is determined to be invalid on appeal;

(b) JCRA fails to take those actions required under paragraphs 4.11(a), (b), and (c) of the Jersey City/Honeywell Consent Order within nine months of entry of this Consent Decree; or

(c) JCRA fails to approve a Redevelopment Agreement between Bayfront Redevelopment LLC and JCRA pursuant to paragraph 4.11(e) of the Jersey City/Honeywell Consent Order within 12 months of entry of this Consent Decree.

101. **Procedures for Withdrawal and Termination.** Any Party electing to withdraw pursuant to paragraph 100 and thereby terminate this Consent Decree shall provide written notice of such withdrawal and termination to all other Parties within 30 days of the occurrence giving rise to the decision to withdraw. If any Party objects to termination of the Consent Decree, or believes that the conditions set forth in paragraph 100 have not been met, such objecting Party may move the Court for an expedited hearing on the issue of whether the conditions for termination have been effectuated.

102. **Good-Faith Obligation to Avoid Termination.** The Parties agree that they will each endeavor to fulfill the terms of this Consent Decree, that they will work diligently and in good faith to meet their obligations hereunder, and that they will promptly and timely take all reasonable steps to give effect to this Consent Decree and to avoid termination under paragraph 100.

103. **Effect of Termination.** If this Consent Decree is terminated pursuant to paragraph 100, the Consent Decree shall no longer be binding on the Parties and shall be of no further effect. In the event that this Consent Decree is terminated by one or more Parties pursuant to paragraph 100, each Party to this Consent Decree reserves all of its rights, claims, and defenses (both legal and factual) against the other Parties with respect to the matters at issue in the Consolidated Litigation and each Party remains free to pursue such rights, claims, and defenses.

ARTICLE V: ADDITIONAL PROVISIONS RELATED TO HISTORIC FILL AND SITE PREPARATION AND REDEVELOPMENT

104. **Historic Fill Remedy**. This Consent Decree shall adopt and incorporate the terms of Article II.B of the Jersey City/Honeywell Consent Order with respect to the Historic Fill Remedy. The Historic Fill Remedy shall not be limited to the activities set forth in Article II.B of the Jersey City/Honeywell Consent Order in the event that NJDEP requires a more extensive remedy. The Historic Fill Remedy shall be compatible with the Chromium Remedy such that no

part of the Historic Fill Remedy shall interfere with the installation, maintenance, and monitoring of the Chromium Remedy. In addition, the Historic Fill Remedy for any discharge of non-chromium contaminants to the Hackensack River shall not interfere with the remedies under the Sediment Consent Order, including the source control remedies. In the event that Jersey City conducts the Historic Fill Remedy instead of Honeywell, the terms of this paragraph shall still apply.

105. **Oversight of Historic Fill Remedy**. Paragraph 2.11 of the Jersey City/Honeywell Consent Order shall apply only to the Historic Fill Remedy, not the Chromium Remedy. The Progress Reports provided for in paragraphs 2.12 and 3.7 of the Jersey City/Honeywell Consent Order shall be provided to Riverkeeper and the Special Master at the time they are submitted.

106. **Transfer of Title of Study Areas 6 North and 7 to and from Bayfront Redevelopment LLC**. The transfer of title of Study Area 6 North and Study Area 7 properties to Bayfront Redevelopment LLC pursuant to the Jersey City/Honeywell Consent Order and any subsequent transfers shall not impede Honeywell's obligations to (a) complete the remediation of Study Area 7 and implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or (b) complete the Chromium Remedy and conduct long-term monitoring and fulfill its other obligations set forth in this Consent Decree. Such transfers of Study Areas 6 North and Study Area 7 shall not include a transfer of Honeywell's obligations to implement the Final Judgment and subsequent orders in *ICO v. Honeywell* or a transfer of Honeywell's obligations under this Consent Decree, but shall include a right of access or any other right required by Honeywell to complete the remediation. Any subsequent transfer of Study Area 6 North or Study Area 7 from Bayfront Redevelopment LLC to a redeveloper or other party shall provide all necessary agreements to allow Honeywell all necessary access to Study Area 6 North and Study Area 7 for purposes of completing Honeywell's obligations with respect to Study Area 6 North under this

Consent Decree and completing the Study Area 7 remediation and implementing the Final Judgment and subsequent orders in *ICO v. Honeywell*.

107. **Dispute Resolution Procedures.** The provisions of Article VIII of the Jersey City/Honeywell Consent Order do not apply to any disputes regarding or impacting the Chromium Remedy, which shall be resolved as provided in paragraph 72. The provisions of Article VIII of the Jersey City/Honeywell Consent Order shall apply to disputes between the Jersey City Entities and Honeywell regarding the Historic Fill Remedy and other obligations provided in the Jersey City/Honeywell Consent Order, except to the extent that such disputes may affect the Chromium Remedy. If any such dispute may affect the Chromium Remedy, it shall be resolved as provided in paragraph 72. Honeywell shall provide Riverkeeper with a copy of each notice of any breach provided under paragraph 8.1 of the Jersey City/Honeywell Consent Order within 10 days of Honeywell's receipt or issuance of such notice. Honeywell shall provide Riverkeeper with a copy of any written resolution of a dispute pursuant to paragraph 8.2 within 10 days of the resolution.

ARTICLE XI: NOTICE

108. **Notice.** Any and all notices given in connection with this Consent Decree shall be deemed adequately given only if in writing and addressed to the Party for whom such notices are intended at the addresses set forth in this paragraph. All notices shall be sent by Federal Express or other nationally recognized overnight messenger service or by first-class registered or certified mail, postage prepaid, return receipt requested. A written notice shall be deemed to have been given to the recipient party on the earlier of (a) the date it shall be delivered to the address set forth in this paragraph; (b) the date delivery shall have been refused at the address set forth in this paragraph; or (c) with respect to notices sent by mail, the date as of which the postal service shall have indicated such notice to be undeliverable at the address set forth in this paragraph.

Any and all notices referred to in this Consent Decree, or which any Party desires to give to the other, shall be addressed as follows:

If to Honeywell and/or
Bayfront Redevelopment LLC :

Tom Byrne, Esq.
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-2775

If to Riverkeeper:

Bruce J. Terris
Carolyn Smith Pravlik
Kathleen L. Millian
Terris, Pravlik & Millian, LLP
1121 12th St., N.W.
Washington, DC 20005-4632
(202) 682-2100

With copies to:

John Morris
Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962
(973) 455-4003

If to Jersey City:

William Matsikoudis
Corporation Counsel
City of Jersey City
280 Grove Street
Jersey City, NJ 07305
(201) 547-4667

If to JCIA:

David L. Isabel
Golub & Isabel, PC
160 Littleton Road
Parsippany, NJ 07054
(973) 968-3377

If to JCMUA:

Sam Della Fera Jr.
Trenk, DiPasquale, Webster,
Della Ferra & Sodono, P.C.
347 Mount Pleasant Ave.
West Orange, NJ 07052
(973) 243-8600

If to JCRA:

Robert Antonichello
Executive Director
30 Montgomery Street
Jersey City, NJ 07302
(201) 547-5810

Any party may change its designated recipients or addresses for notice in this paragraph by providing written notice of such change to all other Parties.

ARTICLE XII: RIVERKEEPER'S ATTORNEYS' FEES

109. **Payment of Past Fees and Expenses.** Within 30 days of the entry of this Consent Decree, Honeywell shall pay Terris, Pravlik & Millian, LLP the sum of $1,513,217.15 which represents the following:

(a) A compromise of the attorneys' fees incurred by Riverkeeper in the litigation of Study Area 6 North portion of *Riverkeeper v. Honeywell* through March 27, 2008; and

(b) $187,862.27 in out-of-pocket expenses representing 50% of the expenses incurred by Riverkeeper in *Riverkeeper v. Honeywell* from the inception of the litigation after deducting the expenses to be paid pursuant to the Sediment Consent Order.

Payment of the sum of $1,513,217.15 shall be in full satisfaction of all obligations, duties, and responsibilities of Honeywell with respect to the $1,556,747.46 in fees and expenses that Riverkeeper claimed with regard to the above described fees and expenses.

110. **Future Fees and Expenses.** Honeywell shall reimburse Riverkeeper's attorneys for reasonable fees and expenses incurred: (a) in negotiating this Consent Decree after March 27, 2008; (b) in the monitoring and enforcement of this Consent Decree; and (c) in participation in the Special Master process established pursuant to this Consent Decree. Honeywell shall also reimburse Riverkeeper for reasonable attorneys' fees and expenses for Riverkeeper's review of and participation in the Long-Term Monitoring Plan and monitoring and enforcement of this Consent Decree following the term of the Special Master. In the event that any dispute arises between the Parties under this Consent Decree that must be resolved by the Court, Riverkeeper shall be entitled to recover its attorneys' fees and expenses for litigation of the dispute to the extent allowed by federal law. Riverkeeper and Honeywell shall use the same informal procedure for attempting to settle fees issues as has been used for post-judgment monitoring fees in *ICO v. Honeywell*. In the event that Riverkeeper and Honeywell are unable to reach a

settlement on fees, Riverkeeper shall apply to the Court for an award of attorneys' fees and expenses. If Honeywell objects to only a portion of the Riverkeeper's statement of attorneys' fees and expenses, Honeywell shall pay the undisputed portion within 60 days of Riverkeeper's submittal of the statement to Honeywell. The Court shall resolve any objections to Riverkeeper's statement of attorneys' fees and expenses and shall enter an appropriate Order.

ARTICLE XIII: MISCELLANEOUS PROVISIONS

111. **Force Majeure.** Force Majeure, for the purposes of this Consent Decree, is defined as an event arising from causes beyond the control of any Party or Parties (or their agents, contractors, subcontractors, representatives, or assigns) which could not have been overcome by reasonable diligence and which delays or prevents the performance of any obligation under this Consent Decree. Examples of events which may constitute force majeure include the refusal of any federal or state governmental authority to grant a permit or authorization necessary for the completion of actions required by this Consent Decree, floods, hurricanes, tornadoes, and other extraordinary weather events, earthquakes and other natural disasters, terrorist attacks, war, and other national emergencies. Examples of events that are not force majeure events include normal inclement weather, increased costs or expense, the failure to timely and fully apply for a permit or authorization necessary for the completion of actions required by this Consent Decree, or financial difficulty of any Party. The Party claiming force majeure shall bear the burden of showing an event was a force majeure event.

112. **JCRA and Bayfront Redevelopment LLC as Parties.** As signatories to this Consent Decree, JCRA and Bayfront Redevelopment LLC subject themselves to the Court's jurisdiction for the purpose of enforcing this Consent Decree and agree to be bound by this Consent Decree. This Consent Decree shall be fully enforceable against JCRA and Bayfront Redevelopment LLC.

113. **Successors and Assigns.** This Consent Decree shall be binding upon and shall inure to the benefit of the successors, assigns, heirs, corporate parents, subsidiaries, and affiliates of each Party. No assignment or delegation of the obligations hereunder shall release the assigning Party from its obligations under this Consent Decree.

114. **Successors to Hackensack Riverkeeper, Inc.** In the event that Hackensack Riverkeeper, Inc. disbands or otherwise ceases operations, it shall assign its rights under this Consent Decree to another qualified nonprofit organization. A nonprofit organization shall be qualified for assignment under this Consent Decree if it is a charitable organization under Section 501(c)(3) of the Internal Revenue Code or its substantial equivalent and has an established record of working to enhance or preserve the ecology, natural habitat, or environment. Any such assignment shall be subject to approval by the Court and Honeywell shall have the right to object to any proposed assignment. Any successor organization shall have the duty to assign its rights under this Consent Decree to another qualified nonprofit organization in the event that the successor disbands or otherwise ceases operations. In the event that a successor is not appointed at any given time, the New Jersey Attorney General or equivalent officer shall appoint a successor subject to approval by the Court and objection by Honeywell.

115. **Reservation of Rights and Claims**. Except as set forth expressly herein, this Consent Decree does not affect in any way any of the Parties' claims or defenses against third parties who have not signed the Consent Decree.

116. **Governing Law and Continuing Jurisdiction.** The Court shall retain jurisdiction over the matters addressed in this Consent Decree for purposes of enabling the Parties to apply to the Court for any further order as may be necessary to construe, carry out, or enforce the terms of this Consent Decree. This Consent Decree shall be interpreted and enforced under the laws of

the United States and the State of New Jersey by the United States District Court for the District of New Jersey.

117. **Construction.** Questions regarding the interpretation of this Consent Decree shall not be resolved against any Party on the ground that this Consent Decree has been drafted by that Party. This Consent Decree is the result of review, negotiation, and compromise by each Party.

118. **Authority to Enter into Agreement.** The undersigned representative for each Party represents, certifies, and warrants that he or she is duly authorized by the Party whom he or she represents to enter into the terms of this Consent Decree and bind such Party legally to this Consent Decree.

119. **Measures to Effectuate This Consent Decree.** The Jersey City Entities and JCRA shall take all appropriate steps to ensure that this Consent Decree has been (and that actions required hereunder will be) duly considered, ratified, and approved. Such steps include consideration of this Consent Decree at a meeting of the City Council, open to the public, at which members of the public have the opportunity to comment on all aspects of the Settlement, including the commitments made by Jersey City; and consideration by and approval of the commissioners of the JCIA, JCMUA, and JCRA.

120. **Modifications.** This Consent Decree may be modified by mutual agreement of the Parties but such agreement must be in writing, duly and properly signed by all Parties, and shall be submitted to the Court for approval.

121. **Severability.** Each of the provisions in paragraph 60 of this Consent Decree shall be deemed severable and, in the event that one or more of such provisions is deemed invalid or unenforceable, it shall not affect the validity or enforceability of the other provisions of the Consent Decree.

122. **Signatures.** This Consent Decree may be signed simultaneously or in counterparts by the respective signatories, which shall be as fully valid and binding as if a single document was signed by all of the signatories. This Consent Decree may be signed electronically by any or all signatories, and such electronic signature shall be as fully valid and binding as a hand-written signature.

Consented to and approved for entry:

s/Aurelio Vincitore

William Matsikoudis
Aurelio Vincitore
Corporation Counsel
City of Jersey City
280 Grove Street
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APPROVED AND ENTERED as an Order of this Court this ___ day of _____, 2012.

_____
Hon. Dennis M. Cavanaugh
United States District Judge

EXHIBITS

Exhibit A: Jersey City/Honeywell Consent Order

Exhibit B: Remedial AOC's and Remedial Approach Map

Exhibit C: NJDEP Chromium Policy

Exhibit D: Conservation Restriction

Exhibit E: Deed Notice