nationalgrid

Final Engineering Report for the Hempstead Intersection Street Former Manufactured Gas Plant Site

Villages of Hempstead & Garden City
Nassau County, New York

Prepared for:

National Grid
175 East Old Country Road
Hicksville, New York 11801

Prepared by:

URS Corporation - New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202

URS

September 2016

Hempstead Intersection Street

Former Manufactured Gas Plant Site

Villages of Hempstead and Garden City

NASSAU COUNTY, NEW YORK

Final Engineering Report

Prepared for:

National Grid

175 East Old Country Road

Hicksville, New York 11801

Prepared by:

URS Corporation

257 West Genesee Street

Suite 400

Buffalo, New York 14202

(716) 856-5636

SEPTEMBER 2016

CERTIFICATIONS

I, Mark Lang, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Basis of Design Report was implemented and that all construction activities were completed in substantial conformance with the Department-approved Basis of Design Report.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Basis of Design Report and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant to New York State Environmental Conservation Law (ECL) 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Mark Lang, of URS Corporation, am certifying as Owner's Designated Site Representative.

074013	August 31, 2016	
NYS Professional Engineer #	Date	Signature

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
ASTM	American Society for Testing and Materials
BMPs	best management practices
BOD	Basis of Design
BTEX	benzene, toluene, ethylbenzene, xylenes
bgs	below ground surface
CAMP	Community Air Monitoring Program
CM	Construction Manager
cm/sec	centimeters per second
COP	Construction Operations Plan
cy	cubic yards
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DSM	deep soil mixing
ECs	engineering controls
ECL	New York State Environmental Conservation Law
ELAP	Environmental Laboratory Accreditation Program
EZ	exclusion zone
FAM	fixed air monitoring
FER	Final Engineering Report
FHWA	Federal Highway Administration
HASP	Health and Safety Plan
HCN	cyanide
H_2S	hydrogen sulfide
ICs	institutional controls
IRM	Interim Remedial Measure
ISS	in situ solidification
kV	kilovolts
LIPA	Long Island Power Authority
LIRR	Long Island Railroad
mg/kg	milligrams per kilograms
MGP	manufactured gas plant

LIST OF ACRONYMS AND ABBREVIATIONS (cont.)

NAPL	non-aqueous phase liquid
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PM_{10}	particulate matter < 10 µm
POB	Plaza 230 Professional Office Building
ppb	parts per billion
ppm	parts per million
psi	pounds per square inch
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RAOs	remedial action objectives
ROW	right-of-way
SCGs	standards, criteria and guidance
SCOs	soil cleanup objectives
SMP	Site Management Plan
SPCC	Spill Prevention, Containment and Control
SPDES	[NY] State Pollution Discharge Elimination Plan
SWPPP	Storm Water Pollution Prevention Plan
TCB	temporary containment building
TVOCs	total volatile organic compounds
UCS	unconfined compressive strength
ug/m^3	micrograms per cubic meter
URS	URS Corporation
USEPA	United States Environmental Protection Agency
VGC	Village of Garden City
VMS	vapor management system
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

This Final Engineering Report documents the work performed by National Grid and its contractors to remediate manufactured gas plant related residuals at the Hempstead Intersection Street Former Manufactured Gas Plant National Grid property and surrounding areas in the Villages of Hempstead and Garden City, New York. Remediation was accomplished via excavation/backfill, in situ solidification, dense non-aqueous phase liquid removal, and groundwater oxygenation systems. This report documents that the objectives of the NYSDEC approved Basis of Design (BOD) were met including:

- the required removal of contaminated material;
- immobilization of impacted materials via ISS was achieved as required; and
- oxygen injection systems and DNAPL recovery will supplement and complement the ISS and excavation work.

Limits of in situ solidification do not extend to areas with accessibility limitations such as under the Professional Office Building or areas near certain utilities. However, depending on groundwater monitoring results, additional groundwater oxygenation systems may be installed to supplement the two existing oxygenation systems currently in operation. These systems increase the level of dissolved oxygen in groundwater to provide a means for reduction of the groundwater plume via aerobic bioremediation. This aerobic remediation, in conjunction with in situ solidification which solidified the contaminant source, accelerates the rate at which the dissolved contaminant mass is oxidized and continues to decrease contaminant concentration in the off-site groundwater plume.

Since soil and groundwater contamination remain beneath the site after completion of the Remedial Action, Institutional and Engineering Controls are required. Engineering controls include the surface cover materials over the solidified areas which help to prevent contact with solidified materials and remaining untreated contaminated soil at the Site. Long-term management of these EC/ICs and residual contamination will be performed under a Site Management Plan, to be approved by the NYSDEC.

1.0 BACKGROUND AND SITE DESCRIPTION

National Grid entered into an Order on Consent (#D-0001-98-11) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate former manufactured gas plant (MGP) related residuals at the National Grid Hempstead former MGP Site and surrounding areas. The term "Site" shall be understood to refer to the areas that were subjected to soil remediation via excavation removal/backfill and in situ solidification (ISS) as follows:

- The Hempstead Intersection Street Former Manufactured Gas Plant area within the confines of the National Grid property;
- The Village of Garden City (VGC) municipal property that is adjacent to and west of the National Grid property;
- The parking lot of the Plaza 230 Professional Office Building (POB) that is south of the National Grid property;
- Intersection Street that is between the National Grid property and the POB parking lot;
- The Long Island Railroad (LIRR) Right-of-Way (ROW) that is adjacent to and east of the National Grid property; and
- Oswego Oil Storage Terminal that is just north of Intersection Street and east of the National Grid property.

Off-Site remedial features include the oxygenation systems that address groundwater remediation through oxygen delivery to the subsurface. Additionally, monitoring wells are considered to be off-site features.

The Site is located in the Villages of Hempstead and Garden City, New York and shown on Figure 1. The National Grid property is currently vacant except for the active natural gas regulator station in the northwest corner of the property, and uses for the adjacent properties continue to be the same as before the remediation was completed.

The Site is located in Nassau County, New York and is identified as the Block and Lot numbers indicated on Figure 2 as derived from the Nassau County Department of Assessment Internet Map Server (Nassau County, April 21, 2009). Property ownership and approximate parcel boundaries are presented in more detail in Appendix H (Community Impacts Mitigation Plan) of the Basis of Design prepared by URS Corporation (URS) (URS, 2011a). The boundaries

of the National Grid property are fully described in this FER in Appendix A: Survey, Metes and Bounds, Environmental Easement.

The majority of the approximately 8-acre Site is located within the VGC municipal park. The Site consists of the former MGP area that is within the confines of the National Grid property and portions of surrounding areas as listed above and shown in Figure 3. Figure 4 expands the project view to include areas where the groundwater oxygenation systems are located. Residences and commercial businesses surround the National Grid property which is bordered to the north by Second Street, east by a LIRR inactive (ROW), south by Intersection Street, and west by a municipal property owned by the VGC which contains a public parking lot, two public water supply wells, and a recharge basin that is used to service the water supply wells.

An electronic copy of this FER with all supporting documentation is attached to this document.

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectivves

The remedial goal for the Site was to remove or mitigate, to the extent practicable, the source of contamination, and eliminate or mitigate any significant threats to public health and the environment presented by MGP-related contaminants in accordance with site cleanup objectives presented in 6 New York Code, Rules and Regulations (NYCRR) Part 375 (NYSDEC, 2006b).

The following Remedial Action Objectives (RAOs) were identified for this site.

2.1.1 Groundwater RAOs

- Reduce or mitigate non-aqueous phase liquid (NAPL), to the extent practicable, to decrease the source of chemicals that contribute to soil, air, soil vapor and groundwater contamination.
- Prevent or mitigate, to the extent practicable, off-site migration of groundwater contamination resulting from site-related contaminants.
- To restore, to the extent practicable, groundwater impacted by site-related MGP contaminants of concern to meet ambient water quality standards and guidance values.

2.1.2 Soil RAOs

- Eliminate or reduce, to the extent practicable, NAPL and MGP-related contamination sources that contribute to soil, air, soil vapor and groundwater contamination.
- Prevent, to the extent practicable, human exposure to MGP-related chemicals present in surface and subsurface soil at and around the site at levels exceeding applicable standards, criteria, and guidance (SCGs).

2.1.3 Air and Soil Vapor RAOs

- Prevent, to the extent practicable, potential inhalation of MGP-related chemicals exceeding SCGs in ambient and indoor air on and near the site.
- Prevent, to the extent practicable, utility worker exposure to soil vapor off-site.

2.2 Description of Selected Remedy

The Site was remediated in accordance with the remedy selected by the NYSDEC in the Basis of Design (BOD) Report (URS, 2011a). Modifications were implemented as described in Section 4.11 (Changes from the Basis of Design Report) within this report.

The Pre-Design Investigation Report (URS, 2010) defined MGP source material as:

- Soil saturated with NAPL, if the total vertical thickness of a NAPL-saturated soil zone exceeded 6 inches.
- Visibly impacted soil zones exceeding six inches vertical thickness, if the concentrations of total polycyclic aromatic hydrocarbons (PAHs) were greater than 1,000 milligrams per kilogram (mg/kg) or the concentrations of total benzene, toluene, ethylbenzene, and xylenes (BTEX) were greater than 50 mg/kg.

The factors considered during the selection of the remedy are those listed in the BOD Report and in 6NYCRR 375-1.8. The components of the selected remedy include:

1. Excavate shallow contaminated soil hotspots from the Site and treat/dispose the excavated material off-site.
2. Excavate MGP structures and shallow targeted MGP source material from the Site and treat/dispose off-site. Excavate shallow clean soil and stockpile for later backfill.
3. Solidify deeper targeted MGP source material beneath the Site using ISS. Performance criteria for solidification were established for hydraulic conductivity reduction and compressive strength, which are identified as: hydraulic conductivity $\leq 1 \times 10^{-6}$ centimeters per second (cm/sec) at 28 days, and unconfined compressive strength (UCS) at 28 days $\geq$ 50 pounds per square inch (psi) and <1,000 psi.
4. Construct an approximately 15-foot deep subsurface soil-crete retaining wall in the POB parking lot and in portions of Wendell Street and Intersection Street. A soil-crete wall consists of soil mixed with a cement-based grout to provide concrete-like properties. Excavate to approximately 15 feet below ground surface (bgs) within the soil-crete wall and stockpile/reuse clean overburden soils and then solidify deeper targeted MGP source material.
5. Solidify targeted MGP source material in the VGC municipal property and the Oswego Oil Storage Terminal property. Note that the limits of ISS treatment do not extend to areas with accessibility limitations such as under the POB and do not extend to all areas near certain

utilities such as high-voltage power lines along the LIRR ROW, and drainage/sewer lines located west of the Site. MGP impacts in these limited access areas were not required to be solidifed, and depending on the groundwater monitoring results over the next two years, additional groundwater oxygenation systems may be installed near these areas along Wydler Place and Intersection Street to provide additional groundwater treatment if necessary.

6. Cover solidified material with four or more feet of clean soil.

7. Restore the disturbed areas to existing (or better) condition to support future use or development.

8. Surface cover materials to prevent contact with solidified materials and remaining untreated contaminated soil at the Site as follows:

    - National Grid Property:
        - New York State Department of Transportation (NYSDOT) select stone cover (4 inches thick) in disturbed/work areas; or
        - Asphalt pavement (for access roads and asphalt parking); or
        - Select stone-lined swale (4 inches thick).
    - Village of Garden City Municipal Property:
        - Asphalt pavement (access roads and asphalt parking); or
        - Landscaped area including:
            - Topsoil and grass vegetation; or
            - Landscape strips with topsoil (6-inches)/grass, shrubs and trees.
    - Wendell Street, Intersection Street, and Wydler Place:
        - Asphalt cover with concrete curbs, adjacent topsoil (6-inches)/grass strips, concrete sidewalks, and trees.
    - POB Parking Lot:
        - Asphalt paving; and
        - Curbed decorative gravel islands with trees.
    - Oswego Oil Storage Terminal area where ISS was completed:

- Four inches of asphaltic concrete on top of 4 inches of subbase course.

9. Execution and recording of an Environmental Easement to restrict land use of the National Grid property. The Environmental Easement for the National Grid property will include the following restrictions on the property:

    - All future activities on the property that will disturb remaining contamination will be conducted in accordance with the Excavation Work Plan included in the SMP;

    - Future development of the site will comply with zoning, local laws and regulations, and must be conducted in accordance with the SMP;

    - The potential for vapor intrusion will be evaluated for any new buildings proposed on the Site, and any potential impacts that are identified must be monitored or mitigated;

    - Any proposed changes to the portions of the property that are subject to ECs and ICs will be approved by NYSDEC;

    - Use of groundwater underlying the Site property is prohibited without testing and/or treatment to ensure it is safe for the intended use; and

    - Periodic certification of the ECs and ICs listed above.

Development and implementation of a Site Management Plan (SMP) for long term management of MGP-related residuals as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting. The Site has the following Engineering Controls (ECs): Cover materials, DNAPL collection from one passive DNAPL recovery well (HIMW-21) located next to the POB; and Groundwater Oxygenation Treatment Systems consisting of a series of delivery (search and replace injection with delivery) wells fed from a centrally located oxygen supply, located downgradient of the Site within the areas shown on Figure 4.

The SMP includes a series of Institutional Controls (ICs) to implement, maintain and monitor these Engineering Controls, which includes an Environmental Easement for the National Grid property and access agreements for the off-site areas with MGP-related residuals. Compliance with ICs ensures that:

- All ECs are maintained as specified in the SMP;

- All ECs on the Site are inspected and certified at a frequency and in a manner defined in the SMP;

- Data and information pertinent to site management is reported at the frequency and in a manner defined in the SMP; and

- Site and off-site area environmental monitoring including, but not limited to, groundwater monitoring wells and oxygenation wells must be maintained to ensure continued functioning in the manner specified in the SMP.

3.0 INTERIM REMEDIAL MEASURES, REMEDIAL ACTIONS, OPERABLE UNITS AND REMEDIAL CONTRACTS

Two interim remedial measures (IRMs) and two remedial actions (in addition to ISS) have been implemented at the Site and are summarized below.

1. A "cut and plug" IRM was conducted in 1999 and 2000. Underground piping associated with historic MGP operations were located, cut, drained of any fluids and plugged to limit the potential for any off-site migration of MGP-related constituents.

2. A second IRM was implemented in 2008 to excavate shallow MGP source materials from the Site and to recover dense non-aqueous phase liquid (DNAPL) from groundwater. This IRM removed MGP source materials from areas of the Site where no additional remediation would be necessary and provide a support area for site-wide remediation activities such as vehicle parking, and the staging of equipment and materials. Excavation locations are shown on Figure 5. A total of 4,432 cubic yards (cy) of MGP source material (as MGP-impacted soil) and construction/ demolition debris was transported to a licensed facility for off-site treatment and disposal. MGP-impacted liquid (9,493 gallons) was containerized and transported to a licensed facility for off-site treatment and disposal.

In addition to the IRMs, two remedial actions were conducted. From April 2007 through July 2011 DNAPL was recovered from wells installed on and downgradient of the Site. DNAPL recovery was suspended in 2011 during the ISS project and resumed in 2013. From April 2007 through April 2015 approximately 834 gallons of DNAPL has been recovered.

Additionally, National Grid has installed groundwater oxygenation systems downgradient of the site, as shown on Figure 4. These systems are components of the full site-wide remedy and are delivering oxygen to the downgradient groundwater plume. The primary objective of the off-site groundwater oxygenation treatment systems is to increase the level of dissolved oxygen (DO) in the groundwater to encourage aerobic bioremediation. As contaminated groundwater flows through the treatment areas, the increased DO accelerates the rate at which the dissolved contaminant mass is oxidized and leads to decreased contaminant concentrations in groundwater. System No. 1 was brought on line in April 2011 and is located immediately south of the Site and runs generally east-west from Hilton Ave to the west to Sealy Ave to the east, in a neighborhood that includes residential and light commercial spaces, as well as a portion of the LIRR ROW.

System No. 2 was brought on line in October 2010 and is located in a primarily residential neighborhood about 500 feet to the south of System No. 1, running from Mirschel Park to the east to Kensington Court to the west. Two additional oxygenation systems may be installed immediately south of the solidified monolith, depending on the results of ongoing monitoring of the dissolved phase groundwater plume.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved BOD (URS, 2011a). Any changes from the approved BOD report are included in the following summary and are further summarized in Section 4.11.

4.1 Project Governing Documents

4.1.1 Site Specific Health & Safety Plan

All remedial work performed under this Remedial Action was in compliance with governmental requirements, including Site and worker safety requirements mandated by Occupational Health and Safety Administration (OSHA). The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site.

4.1.2 Construction Quality Assurance/Quality Control Plan

The Construction Quality Assurance/Quality Control (QA/QC) Plan managed performance of the Remedial Action tasks through designed and documented QA/QC methodologies applied in the field and in the lab. The QA/QC Plan provided a detailed description of the observation and testing activities that were used to monitor construction quality and confirm that remedial construction was in conformance with the remediation objectives and specifications. The QA/QC Plan included the following components:

- Responsibilities and authorities of the organizations and key personnel involved in the design and construction of the remedy;
- The observations and tests that were used to monitor construction and the frequency of performance of such activities;
- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures as addressed in the plans and specifications;
- Requirements for project coordination meetings between National Grid and its representatives, the Engineer, the Construction Manager, Contractor or environmental subcontractors, and other involved parties are described in the project specifications. The QA/QC Plan focused on lines of communication regarding QA/QC observation, testing, etc.; and

- Reporting requirements for quality assurance activities including such items as daily summary reports, schedule of data submissions, evaluation reports, acceptance reports, and final documentation.

4.1.3 Soil/Materials Management Plans

Detailed plans and/or procedures were established for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. The plans/procedures that were implemented include the following:

- Spill Prevention, Containment and Control (SPCC) Plan – This plan was provided in the Construction Operations Plan (COP) (ENTACT, 2012) and provided detailed information regarding the general approach to spill prevention, containment and control. The SPCC Plan was updated as the Site and scope of work evolved such as for changes in material and equipment quantities.

- Solid and/or Liquid Waste Transportation Plan - This plan is an attachment to project Specification 02111 Waste Management And Handling Of Contaminated Material (URS, 2011b), that specified the requirements for the management, handling, storage, characterization and off-site disposal of source material and remediation-derived wastes including waste that was contaminated by impacted groundwater.

- Clean and Green Plan – This plan was a component of the COP and followed United States Environmental Protection Agency (USEPA) Region 2 Clean and Green Policy, as well as NYSDEC Department of Environmental Remediation DER-31 (NYSDEC, 2011).

- Haul truck covering methods and placement plans – These plans were described in the COP. The Contractor implemented approved tarpaulin and placement methods that displayed tarpaulin durability and water-tightness, safety and efficiency during loading/ placement, and transport of materials off-site.

- Dewatering Plan – This Plan is described in the COP.

- Excavation and Backfill Plan and Stockpile Management Plan – These plans were described in the COP. These plans addressed all components of excavation and backfill including open air excavations, the use of foam to suppress odors and dust, and the importance to backfill excavations as soon as possible. These plans specified thorough stockpile management procedures to address all potential stockpile possibilities. These

plans addressed excavations within the temporary containment building (TCB) and the requirement for a fully functional vapor management system (VMS).

- ISS Spoils Management Plan – The plan was described within the COP. To minimize generation of odors, ISS spoils were left to cure in place. Movement of uncured spoils would have exposed fresh spoils surface and released odors. Therefore, the spoils were left adjacent to the ISS rigs and covered with foam to reduce the release of odors. After a few days of curing, the spoils were stockpiled on the monolith prior to loading for offsite disposal.

4.1.4 Storm-Water Pollution Prevention Plan

This project was subject to the requirements of the New York State Pollution Discharge Elimination System (SPDES) program, because it resulted in the disturbance of greater than 1 acre of land (NYSDEC, 2010b). However; since the remedial construction was being performed under Consent Order (#D-0001-98-11), in compliance with DER-10, obtaining a SPDES permit was not required.

ENTACT developed a site-specific Storm Water Pollution Prevention Plan (SWPPP) consistent with the requirements of SPDES General Permit GP-0-10-001 (NYSDEC, 2010b) for Stormwater Discharges from Construction Activity. Because the project decreased the area of impervious surface at the site, no permanent post-construction stormwater management features (detention or water quality ponds, etc.) were required in the design, and the SWPPP incorporated only the applicable practices and details of the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC, 2005). ENTACT provided its proposed erosion and sediment control procedures in the approved COP, Revision 9 dated May 14, 2012.

ENTACT certified compliance with the requirements of the SWPPP and General Permit GP-0-10-001 during construction. ENTACT implemented the SWPPP throughout the project, and no deviations or violations of the intent of the SWPPP were noted. All surfaces disturbed as part of the project have been restored and stabilized as required by GP-0-10-001.

4.1.5 Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) was prepared by AECOM in September 2011 and included as Appendix G to the BOD report. Air monitoring activities were conducted throughout the program to evaluate conditions at the property line (fence line) and other locations to ensure that the measures used to control potential fugitive emissions were effective, and to

document ambient air quality/conditions at the property. The monitoring program consists of the following real-time monitoring and integrated constituent-specific sampling during active periods of remediation:

- Continuous real-time monitoring for total volatile organic compounds (TVOCs) and particulate matter < 10 µm (PM_{10}) conducted at 4 fixed air monitoring (FAM) stations (24 hours per day, 7 days per week);
- Continuous real-time monitoring for TVOCs and PM_{10} conducted at 4 portable air monitoring stations (8 to 10 hours per day, 5 days per week [Monday through Friday, 7:00 am through 5:00 pm]);
- Continuous real-time monitoring for TVOCs was supplemented with automatic BTEX monitoring in the event the Action Level for TVOCs was exceeded at any of the FAM stations;
- Hand-held and observational monitoring for TVOCs, naphthalene, PM_{10}, odor, cyanide (HCN), Hydrogen Sulfide (H_2S) and visible dust was conducted, as warranted, during periods of remediation;
- Integrated sampling for volatile organic compounds (VOCs) was conducted using SUMMA canisters; and
- Continuous meteorological monitoring.

Alert, Response, and Action Limits were used as a real-time screening tool to manage remediation activities to minimize the potential for off-site emissions and/or potential long term health risk. If concentrations were above the Action Limits during the excavation, prompt implementation of operational modifications was effective in preventing adverse impacts to off-site air quality in the vicinity of the Site.

The Alert, Response and Action Limits shown in Table 2-1 of the CAMP Report, provided here as Table 1, are consistent with the 15-minute recommended concentrations listed in DER-10. These Action Limits were developed by the DER-10 as a site management tool to be used to maintain existing air quality standards and guidelines at the site perimeter. The Response and Action Limits were developed in accordance with DER-10 and the Alert Limit (for TVOC) was developed by National Grid.

4.1.6 Contingency Plan

The Contingency Plan was provided as Appendix I to the BOD Report (URS, 2011a). The plan included provisions for conditions such as fire, explosion, spill or material releases, physical or chemical injury, severe weather, and evacuation procedures.

4.1.7 Contractor's Construction Operations Plan

The Remediation Engineer (URS) reviewed all plans and submittals for this remedial project (i.e., those listed above plus contractor and subcontractor submittals) and confirmed that they were in compliance with the BOD Report and construction Contract Documents. All remedial documents were submitted to NYSDEC and New York State Department of Health (NYSDOH) in a timely manner and prior to the start of work.

4.1.8 Community Impacts Mitigation Plan

A Community Impacts Mitigation Plan was provided as Appendix H to the BOD Report (URS, 2011a). The plan included provisions for public outreach including a Citizen Participation Plan, provisions for public meetings and other communication such as information newsletters, project contacts, telephone hotline and project web site. The plan also described the construction project components that were relevant to the community, such as planned construction phases/duration, hours of work, site security, controls for dust/odor/air/vibration/noise, and construction traffic routing.

4.2 Remedial Program elements

4.2.1 Contractors and Consultants

The Engineer (URS) was contracted by National Grid and is the certifying Engineer of Record responsible for monitoring the ISS and related construction and ensuring that construction activities were performed in accordance with the Drawings and Technical Specifications/Contract Documents (URS, 2011b).

The Construction Manager (CM) (AECOM) acted as a direct agent of National Grid to ensure that the work was performed safely, with high quality and in a cost effective manner. In addition to AECOM's Construction Management duties, AECOM was retained by National Grid as the air monitoring consultant to install, operate, and report results of the CAMP during construction activities.

The Remedial Contractor (ENTACT) was contracted directly by National Grid and ENTACT was responsible for field remediation activities and implementation of on-site QA/QC

functions as it pertained to the construction activities and maintaining clear definition of, and adherence to, the scope, schedule and budget of the project. As such, quality execution and conformance to design and contract requirements was ENTACT's responsibility.

In performing the remediation work as specified within the contract documents, ENTACT utilized the services of several subcontractors and vendors, as required. The following provides a listing of those utilized along with associated function/role. Note that all bituminous material sampling and testing as well as concrete testing were performed utilizing independent third party testing firms retained directly by ENTACT's paving subcontractor (Laser Industries, Inc.) and civil subcontractor (Bancker Construction Corporation), respectively.

4.2.2 Site Preparation

- Mobilization (early October 2011 through mid-December 2011) Following submittals approval and receipt of Notice to Proceed, ENTACT proceeded with mobilization activities. This included mobilization of personnel, site trailers and equipment including transportation and assembly of the deep soil mixing (DSM) solidification drill rigs, grout batching plants, TCB and associated VMS. The TCB and VMS locations were restricted to areas outside of the 99 PSI [30-inch- I recall this line as smaller diameter like 16"ish?] high-pressure gas line, as dictated by the results of the Site subsurface utility survey.

- A pre-approved Site Layout Plan was implemented for these activities. Prior to mobilization, ENTACT provided a listing of major equipment by type and associated quantity as proposed for the remediation activities to be performed at the Site. The list was understood to be revised to reflect field changes and/or needs throughout the project. As such, updated lists were included within ENTACT's Daily Construction/Quality Control reports, as necessary.

- Site Preparation (throughout October 2011 except where otherwise noted) Following completion of mobilization activities and upon National Grid securing all necessary access agreements (as needed based on the remediation schedule associated with each property), site preparation activities continued. Such activities consisted of the following:

    - Installation of temporary perimeter fencing, gates, visual barrier, silt fencing and hay bales in accordance with the construction sequencing as shown on the Construction Drawings.

- Clearing and grubbing including debris removal from work zones and other work areas where remedial activities occurred. Debris, stumps, roots and other vegetation generated were stockpiled, characterized and disposed of off-site at an appropriate disposal facility in accordance with the project specifications.

- A land surveyor licensed in the state of New York performed an initial site survey which included establishment and preservation of site survey control points, a pre-remedial site survey and establishment of work areas.

- Subsurface utility survey was performed for the entire Site using a private utility locator in order to delineate the location of all subsurface utilities.

- A sound control barrier was installed in mid-May 2012 along one side of the POB parking lot. The barrier consisted of a 15-foot high fence with an engineered acoustical fabric curtain attached to a 15-foot high chain link fence that incorporated drilled metal posts for anchorage.

- A sound control enclosure for the cement-slag pneumatic truck discharge area was not required based upon sound monitoring results from the initial cement-slag discharge operations and grout batch plants set-up.

- Work zones (exclusion, contamination reduction and support) were established and clearly identified with orange safety fence and signage. Work zones were reconfigured as work progressed across the site.

- Personnel and equipment decontamination stations were constructed per ENTACT's HASP. An equipment decontamination pad and pressure washer were set up along the Site's northern exit point to Second Street.

- Portable and fixed air monitoring stations for community air monitoring were installed by AECOM around the work areas. Fixed stations were installed at the end of November 2011.

- The existing monitoring wells and piezometers designated for decommissioning were abandoned in early November 2011 by URS and its subcontractor Fenley & Nicol Environmental in accordance with CP-43, Commissioner Policy on Monitoring Well Decommissioning (NYSDEC, 2009). The description of the selected decommissioning procedures are included in Appendix D. Decommissioning consisted of either:

- Complete removal of casing, for wells with entire interval with ISS treatment zone;
- Filling the well with sand and complete removal of casing; or
- Filling the well with sand and leaving it in place to be either removed within the excavation zone or incorporated (broken up by auger) in the ISS treatment zone.

- Erosion and Sedimentation Controls: Erosion and sedimentation controls consisted primarily of a stabilized construction entrance and exit, silt fencing, hay bales, seeding and mulching, erosion control blankets, and management of these measures throughout construction.
- Pre-construction meeting with NYSDEC: A pre-construction meeting was held on September 23, 2011 with individuals attending from: National Grid, URS, AECOM, ENTACT, NYSDEC, NYSDOH, Nassau County Health, and the Louis Berger Group.
- Acquisition of Agency Approvals and Permits:
    - NYSDEC approval of the BOD dated April 2011, provided in Appendix E.
    - NYSDEC Part 364 Waste Transportation Permits (NYSDEC, 2006a) as described in Section 4.3.1 and provided in Appendix E; and
    - Disposal Facility approvals as described in Section 4.3.1 and provided in Appendix E.
- Project Sign: NYSDEC-approved project signs were erected at the project entrance and on a fence near the gas regulator station and remained in place during all phases of the Remedial Action.

4.2.3 General Site Controls

- Site Security: ENTACT prepared a Site Security Program Plan for the project. ENTACT provided an area designated for security operations. A security subcontractor retained by ENTACT maintained site security at the site twenty four hours a day. All visitors, workers and subcontractors were required to sign a daily log maintained by ENTACT. The presence of any unauthorized personnel was immediately communicated to the CM and appropriate actions taken as necessary. The site was secured at days' end and gates were locked during non-working hours. Keys to the site were provided to National Grid's CM (AECOM), and the Engineer (URS).

Site security personnel were briefed on the site hazards. Security personnel were not allowed into or instructed to not enter any on-site exclusion zones (EZs). Security personnel were limited to patrolling the perimeter of the delineated EZ. All security personnel were routinely briefed on areas that were deemed inaccessible. Specific security controls were implemented during both working and non-working hours. In the event of forced entry, trespass and/or vandalism to the project site, the ENTACT subcontracted security service was to notify ENTACT emergency contact personnel and engage the local police and law enforcement.

- Job Site Record Keeping: Job site record keeping was conducted by the Contractor, the Engineer, and the CM in both paper and electronic form, as applicable. The Contractor kept project submittal data for imported borrow material, exported waste material disposal, and ISS, and provided timely submittals to the CM and the Engineer. The CM and Engineer divided on-site record keeping duties as necessary to manage efficiently the various work occurring on-site simultaneously. Project photographs can be found in Appendix F and weekly construction reports in Appendix G.

- Erosion and Sedimentation Controls:
    - Stabilized Construction Entrance and Exit - There were existing paved construction entrance/exits located off of Second Street and Intersection Street. ENTACT utilized Intersection Street as the main entrance to and exit from the Site. Trucks loaded for off-site disposal exited the Site through Second Street. The construction exit off of Second Street was covered with a non-woven geotextile overlain with coarse aggregate to clean truck tires prior to exiting the Site. This exit was inspected and maintained while in use. Trucks were inspected prior to exiting the Site to ensure contamination was not migrating onto off-site roadways via truck tires. A decontamination pad was constructed in conjunction with the Second Street exit to decontaminate trucks and equipment as needed. Truck routes on and off-site were continuously monitored for excessive dirt or dust. Proper cleaning of trucks exiting the Site aided in minimizing dusty conditions on roadways. A 2,000 gallon water truck was on-site to wet down travel routes.
    - Silt Fence - At a minimum, silt fencing was installed around the perimeter of the excavation areas. Additional sediment/silt fence was installed as required in strategic locations based on visual observation of flow patterns and topography

of the work areas to control sediment-entrained storm water from entering and exiting work areas. Sediment/silt fence was installed around the perimeter of the decontamination pad and stockpile areas, as required. Silt fence was also installed around excavation areas as work progressed across the site to allow movement of the TCB to be placed over the areas to be excavated.

- Hay Bales - Hay bales were available on-site to be used in conjunction with silt fence in areas with the potential for higher flow patterns. Hay bales were installed around inlets that were present on-site.
- Erosion Control Blankets - Erosion control blankets were installed over disturbed portions of the recharge basin slope at the VGC municipal property to prevent soil erosion and migration. Erosion control blankets were installed per the manufacturers' recommended instructions.
- Maintenance Plan - Erosion and sedimentation control practices were inspected on a weekly basis and following 24-hour storm events greater than 0.5 inches. Any needed repairs were made promptly to maintain all practices as designed. Sediment was removed from behind the sediment fence and hay bales when it became about 0.5 feet deep at the fence. The sediment fence was repaired as necessary to continuously maintain an effective barrier.
- Excavation areas within the recharge basin were protected with a chain link fence and visual barrier. These measures were installed to segregate the remediation limits from the adjoining park. Silt fencing and hay bales were installed around the perimeter of the excavation and solidification areas, within the fence limits. During the winter shut-down period, the slopes of the excavation were generally frozen, and thus did not require temporary seeding. An erosion control blanket was placed on the basin slope upon restoration of the contours. The slope was restored by the Engineer's landscaping subcontractor.

- Equipment Decontamination and Residual Waste Management: Personnel and equipment decontamination stations were constructed per the Contractor's HASP. An equipment decontamination pad and pressure washer area were set up at the Site's northern exit. The Contractor utilized two scissor lifts at the decontamination pad to facilitate truck tarping prior to waste disposal trucks exiting the Site. Specific on-site truck routing was utilized via traffic cone markings for worker safety and to regulate the traffic flow of trucks

carrying excavated material and related waste. Additionally, regular housekeeping was employed to manage miscellaneous on-site construction debris and off-site residual dirt and dust.

- Stockpile Management:
    - Fill material and excavated on-site material was stockpiled. Fill material included imported clean fill and overburden materials approved for reuse from excavation areas. Imported clean fill did not require lining underneath the stockpiles. Reuseable excavated soils being saved for backfilling, that were stored on impacted soil, were stockpiled on liners.

    - Much of the Site area excavation and backfill activities occurred under the TCB. In the event that excavated impacted material could not be directly loaded for transportation and disposal, it was stockpiled unlined under the TCB on top of an impacted area scheduled for excavation.

    - The Engineer identified reusable soil and impacted soils based on physical observations for staining and odor. Reusable soils were stockpiled for potential reuse and used as backfill at pre-approved depths per the Contract Documents. Clean material was placed outside the TCB at temporary stockpile locations which were field located depending on on-going activities at the time. Excavated impacted soils were covered with polyethylene sheeting and anchored with sand bags.

    - Excavated Soils from the National Grid property - Impacted soils were excavated and placed either directly into transport vehicles for off-site transportation/disposal or remained within the TCB for temporary storage and management. The following general stockpiling procedures were implemented in the event that stockpiling of fill material or impacted material became necessary inside or outside of the TCB:
        - Stockpile location and duration of staging were approved by National Grid or the Engineer.
        - Stockpiles were graded and shaped as necessary to drain surface water.
        - Stockpiles were placed a minimum of 5 feet from the edge of open excavations.

- Stockpiles located outside of the TCB were covered with polyethylene covers anchored down with tie down systems. The stockpiles had a slope sufficient to prevent the accumulation of water on the covers.
- Silt fence, hay bales or earthen berms were installed around the perimeter of the stockpiles located outside of the TCB to reduce sediment migration.
- Stockpiles located outside of the TCB were visually monitored on a regular basis. In addition, prior to and after severe weather events, the stockpiles, tie down systems, and tarps were inspected to ensure the material was protected from the elements.

- Imported Clean Fill - The majority of imported fill was delivered and placed directly into open excavations. In the event stockpiling of imported fill was necessary it was stockpiled on-site outside of the TCB. Such imported material was stored at the specified stockpile areas. Exact stockpile locations were coordinated in the field with National Grid, the Engineer and CM.

- ISS Spoils - Generated ISS spoils were removed from the Site for off-site disposal after first being allowed to cure on-site, for ease of handling. For ISS work performed within the excavated area, some spoils were allowed to solidify in place and were allowed to remain. Some limited on-site relocation of spoils was required to allow for unimpeded remedial construction equipment movement.

- Excavated POB Parking Lot Soil - Clean soil associated with the POB parking lot excavation was stockpiled at the designated northeast location of the National Grid property.

- Odor Control: Short term stockpiled impacted soils sometimes required the placement of foam to control odors.

4.2.4 Trucking Controls

- Truck Wash and Egress Housekeeping – The stabilized construction exit consisted of smoothly graded areas large enough to accommodate equipment and truck traffic and were constructed at exit points to clean transport truck tires exiting the Site. The base was covered with non-woven geotextile and coarse aggregate, and maintained and redressed while in use. Truck routes on-site and off-site were inspected during high truck traffic periods to reduce dirt or dust. Trucks exiting the Site were cleaned as necessary to

minimize dust on adjacent roadways. Transport trucks exiting the Site passed through an inspection area and were inspected by ENTACT personnel to ensure tires and undercarriages were clean and that tarps were secured. Excessive mud and loose dirt observed on the trucks were manually removed with brooms and brushes as necessary. Non-asphalted truck routes on-site were wetted down with the water truck to minimize dust conditions. Off-site streets were cleaned as needed.

- Truck Routing – The Contractor was required to follow project-established truck routes, as summarized in the COP including the following plans:
    - Truck Driver Policy and Orientation;
    - Weekly Alternating Truck Routes By Dates; and
    - Transportation Routes to Proposed Disposal Facilities.

  The implementation of these plans, as well as control of on-site traffic patterns, was carefully monitored by the Construction Manager. Prime considerations were safety to site personnel and pedestrians, minimizing traffic congestion, and cleanliness of roadways. Before work was started, ENTACT arranged with National Grid, the Engineer, and the Villages of Hempstead and Garden City for a primary means of access and a sequence or procedure for use of Site access points.

  ENTACT maintained and protected, to the extent practicable, surrounding community traffic during remediation and construction activities. Where work was performed on or adjacent to any roadway, right-of-way, or public place, ENTACT employed a flagman as well as furnished and erected barricades, fences, lights, warning signs, and danger signals as required in accordance with the Manual of Uniform Traffic Control Devices (Federal Highway Administration, 2009). Traffic control complied with the applicable local codes, regulations and requirements. Construction operations were conducted to insure a minimal traffic delays. Emergency vehicles were granted unlimited access to roadways and took priority over all other vehicles and/or work or other operations.

  Fences and barricades were utilized to restrict access to areas where operations were on-going. Site ingress/egress points utilized during the project were inspected daily.

  The southernmost ingress point (Intersection Street and Sealey Avenue) was monitored frequently for congestion and traffic flow as Oswego Oil Storage Terminal and other local businesses frequently utilized this throughway. The northernmost site egress point

(Second Street heading east) was also evaluated frequently. Drivers were instructed of this potential safety consideration and other site requirements during their initial site orientation.

4.2.5 Dust, Odor and Nuisance Controls

- Dust control measures were implemented to minimize the potential for dust generation during soil excavation, and handling and placement of fill. The main dust control activity was application of water from a 2,000-gallon water truck and a lay flat hose connected to on-site hydrants. Proper cleaning of trucks exiting the Site aided in minimizing/eliminate dusty conditions. Dust control associated with all exposed stockpiles as well as all open air excavation areas were maintained using the water truck to facilitate wetting all exposed surface areas without impeding the on-going the work. Perimeter and work zone air monitoring were performed in accordance with the CAMP to evaluate the effectiveness of dust control measures. In general, real time air monitoring equipment was utilized to monitor dust real-time and VOC levels in the work zone and at the perimeters. If visible dust was generated or work zone and/or perimeter air monitoring results showed elevated dust levels, corrective action measures were implemented. Corrective action measures included increasing water coverage, ceasing select activities during high wind, reducing speed of equipment thereby reducing dust generation, and utilizing different sizes or types of equipment that caused less dust generation.
- The TCB and the VMS served as the primary dust control measure utilized at the Site during excavation work.
- Dust Control in Freezing Conditions - ENTACT used best management practices (BMPs) when performing dust control in freezing weather conditions and eliminated the use of the water truck and incorporated pumps and hose runs from the existing site fire hydrant for dust suppression. BMPs included ensuring pumps, hoses and any other water spraying systems were drained daily or when not in use for extended periods of time to prevent freeze up; using water heating pressure washers to mist work surfaces during dust generating activities; using additional stone on haul roads to minimize dust from truck and equipment traffic; and modifying tasks being performed with an emphasis on work being performed under the TCB where the VMS system helped in maintaining dust control. ENTACT also monitored water freezing and collecting on ground surfaces and work zones. Ponding of water that had the potential for freezing was managed. Areas that

collected water were positively drained as practicable and/or salted as needed. Attention was paid not to over-salt surfaces as dust created from dried salt would become a nuisance.

- Dust Controls During Removal of Former MGP Infrastructure - All subsurface features located within the excavation areas were removed/demolished using an excavator with demolition hammer attachment concurrent with the excavation activities while inside and outside of the TCB. Dust control during concrete and brick removal and demolition were maintained by spraying with water or misting the work surface and equipment contact points to ensure the concrete and brick was moist and dust was controlled.

- Odor Control - Odor was monitored during excavation and handling of impacted soils and ISS spoils. To the extent possible, excavation work was performed inside the TCB to maximize the control of odors. Outside the TCB odor was controlled principally by the application of foam, biosolve, and placement of tarps to cover open excavations or stockpiles. ENTACT utilized a mobile odor control foam application unit to directly apply RUSMAR AC-645 © foam over excavation surface areas, stockpiles (including ISS spoils curing areas) in order to provide immediate odor suppression as needed. Following excavation but prior to solidification, odors were mitigated by placing a layer of non-odorous soils or polyethylene sheeting over the excavation area or stockpile (overnight and off-hours).

4.2.6 CAMP and Noise Monitoring Results

The Alert, Response and Action Limits shown in Table 2-1 from the CAMP were developed to maintain air quality standards and guidelines at the Site. CAMP results including copies of all field data sheets relating to the CAMP are provided in electronic format in Appendix H.

During periods of active remediation, levels of TVOC PM10 were continuously monitored on a real-time basis at locations along the perimeter of the site. Meteorological monitoring for wind direction, wind speed, air temperature, relative humidity, and sigma theta was also conducted at a central onsite location. Additional constituent-specific data was collected on a weekly basis and relative odor intensity measurements were conducted to support the evaluation of real-time results. Additionally, sound level measurements were collected on a daily basis at Site perimeter locations.

Baseline monitoring was conducted during a 3-day pre-remediation period and established baseline concentrations for TVOC (0.1 - 0.3 parts per million [ppm]) and PM10 (62 – 96 micrograms per cubic meter [µg/m^3]). Results during a site set up period (October 24 to November 19, 2011) and the remediation, or operational, period (December 5, 2011 and December 21, 2013) were determined to be consistent with the baseline data. The average TVOC concentrations ranged from 0.1 to 0.3 ppm with a maximum observed reading of 3.9 ppm. The TVOC Action Level (5 ppm) was not exceeded during the program. The average levels of PM10 ranged from 14 to 28 µg/m^3. There were PM10 concentrations observed above the Action Level (150 µg/m^3) during 31 days of the 749 day monitoring effort. Approximately 40% of these were associated with off-site sources or occurred during periods when there was no activity at the Site. The duration of periods with concentrations above PM-10 particulate action levels was less than 30 minutes and they were addressed by simple mitigation efforts such as the use of water spray.

In addition to the continuous monitoring, constituent-specific samples were collected on a weekly basis throughout the remediation activities. They were collected over a 24-hr period at two perimeter locations during each sampling period. The results indicate that low levels of VOCs that can be associated with residuals from former MGP operations were present at the perimeter locations. They included BTEX and naphthalene at average levels that typically ranged from 0.2 to 0.9 parts per billion (ppb). A review of the results indicates that the levels of these constituents are consistent with the ambient background concentrations referenced in NYSDOH guidance documents.

Additional monitoring was conducted on a daily basis to evaluate odor intensity and sound levels at locations along the perimeter of the site. The odor intensity levels were determined to be less than the screening levels established for the site on all but two occasions in May and August of 2013. In these cases, mitigation measures were applied and compliance with the screening levels was documented by the next round of daily monitoring. The results from the monitoring for sound level demonstrated that the remediation equipment operated at levels that were consistent with the expected ranges for construction equipment. Sound levels above the screening level established for the Site was limited to one occasion in July 2012 and was associated with landscaping activities not related to the remediation project.

4.2.7 Reporting

Reporting was a shared responsibility depending on the purpose of the report.

- Daily construction reports were prepared by the Contractor to summarize typical daily site activities such as equipment deployed, manpower utilized, construction features accomplished, and weather conditions.
- A digital photo log for the progression of the project remediation, including aerial photos, is included in electronic format in Appendix F.
- Weekly reports took the form of weekly meeting minutes from the Construction Manager. All weekly reports are included in electronic format in Appendix G. Monthly reports were not prepared or applicable to this project. The CM was responsible for preparing the meeting agenda and preparing the meeting minutes for all attending parties to review and comment upon prior to final issuance.
- A record of completed construction in the form of Contractor record drawings is provided in Appendix I.
- The following additional reports were generated and are contained in Appendix J:
    - Pre-and Post-Condition Survey Report of Existing Buildings
    - Vibration Monitoring Reports
    - Asphalt and Concrete QA/QC Data for constructed materials
    - In-place Density Test Reports for compacted soil
    - Pressure test and bacteriological test results for the constructed potable water line.

4.3 Excavation and Materials Handling

The remediation activities generated various types of wastes, for example: MGP-impacted materials, reuseable materials, clean construction debris, and ISS spoils. MGP-impacted materials and ISS spoils were managed on-site during the remediation (e.g., stockpiled) and then disposed of off-site. Reusable materials were generally used as backfill on-site. The following section describes in more detail where and why the materials were generated, and how they were ultimately managed.

Shallow soils at the Site were excavated in preparation for the ISS of deeper MGP-impacted materials. The shallow excavation was performed to provide a lower working platform for the solidification work and the resulting solidified monolith designed to be below the final ground surface. The shallow excavation depth was established to allow for four or more feet of soil to be placed above the monolith to facilitate rainfall infiltration and drainage.

Existing on-site soil was disposed off-site unless determined to be reusable by visual or olfactory inspection. Additionally, MGP structures such as holder foundations were excavated and disposed off-site in order not to pose obstruction to solidification.

Areas where excavations of MGP-impacted and reusable material were performed are shown on Figure 5. Reusable material was excavated from the following locations:

- Some of the soil excavated from the National Grid property was resuseable based on visual and olfactory inspection and was stockpiled for use as backfill as discussed in Section 4.2.3.
- Soil was excavated to depths of 12 to 15 below ground surface from the POB parking lot and the adjacent Wendell and Intersection Streets. These were the clean shallow soils located above the deeper contamination targeted for the ISS. These reusable soils were stockpiled for backfill as discussed in Section 4.2.3.
- Portions of the LIRR ROW and Active Oil Storage Terminal Area were excavated to create shallow cuts and/or berms for ISS spoils containment. The excavations were then backfilled with clean off-site soil.

In addition to excavated contaminated materials, the solidification process also generated solidification spoils that required off-site disposal. These spoils were managed as described in Section 4.2.3 and disposed offsite.

For volumes of the various removed materials, reference Table 3 showing disposal facilities and volumes discussed in the section below. This summary includes records of disposal of non-impacted materials such as piping (e.g., water distribution, sanitary sewer, natural gas distribution) from outside the National Grid property.

4.3.1 Disposal Details

Disposal activities were performed during the period of December 5, 2011 and January 2014. Laboratory analytical data were collected prior to start of construction to allow for direct

disposal of excavated soil rather than having to stockpile it while awaiting analytical results. The initial characterization was sufficient for acceptance of up to 53,250 tons of material. Additional samples were collected on an ongoing basis to provide characterization for soil and spoils beyond 53,250 tons. Table 3 shows the total quantities of each category of material removed from the Site and the disposal locations. The disposal facilities and approved waste streams are summarized in more detail in Appendix E. The waste transporters utilized for the construction, the permitted vehicle license numbers, copies of the NYSDEC Part 364 Waste Transportation Permits are also provided in Appendix E.

The analytical data for disposal and acceptance letters from disposal facility owners are provided in Appendix K. Appendix K also shows all of the individual loads of disposed material shipped, which went to the Bayshore Soil Management facility in Keasbey, New Jersey as non-hazardous material. A total 67,676 tons of material were transported and disposed of at the Bayshore Soil Management facility: 50,267 tons of soil and 17,409 tons of ISS spoils. Manifests, bills of lading, and certificates of treatment/recycling are included in electronic format in Appendix K.

4.3.2 On-Site Reuse

Excavated materials designated for reuse strictly adhered to the following placement location guidelines:

- Materials excavated from the National Grid property that were not Source Material as determined by pre-characterization, and were further determined to be reuseable by visual and olfactory inspection, were reused as backfill only within National Grid property limits.
- Reusable materials excavated from outside the National Grid property were able to be reused throughout the project construction limits as backfill.
- Reusable soil was not used within 2 feet of final cover surface. Within the upper 2-foot zone, clean imported material was used as backfill for all of the areas.

Procedures for segregating, storing and testing: Materials excavated with the potential for reuse were managed as described above in Section 4.2.3. Excavated soils planned for reuse were not tested analytically. Soils for reuse were segregated by visual and olfactory inspection, and were obtained only from the approved areas (e.g., not Source Material areas).

Approvals: The reuse of materials excavated within the National Grid property limits required the Engineer's approval based on the project specific criteria.

Reused Material: Reused material consisted of sandy soil that contained silt and gravel. Placement locations were as indicated in the above bullets. Horizontal and vertical limits for all backfill, a subset of which is the reuse soil, is depicted by the top of solidification on Figure 7 and the backfill thickness on Figure 6. Top of solidification also represents the bottom of backfill as backfill was placed directly on top of the solidified soil. Reusable soil stockpiled for reuse was used together with imported clean fill, and thus it is not possible to describe in more detail the location of reused material beyond the depiction of backfill placement.

4.4 In-Situ Solidification

ISS treatment was performed on targeted MGP source material as defined in Section 2.2.The objective of ISS treatment was to:

- Reduce or eliminate the mobility of NAPL by mixing the impacted soils with cement-based reagents; and
- Achieve source control through the creation of a low-conductivity mass to redirect the flow of groundwater around rather than through the impacted media.

To achieve the objectives of the ISS remediation program, performance criteria were established for hydraulic conductivity reduction and compressive strength of the solidified soil mass. These performance criteria are listed below from the American Society for Testing and Materials (ASTM):

- Hydraulic Conductivity (ASTM D5084) $\leq 1 \times 10^{-6}$ cm/sec at 28 days; and
- Unconfined Compressive Strength (ASTM D1633) $\geq$ 50 psi and <1,000 psi at 28 days.

ISS treatment included the delivery of a cement/slag grout into Source Material soil and thoroughly mixing to provide a soil-cement mass meeting the hydraulic conductivity and UCS performance goals.

Prior to full scale remediation, ENTACT performed a full-scale pilot study to finalize the grout mix for use with the Site soils using the proposed construction equipment. This pilot test demonstrated the ability of the proposed grout mix design and construction equipment, and application processes to achieve the intended results. Once these procedures demonstrated that the required performance could be achieved, full scale ISS was ready to proceed.

Production ISS columns were installed as a contiguous mass of overlapping cylindrical columns with targeted top and bottom elevations as specified in the design, and as modified

during construction. The ISS "monolith" is located in portions of the National Grid property, below Intersection Street, and south of Intersection Street below the POB parking lot. There were four separate ISS areas, as well – on the VGC municipal property, Oswego Oil Storage Terminal property portion, and two "Northeast Areas" that straddle the LIRR ROW. Figure 7 shows a map of the limits of the solidification area and contour elevations of the top of the monolith. Figure 8 shows the contour elevations of the bottom of the monolith. A total volume of 168,626 cubic yards (cy) of soil was treated via solidification.

Appendix L contains the mill test reports and bills of lading for all cement and slag used on-site.

4.5 Solidification Performance/Documentation Sampling

Samples from the ISS mix were collected at multiple depths from one to two columns per day of operation and analyzed for hydraulic conductivity and unconfined compressive strength. Performance criteria for the solidification were established for hydraulic conductivity reduction and compressive strength, which are identified as: hydraulic conductivity $\leq 1 \times 10^{-6}$ cm/sec at 28 days, and Unconfined Compressive Strength (UCS) at 28 days $\geq$ 50 psi and <1,000 psi. This quality control testing is summarized in Table 4. The data shows that the required hydraulic conductivity and unconfined compressive strength were consistently met very few exceptions. A total of 257 ISS columns were sampled, represented by 748 test samples (i.e., multiple depths per column) and there were only 5 test samples (less than 1 % of the samples) that were not within the target values for either one or both test parameters. However, column samples that did meet target values were located immediately adjacent to the 5 samples which did not meet target values. The geometric mean of hydraulic conductivities achieved was 5×10^{-8} cm/sec which surpassed the 1×10^{-6} cm/sec criteria by over an order of magnitude. The average of unconfined compressive strengths achieved was approximately 545 psi, or an order of magnitude greater than the minimum 50 PSI criteria. The ISS mix sample results were provided for NYSDEC review periodically during the project.

Two groundwater oxygenation systems are currently in operation and groundwater sampling and analysis is conducted quarterly. The Construction Completion Report detailing the systems is under separate cover (URS, 2014). Depending on the groundwater monitoring results over the next two years, other groundwater oxygenation systems may be installed along Wydler Place and Intersection Street.

4.6 Imported Backfill

Imported backfill material consisted of the following:

- General Fill for general backfilling purposes;
- Topsoil for cover material; and
- Stone (gravel) for cover material.

The backfill thickness above the top of the ISS monolith is shown on Figure 5. As discussed above in section 4.3.2, on-site areas requiring more than 2 feet of backfill included reusable on-site soil. Imported material was placed throughout the National Grid property and in the following areas outside the National Grid property:

- Portions of the Northeast Area remediation locations that are located outside the Site boundary;
- Professional Office Building Parking lot and adjoining streets;
- Oswego Oil Storage Terminal; and
- VGC municipal property.

A summary of all sources of imported backfill (general backfill and topsoil) with quantities for each source is shown in Table 5. A tabulated load summary for General Fill is provided in Table 6. For the Contractor to use a particular material source, the proposed source provided a certification that they were capable of providing of producing clean material. The certifications are provided in Appendix L. After this initial certification, the Contractor was required to conform to the requirements described below.

For all proposed off-site backfill (including topsoil), the Contractor was required to collect representative confirmatory samples from each of the off-site sources proposed for soil backfill material. At a minimum, each source and each material needed to be represented by sampling and testing. In accordance with the approved BOD, the frequency of sampling of the material was one sample per every 5,000 cy (in-place measure) of material proposed to be brought on-site. The samples were analyzed at a NYSDOH-certified Environmental Laboratory Accreditation Program (ELAP)-approved laboratory. The samples were tested in accordance with the parameters listed in 6 NYCRR Part 375 Table 375-6.8(b), soil cleanup objectives (SCOs) for residential use. In addition, 10 percent of the samples collected were analyzed for polychlorinated biphenyls (PCBs) parameters identified in that same NYCRR Table for residential use. A summary of detected chemical analytical results for backfill as compared to SCOs for residential use is provided in Table 7. All imported soils met the SCOs for residential

use. Appendix L contains the physical and analytical test results, as well as manifests, for imported backfill. The Engineer's representative also visited the clean fill source occasionally to visually observe and inspect the clean fill source.

4.7 Contamination Remaining at the Site

The primary method of remediation at this Site was ISS, which solidifies the contamination in place. This contamination has been solidified so that it is no longer mobile and thus cannot contribute to an exposure pathway. In this section the extent to which source material, as defined in Section 2.2 remains at the site is presented. Figure 9 shows the delineated limits of MGP source material and the extent of untreated MGP source material remaining at the Site. These areas will be addressed by the existing oxygenation systems that have been installed, and other oxygenation systems may be added depending on review of the groundwater conditions over the next two years. The remaining source material areas and their respective contamination depth ranges are described below.

- VGC municipal property (Utility Corridor) – The approximate 30-foot wide utility corridor was not included in the solidification scope in order to be protective of important active utilities in this area. Remaining MGP impacts are approximately 7 to 20 feet bgs.

- Wendell Street and POB Area - This variable-width area has a footprint of a maximum 100 feet wide by about 300 feet long, including a portion underneath the southwestern third of the POB. Based on the distribution of MGP source material in the adjacent parking lot prior to treatment there, remaining MGP source material in this area has a bottom elevation of about 30 feet above mean sea level (amsl) and is about four feet thick.

- LIRR ROW – This variable-width area has a footprint of a maximum of 70 feet wide by about 700 feet long, extending into property just outside of and to the east/southeast of the LIRR ROW. MGP source material in this area has a variable thickness, varying from a top elevation of 42 feet amsl near the POB parking lot to 58 feet amsl near the Oswego Oil Storage Terminal with bottom elevations varying from 28 to 38 feet amsl.

- As discussed in Section 4.11, about a dozen columns were unable to reach full depth because of obstructions or dense soil conditions that impeded advancement of these 12 columns. In addition, achievable treatment depth with the Contractor's ISS drill

rig was limited to approximately 30 to 35 feet bgs. This resulted in some reduced treatment depths for the locations shown on Figure 9. These areas were primarily in the eastern portion of the site and in the "deep pocket" area in the northwest. The modified treatment depths were approved by NYSDEC and approximately 98% of the ISS treatment volume was still able to be completed with the revised treatment depths.

Since soil and groundwater contamination remain beneath the site after completion of the Remedial Action, Institutional and Engineering Controls are required. These ECs/ICs are described in the following sections. Long-term management of these EC/ICs and residual contamination will be performed under a NYSDEC-approved SMP.

4.8 Surface Cover Materials

Potential contact with remaining soil contamination is mainly prevented by the clean cover soil that was placed over the remediation areas, and also by different types of surface cover materials placed over the disturbed/remediated areas of the Site. Figure 10 shows the location of each cover material constructed at the Site. Figure 11 provides the typical details for each type of cover material. Figure 12 provides a cross section through the types of cover materials across the Site from west to east (cross section locations are shown on Figure 10). A contour map of the final Site grades is provided in Figure 13.

The types of surface cover materials at the National Grid property include select stone fill a minimum of 4 inches thick or asphalt 1-1/2 inches thick over generally 4 inches of sub-base, depending on location. The stone fill and asphalt was placed on top of a minimum of 20 inches of clean soil from off-site sources in order to provide at least 24 inches of separation between the top surface and underlying backfill some of which was from on-site excavations.

The surface cover materials for areas outside of the National Grid property consists generally of a replacement in kind of cover materials that were in place prior to the start of remedial construction. The exception is that the majority of the grass cover of the VGC municipal property was replaced with either 4 inches of landscaping gravel or 1-1/2 inches of asphalt over 4 inches of sub-base, depending on location, because the VGC decided to keep the temporary paving that was installed as part of the project. Otherwise, asphalt was replaced at roadways, the POB parking lot, and the portion of the LIRR where solidification was performed. Additionally, topsoil and grass were replaced in the remaining areas of the VGC municipal property and at lawn strips along roadways, and new gravel-covered islands were placed at two locations within the POB parking lot. Existing concrete sidewalks were replaced in kind with concrete. Trees were

planted to replace removed or damaged trees, and within the new gravel islands. Some of the asphalt at the Oswego Oil Storage Terminal was also replaced in kind in the area where the ISS was completed.

An Excavation Work Plan, that describes the plan for addressing future disturbance to the cover materials and/or underlying residual contamination, is provided in Appendix C of the SMP.

4.9 Other Engineering Controls

Since remaining contaminated soil and groundwater exists beneath the site, ECs are required. Oxygen delivery systems have been installed to treat the groundwater plume downgradient of the solidified monolith, and downgradient of source material that was inaccessible to solidification treatment.

The construction and operation of the Oxygen Delivery System was detailed in a separate Construction Completion Report provided in Appendix C.

4.10 Institutional Controls

The Site remedy requires that an environmental easement be placed on the property to (1) implement, maintain and monitor the Engineering Controls; (2) prevent future contact with remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to restricted residential uses only.

The Environmental Easement for the Site will be executed by the Department and filed with the Nassau County Clerk, dates to be determined. The County Recording Identifier number for this filing will be provided when available. A copy of the environmental easement and proof of filing is included in Appendix A.

4.11 Changes From the Basis of Design Document

This section provides a description of the changes from the Basis of Design and the reasons for the changes. The Engineer was responsible for approving field changes and the Engineer reviewed the changes for consistency with the remediation plan and to ensure the project was completed in a safe and timely manner. .Changes to the project were discussed with the on-site DEC representative and at weekly project meetings with the project team and the DEC Project Manager. Copies of written correspondence with DEC for project changes are provided in Appendix M.

4.11.1 Changes to the Extent of Solidification

The area and depth of planned solidification was presented in Drawing 10 of the approved BOD. The following changes to the area and depth of solidification were made during the remediation and approved by NYSDEC.

4.11.1.1 Solidification Limits along LIRR ROW

The BOD identified the extent of solidification along the LIRR ROW. The planned limits of treatment were based on the property boundary since the solidification drill rigs could not operate under the power lines that are located in the LIRR ROW, and these power lines were not able to be taken out of service for extended time periods. Figure 7 shows the completed solidification limits based on the safe operating distance required for the ISS drill rig near the in-service electric lines.

4.11.1.2 Solidification Limits within the LIRR ROW

The BOD did not require solidification to be completed within the LIRR ROW. However, there were two areas in the LIRR ROW (Northeast Areas) in the northeast portion of the site that were remediated in accordance with the plan. These areas are near the IRM excavation areas that were completed near this area in 2008. Remediation of these two smaller areas was one of the more difficult and complex areas to complete for the project due to the requirements from the Long Island Power Authority (LIPA) to not affect the reliability and safety of their critical high voltage transmission lines that are located within the LIRR ROW. The work in this area required a complex and carefully planned and coordinated effort to be able to temporarily take the electric lines out of service for a scheduled outage so that the drilling equipment could safely operate in this area. The work included contracting with the LIRR to temporarily relocate critical railroad signal cables away from the remediation area, and having LIPA deenergize and temporarily remove some of the 13 kilovolts (kV) and 69 kV high voltage power lines and poles along the ROW. Each of the two sets of power lines has two conduits installed one on each side of the pole mounted cross arms. National Grid coordinated extensively with LIPA to schedule this work and was successful in developing a carefully planned and coordinated temporary removal of the 13 kV lines (the lines closer to the National Grid Property) and temporary de-energizing and removal of the 69 kV line located on the western portion of the cross arm. However, LIPA required that one of the 69 kV lines on the eastern portion of the cross arms (the lines farthest from the National Grid Property) not be removed from the cross arm. This one 69 kV line needed to remain installed and available for service as it is critical for one 69 kV line to remain available to help maintain the electrical transmission integrity for the LIPA system.

To maintain a safe distance from the one line remaining available for operation, eight of the planned columns (approximately 340 cy) were not accessible for the drill rig. These eight columns were located along the eastern edge of the power line area and NYSDEC approved the removal of these eight columns from the program in an e-mail to National Grid on August 23, 2013 based on the electrical safety limitations and because they were located along the edge of the treatment area.

4.11.1.3 Higher Elevations of the Bottom of the Monolith in Certain Areas

During production work, the contractor encountered significant difficulty in achieving planned treatment depths for about approximately twenty of the approximately 4,000 columns planned for the project. These columns are shown as individual locations on Figure 9. Other columns installed near these columns reached their target depths but took longer than expected and were overstressing the solidification equipment, according to the contractor. Because the target depths in these areas was relatively modest (typically about thirty feet from the bottom of the pre-excavated surface), the contractor expressed significant concern about the ability of the ISS drilling equipment to achieve deeper target depths in other locations where the target depths were deeper. The contractor indicated that the grout delivery and effective augering was limited by the presence of gravel in the native soil, higher relative density of that soil, and a relatively deep water table (about 25 feet deep) that limited the availability of the groundwater for lubrication of the auger/solidification zone. Because of the difficult drilling that the contractor was experiencing, the Engineer needed to re-assess the pre-characterization data and refined the required bottom of treatment elevations across most of the proposed solidification areas, limiting required maximum solidification depth. To accommodate these limitations, NYSDEC agreed to allow some reduced treatment depths in certain areas of the site. This included reduced treatment depths for the separate “deep pocket” ISS area in the northwest portion of the Site. Despite the reduced treatment depths, the solidification volume completed for the project was still about 98% of the volume of source material originally targeted in the BOD. Figure 9 shows the areas where treatment depths were not as deep as outlined in the BOD. The areas were successfully treated to the revised target depths in accordance with the October 11, 2012 NYSDEC e-mail approval for these changes.

4.11.2 Changes in the Remediation Techniques

4.11.2.1 Use of Bucket Mixing Adjacent to Cured Columns

The contractor sequenced column installation to allow for column overlap across recently installed columns that were not fully cured. However, the difficult drilling referenced above in section 4.11.1.3 was causing damage to the drill rig that resulted in an extended period of down time. The rig down time resulted in an area of untreated soil in between two rows of fully cured columns, approximately 180 feet long and 7.5 feet wide (see location on Figure 7), that was unable to be solidified without possible damage to the augers and/or the drill rig. To address the soil between these cured rows of columns bucket mixing was used as an alternate means of solidifying the soil between the two rows of cured columns in this area. The soil was excavated prior to solidification by creating a four foot deep benched cut over the trench shaped area and then using a long-reach excavator to remove and replace the soil in the trench between the rows of cured columns. The trench was then backfilled with mixed soil and grout and with excess ISS spoils from other columns that had been recently installed. Additional grout was added to the trench during backfilling to complete the solidification in this area. Above the water table, the placed soils were compacted with the excavator bucket. The alternate process used for addressing this area was approved by NYSDEC.

4.11.2.2 Use of ISS Rather than Excavation in a Portion of the Northeast Area

Excavation of MGP impacted soil was planned for part of the northeast area where material was only being targeted to 11 feet bgs. This soil was adjacent to other soil that was planned to be solidified with augers to greater (>20 feet) depths. Instead of excavating these shallower soils, they were instead solidified with augers (after surface pre-excavation) in the same manner of the adjacent deeper source material. This change used the same solidification approach as other ISS areas, and this was presented and discussed in the weekly meetings with NYSDEC prior to making this change.

4.11.2.3 Modification of Top Elevation of Solidification under Parking Lot

At the POB parking lot, the design called for excavation of 15 feet of soil following the installation of soil-crete retaining walls around the perimeter. This approach was proposed because MGP impacts off-site were only identified at depth, and the shallower soils were not impacted. Rather than terminating solidification at an elevation consistently 15 feet below the surface, the top of solidification was extended upward such that it varied between 12 and 16 feet below the surface, as shown on Figure 5. This was accomplished by allowing some spoils to

solidify in place rather than be transported out of the excavation pit. This technique was used to reduce the amount of odors generated through handling spoils, and to reduce unnecessary off-site spoils disposal. The Engineer monitored the placement and curing of these spoils to ensure that the spoils solidified above the augered columns. If the spoils were relocated from other column locations, the Engineer required the Contractor to remix them with grout before they solidified in place. The reuse of spoils in this area was considered a means and methods change from the Contractor that was approved by the Engineer. This plan was presented and discussed in the weekly meetings with NYSDEC.

4.11.3 Changes to Promote Drainage from the Solidified Monolith

4.11.3.1 Revised Top of Solidification Contours on the National Grid Property

In the BOD, the top of the solidified monolith was shown as being four feet below existing ground surface for much of the National Grid property. During construction, the planned top of the monolith was lowered in some places to maintain a positive route of drainage from the top of the monolith and to prevent ponding of water on the monolith.

4.11.3.2 Re-orientation of POB Parking Lot Drains from Horizontal to Vertical

Instead of the originally planned relief drains exiting the monolith horizontally through the ISS soil-crete wall, the drains were instead constructed vertically through the bottom of the ISS monolith. These drains were installed to prevent the accumulation of water within the lower part of the monolith below the office building parking lot. Five drains were installed through the completed monolith in the locations shown on Figure 7. The drains consisted of 8-inch diameter polyvinyl chloride (PVC) risers with screens installed above and below the monolith. Details of the drain construction are shown on Figure 14. A summary of riser and screen lengths is presented in Table 8. This change was as discussed and documented in the weekly project meetings (provided in Appendix G) and as documented with NYSDEC correspondence.

4.11.4 Changes to Surface Cover

The temporary parking lot constructed on portions of the National Grid and VGC property was to be removed after the permanent lot for the office building was replaced. Portions of the temporary parking lot were ultimately retained during final restoration, as shown on Figure 10. Retaining these portions of the temporary parking lot had the following two impacts:

- The BOD indicated that the amount of pavement after completion of the remediation was expected to be less than was present prior to remediation. Even after leaving the

temporary parking lot pavement in place, the project resulted in a 35% decrease of the paved area.

- The pavement in this area reduces the infiltration capacity in this area. Ground surface grading that was completed with the restoration work helped to manage surface water flow to the recharge basin located on the adjacent VGC property. Other options are being evaluated to improve surface water drainage for the Site.

5.0 CONCLUSION

This report summarizes the extensive remediation work that was completed by National Grid and documents how the objectives of the BOD were met including:

- Removal of 50,267 tons of contaminated soil and 17,409 tons of ISS spoils;
- Solidification of impacted materials was achieved for approximately 169,000 Cubic Yards of Soil; and
- Groundwater oxygenation systems and DNAPL recovery wells supplement the ISS and excavation work.

Since soil and groundwater contamination remain beneath the site after completion of the Remedial Action, Institutional and Engineering Controls are required. Long-term management of these EC/ICs and residual contamination will be performed under the Site Management Plan.

6.0 REFERENCES

ASTM, various. *American Society for Testing and Materials*.

ENTACT, 2012, *Construction Operations Plan, In-Situ Solidification for The Hempstead Intersection Street Former Manufactured Gas Plant Site, Revision 9,* May 14.

FHWA, 2009. *Federal Highway Administration, 23 Code Of Federal Regulations (CFR), Part 655, Subpart F, Manual on Uniform Traffic Control Devices.*

Nassau County, *Department of Assessment Internet Map Server. Add date accessed and an URL.*

NYSDEC, 2005. *New York Standards and Specifications for Erosion and Sediment Controls,* August.

NYSDEC, 2006a. *6 NYCRR Part 364, Waste Transporter Permits*, May.

NYSDEC, 2006b. *6 NYCRR Part 375, Environmental Remediation Programs Subparts 375-1 to 375-4 & 375-6.* December.

NYSDEC, 2008. *Use Of Quick Lime And Similar Materials*, May 20.

NYSDEC, 2009. *CP-43, Commissioner Policy on Monitoring Well Decommissioning.* December.

NYSDEC, 2010a. *Draft DER-10 Technical Guidance for Site Investigation and Remediation.* December.

NYSDEC, 2010b. *SPDES General Permit For Stormwater Discharges from Construction activity, Permit No. GP-0-10-001*, January.

NYSDEC, 2011. *DER-31, Green Remediation*, January.

URS, 2009. *IRM Excavation Completion Report – Interim Remedial Measures for the Hempstead Intersection Street Former MGP Site, Villages of Hempstead and Garden City, Nassau County, New York,* May.

URS, 2010. *Pre-Design Investigation Report for In-Situ Solidification and Off-Site Groundwater Treatment, Hempstead Intersection Street Former Manufactured Gas Plant Site, Draft, February.*

URS, 2011a, *Basis of Design Report for In-Situ Solidification, Hempstead Intersection Street Former Manufactured Gas Plant Site*. August.

URS, 2011b. *In-Situ Solidification, Technical Specifications/Contract Documents, Hempstead Intersection Street Former Manufactured Gas Plant Site.* April.

URS, 2014, DRAFT *Off-Site Groundwater Treatment Construction Completion Report, Hempstead Intersection Street Former Manufactured Gas Plant Site, Villages of Hempstead and Garden City, Nassau County, New York,* January.

TABLES

Table 1: Target Concentrations (Above Background) and Site Conditions

				Site Condition			
Target – units	**Alert Limit**	**Response Limit**	**Action Limit**	**Operational Condition**	**Alert Condition (Above Background[1])**	**Response Condition (Above Background[1])**	**Action Condition (Above Background[1])**
TVOC (PID) – ppm Benzene (GC) – ppm	3.7 N/A	5.0	25.0 1.0	$[C_{avg}] \leq 3.7$ $[C_{avg}] \leq 1.0$	$3.7 < [C_{avg}] \leq 5.0$ NA	$5.0 < [C_{avg}] \leq 255.0$ NA	$[C_{avg}] > 25.0$ $[C_{avg}] > 1.0$
PM_{10} – µg/m^3	NA	100	150	$[C_{avg}] \leq 100$	NA	$100 < [C_{avg}] \leq 150$	$[C_{avg}] > 150$
Odor[2] - n-butanol scale	NA	NA	3	OI ≤ 3 and No Odor Complaints	NA	NA	OI > 3 or Odor Complaints
Odor (naphthalene) – µg/m^3	NA	NA	440	$[C_{avg}] \leq 440$	NA	NA	$[C_{avg}] > 440$
Hydrogen Cyanide – ppm	Odor threshold[3] [0.6]	1.0	2.5	$[C_{avg}] \leq 0.6$	$0.6 < [C_{avg}] \leq 1.0$ (meter) and [C] < 1.0 (DT)	$1.0 < [C_{avg}] \leq 2.5$ (meter) and [C] < 2.5 (DT)	$[C_{avg}] > 2.5$ (meter) and and [C] ≥ 2.5 (DT)

Definitions:
TVOC = Total Volatile Organic Compounds
PID = Photoionization Detector
PM_{10} = Particulate Matter
ppm = parts per million volume
µg/m^3 = micrograms per cubic meter
[C] = Concentration of target collected from a discrete sample
$[C_{avg}]$ = 15-minute average concentration of target
DT = Dräger Tubes
OI = Odor Intensity based on the n-butanol scale adapted from ASTM E544-99. Odor measurements made over a 15-minute interval.

NA = Not applicable, odor intensity will be either an Operational Level or Action Level; there is no Alert and/or Response Limit and there is no Alert Limit for PM_{10}.

Notes:

[1] Background is defined as the current upwind concentration. Background concentrations will be used to calculate the actual Property contributions to TVOC's and PM_{10} during the final evaluation of the Site conditions as part of the weekly data summaries.

[2] Odor intensity observations are based on the n-butanol scale.

[3] HCN odor threshold is understood to mean that if the characteristic HCN bitter almond odor is detected (olfactory sensitivity ~ 0.6) that this could provide an indication for HCN. Accordingly, HCN monitoring will be performed if the almond odor is detected.

TABLE 2
Vendor and Subcontractor List

Name	Address	Contact	Role
Stony Creek Services	4001 Daly Blvd Oceanside, NY 11572	(516) 678-5454	Furnished General Fill, Protective Cover Soil, Select Stone, Stone Cover, Topsoil
Belli Topsoil	885 Crooked Hill Road W. Brentwood, NY 11717	(631) 273-3121	Furnished Topsoil
LaFarge North America	5160 Main Street Whitehall, PA 18052	(484) 375-5284	Furnished Portland Cement, Granular Ground Blast Furnace Slag
Anchor Security	One Fulton Ave. #14 Hempstead, NY 11550	(516) 481-6800	Provided site security service
Island Fence Company	964 Front Street Uniondale, NY 11553	(516) 481-2187	Installed fence panels
All-Site Structure Rentals	1205 St. Paul Street Baltimore, MD 21202	(410) 605-9216	Furnished and assisted in erecting the TCB
Private Utility Locating, Inc.	P.O. Box 3397 Butztown, PA 18017	(800) 883-6855	Performed subsurface utility survey
Maser Consulting, P.A.	1607 Rout 300, Suite 101 Newburgh, NY 12550	(845) 564-4495	Provided surveying services using State of New York-registered land surveyors
H2M Labs, Inc.	575 Broad Hollow Rd Melville, NY 11747	(631) 694-3040	Performed analytical work
Island Pump and Tank (formerly Fenley & Nicol Environmental)	445 Brook Ave Deer Park, NY 11729	(631)586-4900	Performed electric wiring and hook-ups through electric subsidiary company
TIGG Corporation	1 Willow Avenue Oakdale, PA 15071	(724) 703-3020	Furnished and assisted in erecting the VMS for the TCB
Materials Testing Lab, Inc.	145 Sherwood Ave Farmingdale, NY 11735	(631) 815-1900	Performed on-site soil compaction testing, in-place density testing, and geotechnical laboratory testing
Laser Industries, Inc.	1775 Route 25 Ridge, NY 11961	(631) 924-0644	Subcontractor for temporary and permanent paving including curbs, gutters, sidewalks, drive ways, aprons, ramps, pavement painting and striping, signage, and lighting
Bancker Construction Corporation	218 Blydendurgh Rd Islandia, NY 11749	(631) 582-8880	Installed catch basins, storm drainage piping, water distribution pipe, water lines, hydrants, sanitary sewer and manholes, including alteration to existing manholes and drop inlets
Greenfield Nursery	127 Pond Circle Mount Sinai, NY 11766	(631) 928-2880	Performed landscaping

TABLE 2
Vendor and Subcontractor List

Available Waste Haulers

Name	Address
Battal Trucking, LLC	87 Braemar Drive Wayne, NJ 07470
Cedar Hill Trucking, Inc.	1021 River Road Selkirk, NY 12158
Cuenca Coronel Trucking, Inc.	275 N. 12th Street Newark, NJ 07107
Dabin Trucking, Inc. T/A AMV Trucking	190 Drake Lane Ledgewood, NJ 07852
J&D Trucking, Inc.	3526 Northwest Blvd Vineland, NJ 08360
R&B Debris	5900 Sylon Blvd Hainesport, NJ 08036
R. Galusha Transport, LLC	1380 Towpath Lane Fort Edward, NY 12828
Shamrock Materials	100 St. Mary's Avenue Staten Island, NY 10305
Terrace Transportation, LLC	P.O. Box 030178 3249 Richmond Terrace Staten Island, NY 10303
T.E.V. Corporation	182 Calcutta Street Newark, NJ 07114
William J. Lauer Corporation	P.O. Box 030178 Staten Island, NY 10303

TABLE 2
Vendor and Subcontractor List

Available Disposal Facilities

Name	Address	Disposal
Bayshore Soil Management	75 Crows Mill Road Keasbey, NJ 08832	Impacted solid waste, non-hazardous
Clean Water of New York, Inc.	3249 Richmond Terrace Staten Island, NY 10303	Impacted liquid waste, non-hazardous (non-hazardous liquid waste was not generated as part of this work, therefore this disposal facility was not used)
Bayshore Recycling Corp	75 Crows Mill Road Keasbey, NJ 08832	Non-impacted concrete and asphalt
Suffolk Industrial Recover Corp, dba PK Metals	3542 Route 112 Coram, NY 11727	Clearing debris, general site waste, construction waste and steel scrap
Belli Topsoil	885 Crooked Hill Road W. Brentwood, NY 11717	Clean soil and asphalt stripped post-remediation

TABLE 2
Vendor and Subcontractor List

Heavy Equipment and Related Equipment/Materials
American Equipment & Fabricating Corp.
Bay Crane
eNoise Control (Sound curtain panels)
Hammer & Steel, Inc.
Hertz Equipment Rental Corporation
HO Penn Machinery Co., Inc.
IWT/Cargo-Guard (Truck liners, poly sheeting, silt fence)
Morris Industries, Inc. (Aqua Gel Gold Seal bentonite)
New Millennium Rentals, Inc.
Pine Environmental Services, LLC (air monitoring equipment)
Rain For Rent (Frac Tank)
Rusmar, Inc. (foaming unit)
Sunbelt Rentals
Soilmec North America (ISS Drill Rig)

Table 3

Offsite Soil/Waste Disposal Volumes and Facilities

Material	Disposal Facility	Quantity Disposed
Impacted (source material) soil and related material	Bayshore Soil Management 75 Crows Mill Road Keasby, New Jersey 08832	67,676 Tons (50,267 Tons as excavated material; 17,409 Tons as ISS spoils)
Clean Construction & Demolition Debris	Bayshore Recycling Corporation (a subsidiary of Montecalvo) 75 Crows Mill Road Keasby, New Jersey 08832	5,250 Tons
Clean Asphalt and Soil	Belli Topsoil 885 Crooked Hill Road W. Brentwood, Long Island, NY 11717	355 CY

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
3197	3/19/2012	10	62	3.80E-07
		20	621	3.70E-08
		27.5	1028	1.10E-08
3022	3/19/2012	10	1248	1.70E-08
		20	627	1.30E-08
		27.5	557	8.40E-08
2930	3/19/2012	10	511	1.30E-08
		20	766	1.10E-08
		27.5	629	1.70E-08
3195	3/20/2012	10	3	1.50E-06
		20	314	4.00E-08
		27	725	2.80E-08
3107	3/20/2012	10	413	3.70E-08
		20	429	4.50E-08
		28	303	4.10E-08
4	3/20/2012	10	899	1.60E-08
		20	628	2.30E-08
		28	438	2.90E-08
2840	3/21/2012	10	329	4.30E-07
		20	645	2.00E-08
		29	217	1.10E-07
2629	3/21/2012	10	541	4.90E-09
		20	742	2.20E-08
		27	372	2.70E-08
2650	3/22/2012	10	5	3.70E-06
		20	355	3.20E-08
		28	211	7.30E-08
2816	3/22/2012	10	777	3.10E-08
		20	490	2.10E-08
		27.5	379	2.00E-08
2553	3/22/2012	10	329	3.40E-08
		20	711	3.40E-08
		27	803	1.90E-08
2744	3/22/2012	10	380	4.40E-08
		20	213	7.30E-08
		28	166	5.00E-08
332	4/19/2012	4	15	9.70E-06
		14	324	4.00E-08
		23	255	2.30E-08
335	4/19/2012	7	4	7.00E-06
		14	11	4.80E-06
		22	222	9.40E-08
394	4/20/2012	5	636	2.70E-08
		15	797	2.00E-08
		25	534	1.90E-08
397	4/20/2012	5	6	1.30E-05
		14	469	6.50E-08
		24	400	9.50E-08
593	4/25/2012	4	3	6.80E-06
		15	668	3.90E-08
		20	314	4.20E-08
387	4/23/2012	12	560	2.00E-08
		18	480	3.40E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
514	4/24/2012	8	243	9.10E-08
		25	163	1.30E-07
509	4/25/2012	5	4	1.20E-05
		15	306	3.90E-08
		24	157	7.60E-08
585	4/26/2012	5	211	1.50E-07
		15	483	3.30E-08
		24	567	3.50E-08
587	4/26/2012	7	6	8.60E-06
		18	315	5.60E-08
		25	473	1.70E-08
573	4/30/2012	5	614	2.10E-08
		15	624	1.90E-08
		25	224	5.00E-07
705	5/1/2012	4	69	2.00E-05
		8	166	5.50E-06
		12	23	3.10E-06
691	5/2/2012	17	502	1.00E-08
		22	543	8.50E-09
		25	619	1.50E-09
696	5/7/2012	12	515	2.10E-08
		16	640	1.90E-08
		22	606	9.30E-09
692	5/8/2012	5	626	3.30E-08
		10	722	2.70E-08
		26	554	3.00E-08
524	5/9/2012	10	431	4.80E-08
		17	378	6.10E-08
		24	431	2.50E-08
765	5/10/2012	4	19	3.80E-06
		10	358	4.60E-08
		16	419	3.90E-08
771	5/11/2012	18	476	2.60E-08
		22	457	3.20E-08
		26	486	1.80E-08
778	5/14/2012	8	487	1.80E-08
		12	582	1.40E-08
		20	518	1.00E-08
214	5/15/2012	3	607	2.50E-08
		5	734	2.60E-08
		7	749	2.40E-08
890	5/16/2012	16	496	2.00E-08
		22	456	2.50E-08
		26	203	1.80E-08
882	5/17/2012	7	112	4.60E-07
		14	467	3.80E-08
		25	327	1.90E-08
876	5/18/2012	5	465	4.10E-08
		16	696	2.20E-08
		25	638	2.50E-08
870	5/22/2012	5	11	1.50E-06
		16	477	3.70E-08
		25	332	3.00E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
1291	7/3/2012	5	912	1.40E-08
		10	1036	1.10E-08
		15	497	1.30E-08
1285	7/5/2012	5	870	1.20E-08
		17	772	1.40E-08
		27	320	1.00E-08
1290	7/5/2012	7	464	1.60E-08
		14	860	1.50E-08
		22	243	2.30E-08
1286	7/6/2012	7	652	1.90E-08
		14	806	1.60E-08
		26	418	1.20E-08
1333	7/9/2012	5	981	1.10E-08
		10	412	1.70E-08
		27	894	1.10E-08
1144	7/10/2012	7	621	1.80E-08
		14	1555	1.30E-08
		24	1663	9.20E-09
1147	7/11/2012	5	1164	1.30E-08
		12	854	1.20E-08
		26	428	1.20E-08
1228	7/12/2012	7	873	9.90E-09
		18	551	2.00E-08
		24	578	8.60E-09
1231	7/13/2012	5	1051	1.10E-08
		10	1308	1.30E-08
		25	418	1.10E-08
1061	7/16/2012	7	876	1.10E-08
		14	836	1.00E-08
		22	447	1.00E-08
1140	7/17/2012	8	1636	1.50E-08
		15	1094	1.20E-08
		26	944	9.50E-09
1237	7/18/2012	4	915	1.40E-08
		9	973	1.10E-08
		14	1001	1.10E-08
1326	7/19/2012	5	731	1.60E-08
		11	742	1.00E-08
		26	400	1.20E-08
1321	7/20/2012	7	535	1.10E-08
		16	744	1.20E-08
		27	890	9.30E-09
1313	7/30/2012	7	3	5.70E-06
		13	496	1.50E-08
		23	559	1.00E-08
1063	7/31/2012	4	499	1.80E-08
		19	886	1.00E-08
		25	588	1.50E-08
1411	8/1/2012	8	941	1.60E-08
		16	1000	1.70E-08
		24	827	1.30E-08
1064	8/2/2012	6	666	2.40E-08
		10	602	3.70E-08
		22	488	3.70E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
1065	8/3/2012	5	2	2.60E-05
		10	658	1.40E-08
		20	461	1.40E-08
1485	8/7/2012	8	589	1.80E-08
		13	641	2.20E-08
		23	279	1.70E-08
1491	8/8/2012	5	837	1.80E-08
		15	1017	2.20E-08
		25	547	2.10E-08
1579	8/8/2012	5	672	2.20E-08
		15	572	2.30E-08
		25	413	2.30E-08
1644	8/9/2012	6	8	3.60E-06
		14	377	2.00E-08
		24	382	2.30E-08
1649	8/10/2012	7	655	1.90E-08
		16	631	1.50E-08
		25	293	1.10E-08
1656	8/13/2012	7	639	1.90E-08
		14	583	2.30E-08
		21	579	2.30E-08
1742	8/13/2012	8	521	2.90E-08
		16	517	1.80E-08
		24	522	2.00E-08
1737	8/14/2012	7	526	2.00E-08
		14	615	2.20E-08
		24	481	1.80E-08
1729	8/14/2012	7	550	1.80E-08
		14	625	1.70E-08
		24	603	1.70E-08
1790	8/15/2012	5	445	4.50E-08
		17	419	1.50E-08
		22	457	2.10E-08
1804	8/15/2012	6	503	2.20E-08
		13	393	1.40E-08
		21	463	1.70E-08
1792	8/16/2012	4	488	1.00E-07
		14	620	2.80E-08
		24	466	1.40E-08
1802	8/16/2012	9	684	1.70E-08
		18	681	1.80E-08
		26	572	1.50E-08
1797	8/17/2012	8	201	5.00E-08
		11	690	1.90E-08
		24	534	2.00E-08
1879	8/20/2012	8	704	1.90E-08
		12	783	1.40E-08
		24	393	1.30E-08
1877	8/21/2012	6	592	1.40E-08
		16	474	1.70E-08
		26	367	1.90E-08
1936	8/22/2012	6	627	2.30E-08
		10	768	3.00E-08
		23	285	2.00E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
2023	8/23/2012	6	564	3.60E-08
		14	688	2.30E-08
		20	359	2.10E-08
1870	8/23/2012	6	22	2.30E-07
		15	857	1.80E-08
		20	912	1.40E-08
2021	8/24/2012	4	426	5.40E-08
		19	327	1.90E-08
		24	402	2.20E-08
1942	8/24/2012	9	432	1.50E-08
		13	553	3.60E-08
		19	854	2.00E-08
1944	8/27/2012	5	671	2.00E-08
		16	713	2.00E-08
		25	627	1.70E-08
2013	8/27/2012	6	637	1.30E-08
		13	618	2.30E-08
		21	379	2.10E-08
2065	8/28/2012	6	892	2.50E-08
		14	426	1.60E-08
		23	333	2.60E-08
2009	8/28/2012	4	673	2.70E-08
		12	817	2.30E-08
		24	737	2.50E-08
2069	8/29/2012	4	542	3.40E-08
		12	705	2.70E-08
		24	304	2.40E-08
2075	8/29/2012	7	502	8.00E-08
		15	750	2.50E-08
		23	665	2.40E-08
2149	9/5/2012	9	793	2.30E-08
		17	745	1.70E-08
		26	418	2.10E-08
2079	9/6/2012	9	503	1.40E-08
		17	414	2.10E-08
		26	558	4.50E-08
2141	9/7/2012	5	353	5.40E-08
		13	509	2.50E-08
		20	345	2.20E-08
2135	9/7/2012	5	703	2.40E-08
		12	879	2.50E-08
		21	837	2.20E-08
2194	9/10/2012	4	782	3.30E-08
		12	1022	2.60E-08
		24	639	2.50E-08
2183	9/10/2012	6	773	2.70E-08
		18	639	3.30E-08
		25	389	2.10E-08
2255	9/11/2012	6	680	3.40E-08
		15	689	4.50E-08
			509	2.70E-08
2259	9/12/2012	8	600	2.10E-08
		16	498	1.40E-08
		26	423	2.60E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
1245	9/13/2012	4	340	2.30E-08
		13	470	2.90E-08
		25	475	1.80E-08
1129	9/14/2012	5	60	9.10E-07
		14	627	2.30E-08
		23	546	2.20E-08
2281	9/14/2012	6	766	1.70E-08
		16	619	2.00E-08
		26	486	2.10E-08
2289	9/17/2012	7	508	2.00E-08
		16	654	3.00E-08
		22	354	2.90E-08
1250	9/18/2012	6	747	1.30E-08
		19	542	1.90E-08
		26	587	2.70E-08
2366	9/19/2012	4	609	1.70E-08
		9	641	3.00E-08
		17	863	3.20E-08
1476	9/20/2012	11	651	4.40E-08
		20	375	3.20E-08
		27	498	5.90E-08
2356	9/21/2012	5	508	2.80E-08
		17	718	1.80E-08
		27	610	2.20E-08
1254	9/24/2012	9	641	2.40E-08
		15	635	3.50E-08
		21	300	7.10E-08
2375	9/25/2012	8	686	2.90E-08
		13	784	3.30E-08
		25	480	3.20E-08
382	9/26/2012	7	491	9.00E-08
		17	425	4.70E-08
		22	446	5.30E-08
2451	10/1/2012	7	633	3.40E-08
		14	191	6.50E-08
		25	308	5.70E-08
712	10/2/2012	9	241	9.00E-08
		18	426	2.00E-08
		24	459	1.90E-08
2458	10/3/2012	4	561	2.90E-08
		13	635	1.50E-08
		23	358	8.20E-08
714	10/4/2012	5	255	6.20E-08
		19	258	3.10E-08
		25	264	2.90E-08
2469	10/5/2012	7	654	2.00E-08
		12	605	1.70E-08
		20	506	1.50E-08
534	10/8/2012	7	178	8.20E-08
		10	476	7.00E-08
		21	331	9.30E-08
2796	10/9/2012	6	715	3.00E-08
		11	764	2.30E-08
		27	374	8.00E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)	Additional Analyses		
					UCS	Permeabilty	Duration before testing
1472	10/10/2012	3	271	1.70E-08			
		18	185	1.60E-08			
		24	245	2.50E-08			
2614	10/11/2012	9	264	4.10E-08			
		19	524	8.50E-08			
		27	723	7.80E-08			
1635	10/12/2012	8	493	3.20E-08			
		16	191	3.00E-08			
		24	224	3.10E-08			
547	10/15/2012	7	473	3.60E-08			
		14	427	8.40E-08			
		27	600	6.00E-08			
734	10/16/2012	4	21	4.10E-06		1.70E-07	- 84 days
		12	288	2.90E-07			
		28	468	1.00E-07			
194	10/17/2012	9	372	1.20E-07			
		20	407	7.20E-08			
		28	329	8.40E-08			
1907	10/18/2012	6	63	1.20E-06	496	5.70E-08	- 56 days
		15	139	1.90E-06	413	1.10E-07	- 56 days
		23	118	3.00E-06	264	7.20E-08	- 56 days
738	10/19/2012	7	26	5.80E-06	219	2.50E-07	- 56 days
		14	153	3.30E-06	428	5.60E-08	- 56 days
		22	78	4.50E-06	186	7.30E-07	- 56 days (UCS), 84 days (perm)
1770	10/22/2012	13	163	9.50E-07			
		19	234	5.50E-07			
		28	162	2.40E-06	375	8.30E-08	- 56 days
1270	10/23/2012	5	13	1.80E-06	51	9.70E-07	- 56 days
		15	279	1.40E-07			
		21	525	4.50E-08			
741	10/23/2012	7	261	6.20E-07			
		17	146	1.90E-06	377	6.30E-08	- 56 days
		25	82	6.40E-06	234	2.70E-07	- 56 days
1914	10/24/2012	6	18	3.70E-06	107	2.00E-06	- 56 days
		13	64	4.50E-06	343	1.30E-07	- 56 days
		25	120	2.60E-06	344	5.60E-08	- 56 days
558	11/13/2012	9	275	1.10E-07			
		18	187	4.20E-07			
		24	135	7.60E-07			
1901	11/13/2012	4	9	6.10E-06	10	6.50E-06	- 64 days
		9	229	9.00E-07			
		14	169	2.80E-06	371	9.60E-08	- 64 days
560	11/14/2012	6	323	1.00E-07			
		11	301	2.30E-07			
		21	380	1.50E-07			
1461	11/15/2012	5	184	9.00E-07			
		12	306	5.50E-07			
		23	334	2.80E-07			
1755	11/15/2012	7	36	8.10E-06	453	1.70E-07	- 62 days
		14	181	3.30E-07			
		25	110	5.00E-06	320	8.50E-08	- 62 days
1600	11/16/2012	6	70	8.40E-07			
		18	115	5.70E-06	185	2.30E-07	- 62 days
		26	83	6.50E-06	418	8.80E-07	- 62 days

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)	Additional Analyses		
					UCS	Permeabilty	Duration before testing
1262	11/19/2012	7	378	1.10E-07			
		17	299	4.40E-07			
		25	152	3.20E-06	313	9.10E-08	- 58 days
1261	11/20/2012	8	118	1.00E-06			
		14	203	3.90E-07			
		22	166	1.90E-06	367	8.10E-08	- 57 days
751	11/26/2012	8	593	5.60E-08			
		18	596	1.10E-07			
		25	761	5.10E-08			
1746	11/27/2012	6	641	5.70E-08			
		13	468	8.00E-08			
		21	895	6.80E-08			
2270	11/28/2012	4	477	8.60E-08			
		17	311	4.30E-07			
		26	372	4.70E-07			
5013	11/29/2012	5	534	1.10E-07			
		15	1041	4.30E-08			
		25	732	9.00E-08			
1749	11/30/2012	7	732	7.00E-08			
		17	610	7.30E-08			
		23	39	2.00E-07			
1893	12/3/2012	14	373	2.00E-07			
		19	642	4.70E-07			
		24	552	2.40E-07			
1465	12/5/2012	5	217	3.40E-07			
		14	522	6.00E-08			
		23	599	6.80E-08			
5004	12/6/2012	6	601	1.10E-07			
		16	858	5.20E-08			
		26	580	1.10E-07			
2541	12/7/2012	7	1066	7.50E-08			
		17	571	7.70E-08			
		24	819	1.50E-08			
2552	12/10/2012	8	510	6.00E-08			
		18	560	1.80E-07			
		22	441	1.40E-07			
2620	12/11/2012	5	769	6.50E-08			
		20	211	7.40E-08			
		26	492	9.60E-07			
2649	12/12/2012	6	856	5.50E-08			
		12	724	4.00E-08			
		24	815	5.00E-08			
2725	12/13/2012	7	509	9.20E-08			
		13	409	8.70E-08			
		26	469	8.40E-08			
2748	12/14/2012	10	9	4.80E-06	461	5.10E-06	399 days (UCS), 56 days (perm)
		15	344	4.80E-08			
		20	698	8.30E-08			
3139	12/17/2012	7	466	1.30E-07			
		20	513	6.80E-08			
		27	412	7.90E-08			
2811	12/18/2012	8	416	8.50E-08			
		13	511	9.50E-08			
		16	564	3.10E-07			

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
3044	12/19/2012	18	316	7.50E-07
		23	324	6.50E-08
		27	326	8.20E-08
2844	12/20/2012	5	148	5.20E-07
		9	164	3.40E-07
		20	356	3.30E-08
2912	1/7/2013	7	534	1.90E-07
		17	551	9.40E-08
		25	456	8.80E-08
2898	1/8/2013	8	822	7.90E-08
		18	748	8.10E-08
		26	577	1.60E-07
3108	1/9/2013	9	497	2.70E-08
		19	398	2.50E-07
		24	592	3.20E-08
2809	1/10/2013	5	550	9.00E-08
		13	555	7.80E-08
		21	248	3.60E-07
3355	1/11/2013	6	1993	7.50E-08
		15	1588	8.50E-08
		25	454	2.00E-07
2933	1/14/2013	7	352	3.30E-07
		14	459	8.60E-08
		21	381	1.20E-07
3274	1/15/2013	8	710	1.30E-07
		16	653	1.00E-07
		24	724	4.50E-08
3102	1/17/2013	9	344	3.40E-07
		18	343	4.30E-07
		26	373	4.70E-07
3028	1/18/2013	5	480	1.20E-07
		10	468	9.20E-08
		20	454	1.90E-07
3559	1/21/2013	7	948	1.00E-07
		12	838	1.70E-07
		23	514	5.10E-07
3187	1/22/2013	8	413	1.80E-07
		16	415	5.60E-07
		27	401	3.10E-07
3423	1/25/2013	6	821	1.30E-07
		12	588	9.60E-08
		18	425	1.20E-07
3031	1/28/2013	10	417	1.90E-07
		20	439	2.40E-07
		26	257	9.10E-07
3207	1/29/2013	6	615	3.50E-07
		16	354	3.00E-07
		24	464	4.00E-07
3556	1/30/2013	9	335	1.90E-07
		19	462	1.60E-07
		27	344	4.00E-07
3268	1/31/2013	5	446	1.00E-07
		13	292	4.60E-07
		21	398	1.40E-07

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
2941	2/1/2013	7	552	4.90E-08
		12	369	1.70E-08
		22	564	6.10E-08
3566	2/4/2013	9	507	4.90E-08
		17	554	1.30E-07
		25	336	7.40E-07
3418	2/6/2013	7	312	1.10E-07
		17	450	1.00E-07
		27	402	1.90E-07
3001	2/7/2013	9	887	6.10E-08
		18	1079	1.10E-07
		24	1102	1.60E-07
3291	2/5/2013	6	284	8.40E-08
		13	358	1.20E-07
		23	526	1.30E-07
3259	2/13/2013	5	363	1.60E-07
		16	361	3.00E-07
		26	520	1.20E-07
3548	2/18/2013	5	561	1.10E-07
		13	534	5.30E-08
		23	451	1.60E-07
3372	2/19/2013	7	274	1.40E-07
		17	428	8.20E-08
		27	474	3.90E-08
3570	2/20/2013	9	662	7.90E-08
		15	742	1.20E-07
		25	521	1.90E-07
3262	2/21/2013	4	500	1.60E-07
		10	403	1.00E-07
		22	552	5.20E-08
3831	2/25/2013	8	553	5.50E-08
		16	629	4.00E-08
		24	463	1.50E-07
3546	2/26/2013	10	408	5.70E-08
		20	361	9.80E-08
		27	271	8.30E-07
3375	2/27/2013	5	487	7.80E-08
		15	568	8.30E-08
		25	541	6.10E-08
3447	2/28/2013	8	508	4.90E-08
		16	472	4.60E-08
		25	511	3.80E-08
3634	3/1/2013	7	464	1.10E-07
		15	479	7.00E-08
		23	385	1.70E-07
3772	3/6/2013	9	420	3.50E-08
		17	388	3.90E-08
		25	725	6.90E-08
3819	3/12/2013	6	641	2.30E-08
		12	518	2.80E-08
		24	386	3.20E-07
3822	3/14/2013	7	1006	2.60E-08
		15	441	5.20E-08
		26	334	7.10E-07

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
3540	3/15/2013	8	610	5.00E-08
		17	408	8.10E-08
		22	553	3.30E-08
3579	3/18/2013	5	153	1.40E-07
		15	321	1.30E-07
		25	415	1.30E-07
30	3/19/2013	6	320	3.70E-07
		13	134	6.30E-06
		20	130	1.00E-05
3852	3/20/2013	9	572	3.50E-08
		18	695	3.50E-08
		26	656	4.60E-08
38	3/21/2013	6	253	1.10E-06
		12	288	8.40E-07
		18	332	7.90E-07
41	3/22/2013	5	233	9.10E-07
		10	353	3.50E-07
		20	265	2.60E-06
3585	4/4/2013	8	358	2.00E-08
		16	355	1.90E-08
		26	312	5.40E-07
3248	4/5/2013	4	525	2.90E-08
		12	237	2.80E-08
		22	550	2.80E-08
3327	4/8/2013	7	847	2.20E-08
		14	664	2.40E-08
		21	475	2.30E-08
3403	4/9/2013	9	766	7.20E-08
		20	391	7.60E-08
		27	386	8.80E-08
3452	4/10/2013	5	853	3.40E-08
		15	232	1.60E-07
		25	568	3.40E-08
3405	4/12/2013	6	611	4.60E-08
		13	533	2.40E-08
		23	403	2.50E-08
3303	4/15/2013	8	772	1.90E-08
		16	362	2.90E-08
		24	519	2.30E-08
3302	4/16/2013	9	683	2.00E-08
		20	360	1.10E-07
		28	371	2.00E-07
3589	4/18/2013	6	535	3.20E-07
		16	720	3.70E-08
		28	380	3.30E-08
3299	4/18/2013	5	736	2.00E-08
		10	613	2.40E-08
		22	553	2.10E-08
3466	4/19/2013	8	1179	2.00E-08
		15	887	2.00E-08
		28	1142	2.30E-08
3399	4/22/2013	6	624	2.30E-08
		13	414	7.10E-08
		28	440	1.00E-07

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
226	4/23/2013	7	538	5.60E-08
		15	523	8.00E-08
		24	460	4.20E-08
329	4/24/2013	6	565	2.90E-08
		14	549	2.00E-08
		23	688	2.00E-08
2886	4/25/2013	7	773	3.80E-08
		21	577	2.10E-08
		28	550	2.30E-08
1043	4/26/2013	5	573	2.50E-08
		15	537	2.00E-08
		20	457	2.40E-08
2607	4/29/2013	7	750	2.70E-08
		18	546	3.30E-08
		27	575	2.50E-08
1721	4/30/2013	9	786	3.00E-08
		17	820	2.20E-08
		25	806	2.00E-08
2690	5/1/2013	4	1047	2.30E-08
		8	905	1.90E-08
		12	907	2.20E-08
316	5/6/2013	12	558	2.10E-08
		19	235	7.40E-08
		26	529	1.90E-08
2476	5/7/2013	4	819	1.90E-08
		8	995	2.20E-08
		12	930	2.00E-08
156	5/8/2013	9	704	2.10E-08
		18	551	4.60E-08
		24	553	2.70E-08
2435	5/9/2013	8	1365	1.80E-08
		16	1305	2.00E-08
		26	1173	1.80E-08
2002	5/10/2013	5	701	4.30E-08
		10	837	2.40E-08
		20	657	2.20E-08
1949	5/14/2013	7	731	1.90E-08
		21	457	2.40E-08
		26	299	2.10E-08
4030	6/4/2013	7	1210	3.10E-08
		17	1316	2.60E-08
		26	981	3.20E-08
3316	6/19/2013	8	1259	3.40E-08
		16	477	2.90E-08
		26	830	3.60E-08
2412	6/20/2013	10	1149	3.40E-08
		20	560	2.70E-08
		27	504	2.20E-08
3149	6/21/2013	5	857	1.90E-08
		15	798	2.70E-08
		25	609	2.00E-08
2226	6/24/2013	6	841	2.50E-08
		12	1216	3.50E-08
		18	855	2.60E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
3072	6/25/2013	7	1017	2.90E-08
		14	1160	3.90E-08
		21	975	3.00E-08
2493	6/26/2013	6	1255	2.00E-08
		13	1555	3.20E-08
		23	1016	2.60E-08
2685	6/27/2013	9	1370	3.00E-08
		18	1092	2.40E-08
		27	894	2.20E-08
454	7/1/2013	5	581	6.20E-08
		15	707	4.70E-08
		20	830	2.70E-08
2872	7/2/2013	8	1047	2.20E-08
		16	680	2.30E-08
		25	366	2.60E-08
641	7/3/2013	5	1165	2.00E-08
		12	971	2.40E-08
		22	849	2.10E-08
283	7/10/2013	7	1174	2.30E-08
		16	1006	2.50E-08
		23	876	2.20E-08
463	7/12/2013	10	576	3.60E-08
		19	794	2.60E-08
		24	621	2.00E-08
444	7/15/2013	6	1179	3.90E-08
		11	427	8.39E-06
		21	649	5.90E-08
2868	7/16/2013	5	795	5.20E-08
		12	817	6.40E-08
		22	502	2.80E-08
109	7/18/2013	8	605	2.70E-08
		15	616	2.00E-08
		25	559	6.40E-08
138	7/22/2013	4	918	1.90E-08
		9	733	1.80E-08
		19	851	2.10E-08
1978	7/24/2013	7	1033	2.20E-08
		14	878	2.00E-08
		21	1390	2.40E-08
417	7/25/2013	8	848	1.90E-08
		16	591	2.20E-08
		24	705	2.60E-08
972	7/26/2013	5	756	3.40E-08
		12	619	4.00E-08
		25	501	2.40E-08
2602	8/6/2013	9	483	1.80E-08
		11	527	1.80E-08
		15	553	3.20E-08
2578	8/7/2013	7	510	2.50E-08
		10	803	2.50E-08
		14	727	2.60E-08
2407	8/8/2013	6	436	2.20E-08
		13	451	5.10E-08

Table 4 - Summary of UCS and Permeability Test Results

Column	Date Mixed	Sample Depth	UCS (psi)	Permeability (cm/sec)
2337	8/9/2013	8	706	2.00E-08
		12	320	2.50E-08
653	8/13/2013	4	377	2.20E-08
		17	333	1.90E-08
2242	8/12/2013	5	677	1.80E-08
		16	621	2.10E-08
2117	8/13/2013	7	347	2.10E-08
		14	323	2.00E-08
1988	8/14/2013	6	436	2.00E-08
		15	630	2.40E-08
1954	8/16/2013	8	519	2.10E-08
		12	565	3.70E-08
298	8/21/2013	6	562	2.20E-08
		16	359	2.70E-08
657	8/19/2013	10	465	2.00E-08
		15	370	1.90E-08
1356	8/20/2013	8	515	2.20E-08
		13	466	2.60E-08
303	8/20/2013	7	487	2.60E-08
		14	552	2.40E-08
667	8/22/2013	9	595	2.70E-08
		17	726	2.70E-08
659	8/22/2013	5	460	2.00E-08
		10	355	2.20E-08
979	8/23/2013	8	518	2.30E-08
		16	610	1.90E-08
1166	8/26/2013	4	508	2.50E-08
		12	608	1.80E-08
1207	8/26/2013	9	295	2.90E-08
		17	244	3.70E-08
1515	8/27/2013	9	430	1.80E-08
		17	343	1.90E-08
5032	8/28/2013	6	251	2.60E-08
		14	326	2.70E-08
3888	9/10/2013	8	1237	2.00E-08
		19	1256	2.10E-08
3929	9/11/2013	6	8	9.50E-06
		18	1142	2.60E-08
5054	9/12/2013	5	468	5.40E-08
		11	824	4.10E-08
5055	9/17/2013	6	6	2.10E-06
		18	997	2.10E-08
		25	1322	2.00E-08
4005	9/18/2013	8	493	3.50E-08
		16	1211	3.60E-08
		25	605	3.10E-07
3911	9/18/2013	7	6	1.30E-05
		16	53	2.60E-06
		20	256	8.30E-07

Additional Analyses

UCS	Permeabilty	Duration before testing
18	3.80E-07	- 128 days
9	1.60E-06	- 122 days
12	5.00E-06	- 121 days
952	4.70E-08	- 167 days

Table 5

Backfill Quantities and Sources

Material	Source	Volume (Weight or Volume tickets in Appendix L)
General Fill [(1)]	Pinelawn Memorial Cemetery 2030 Wellwood Avenue, Farmingdale, NY, 11735	44,183 Tons (1,181 loads)
Topsoil [(1)]	Pinelawn Memorial Cemetery 2030 Wellwood Avenue, Farmingdale, NY, 11735	153.60 Tons (4 weight tickets)
Topsoil	Belli Topsoil 885 Crooked Hill Road W. Brentwood, L.I., NY 11717	377 Cubic Yards (12 volume tickets)
Select Stone Fill	284 AGGREGATES, LLC Stony Creek Services LLC 4001 Daly Boulevard Oceanside, NY 11572	4,544 Tons
Select Stone Fill	Greenfield Nursery 127 Pond Circle Mount Sinai, New York 11766	15 Tons (Single weight ticket)
Select Stone Fill	Tilcon New York 162 Old Mill Road West Nyack, New York 10994	640.05 Tons (10 weight tickets)
Landscaping Pink Stone	Jos. M. Troffa Landscape and Mason Supplies 70 Comsewogue Rd. Suite 9 E. Setauket, NY 11733	(Single ticket - vol not shown)
Landscaping Tan Stone	Jos. M. Troffa Landscape and Mason Supplies 70 Comsewogue Rd. Suite 9 E. Setauket, NY 11733	44 Tons (2 weight tickets)

NOTE:

[(1)] Pinelawn source materials provided by Stony Creek Services.

Table 6

Imported General Fill Load Summary

Date	Tons	Cummulative (Tons)
15-May-12	39.70	39.70
15-May-12	39.20	78.90
15-May-12	39.60	118.50
15-May-12	39.40	157.90
17-May-12	39.80	197.70
17-May-12	40.55	238.25
17-May-12	40.25	278.50
17-May-12	40.75	319.25
18-May-12	38.80	358.05
18-May-12	39.10	397.15
22-May-12	39.90	437.05
22-May-12	39.60	476.65
22-May-12	39.50	516.15
22-May-12	39.75	555.90
22-May-12	38.80	594.70
22-May-12	39.10	633.80
23-May-12	40.25	674.05
23-May-12	39.05	713.10
1-Jun-12	39.10	752.20
1-Jun-12	40.25	792.45
7-Jun-12	39.80	832.25
7-Jun-12	40.10	872.35
7-Jun-12	39.25	911.60
7-Jun-12	39.60	951.20
7-Jun-12	38.75	989.95
7-Jun-12	38.90	1,028.85
21-Jun-12	38.90	1,067.75
21-Jun-12	41.25	1,109.00
21-Jun-12	39.65	1,148.65
21-Jun-12	39.35	1,188.00
21-Jun-12	38.75	1,226.75
21-Jun-12	41.10	1,267.85
26-Jun-12	38.50	1,306.35
26-Jun-12	39.75	1,346.10
26-Jun-12	38.10	1,384.20
26-Jun-12	38.45	1,422.65
27-Jun-12	38.25	1,460.90
27-Jun-12	38.60	1,499.50
27-Jun-12	41.80	1,541.30
27-Jun-12	41.35	1,582.65
27-Jun-12	39.50	1,622.15
29-Jun-12	35.00	1,657.15
29-Jun-12	38.60	1,695.75
29-Jun-12	37.40	1,733.15
29-Jun-12	37.00	1,770.15
29-Jun-12	36.00	1,806.15
29-Jun-12	38.90	1,845.05
2-Jul-12	38.30	1,883.35
2-Jul-12	38.50	1,921.85
2-Jul-12	37.20	1,959.05
2-Jul-12	39.20	1,998.25
5-Jul-12	38.70	2,036.95
5-Jul-12	38.50	2,075.45
5-Jul-12	37.70	2,113.15
5-Jul-12	37.80	2,150.95
5-Jul-12	38.20	2,189.15
5-Jul-12	39.70	2,228.85
6-Jul-12	38.75	2,267.60
6-Jul-12	38.35	2,305.95
6-Jul-12	38.90	2,344.85

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
6-Jul-12	38.65	2,383.50
6-Jul-12	41.86	2,425.36
6-Jul-12	37.51	2,462.87
10-Jul-12	37.87	2,500.74
10-Jul-12	40.64	2,541.38
10-Jul-12	40.78	2,582.16
10-Jul-12	41.98	2,624.14
10-Jul-12	44.13	2,668.27
10-Jul-12	38.73	2,707.00
13-Jul-12	39.79	2,746.79
13-Jul-12	42.06	2,788.85
13-Jul-12	39.33	2,828.18
13-Jul-12	38.01	2,866.19
16-Jul-12	41.86	2,908.05
16-Jul-12	41.47	2,949.52
16-Jul-12	41.76	2,991.28
17-Jul-12	38.66	3,029.94
17-Jul-12	41.42	3,071.36
17-Jul-12	41.44	3,112.80
17-Jul-12	41.09	3,153.89
26-Jul-12	39.96	3,193.85
26-Jul-12	36.80	3,230.65
26-Jul-12	37.07	3,267.72
26-Jul-12	39.17	3,306.89
27-Jul-12	42.21	3,349.10
27-Jul-12	38.53	3,387.63
30-Jul-12	36.19	3,423.82
30-Jul-12	38.41	3,462.23
30-Jul-12	38.76	3,500.99
31-Jul-12	38.44	3,539.43
31-Jul-12	37.28	3,576.71
31-Jul-12	34.89	3,611.60
21-Aug-12	38.26	3,649.86
21-Aug-12	39.81	3,689.67
21-Aug-12	39.98	3,729.65
21-Aug-12	38.85	3,768.50
21-Aug-12	37.27	3,805.77
21-Aug-12	34.04	3,839.81
24-Aug-12	36.94	3,876.75
24-Aug-12	40.99	3,917.74
27-Aug-12	42.11	3,959.85
27-Aug-12	41.69	4,001.54
27-Aug-12	44.24	4,045.78
27-Aug-12	40.69	4,086.47
28-Aug-12	41.33	4,127.80
28-Aug-12	44.59	4,172.39
28-Nov-12	35.08	4,207.47
28-Nov-12	37.05	4,244.52
28-Nov-12	30.70	4,275.22
28-Nov-12	38.25	4,313.47
29-Nov-12	33.43	4,346.90
29-Nov-12	41.01	4,387.91
30-Nov-12	36.51	4,424.42
30-Nov-12	39.20	4,463.62
7-Dec-12	33.63	4,497.25
7-Dec-12	35.95	4,533.20
7-Dec-12	31.95	4,565.15
12-Dec-12	36.58	4,601.73
11-Jan-13	34.28	4,636.01
11-Jan-13	30.03	4,666.04
11-Jan-13	34.06	4,700.10
14-Jan-13	37.13	4,737.23
15-Jan-13	31.76	4,768.99

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
15-Jan-13	37.07	4,806.06
15-Jan-13	34.62	4,840.68
21-Jan-13	51.02	4,891.70
21-Jan-13	39.62	4,931.32
21-Jan-13	41.72	4,973.04
22-Jan-13	38.44	5,011.48
22-Jan-13	35.30	5,046.78
22-Jan-13	43.42	5,090.20
23-Jan-13	38.01	5,128.21
23-Jan-13	41.36	5,169.57
23-Jan-13	35.44	5,205.01
23-Jan-13	31.01	5,236.02
24-Jan-13	42.06	5,278.08
24-Jan-13	38.76	5,316.84
24-Jan-13	40.61	5,357.45
24-Jan-13	34.30	5,391.75
25-Jan-13	40.97	5,432.72
25-Jan-13	40.36	5,473.08
25-Jan-13	40.00	5,513.08
25-Jan-13	41.65	5,554.73
28-Jan-13	37.75	5,592.48
28-Jan-13	38.56	5,631.04
28-Jan-13	40.46	5,671.50
28-Jan-13	38.70	5,710.20
29-Jan-13	39.30	5,749.50
29-Jan-13	36.26	5,785.76
29-Jan-13	39.36	5,825.12
29-Jan-13	37.33	5,862.45
30-Jan-13	39.37	5,901.82
30-Jan-13	47.76	5,949.58
30-Jan-13	39.11	5,988.69
30-Jan-13	41.27	6,029.96
31-Jan-13	41.72	6,071.68
31-Jan-13	40.20	6,111.88
31-Jan-13	40.86	6,152.74
31-Jan-13	41.80	6,194.54
1-Feb-13	40.58	6,235.12
1-Feb-13	40.01	6,275.13
1-Feb-13	39.64	6,314.77
1-Feb-13	41.58	6,356.35
4-Mar-13	47.58	6,403.93
4-Mar-13	40.24	6,444.17
5-Mar-13	28.09	6,472.26
5-Mar-13	28.38	6,500.64
6-Mar-13	37.68	6,538.32
6-Mar-13	40.83	6,579.15
6-Mar-13	41.09	6,620.24
6-Mar-13	37.28	6,657.52
6-Mar-13	40.93	6,698.45
6-Mar-13	41.37	6,739.82
7-Mar-13	42.06	6,781.88
7-Mar-13	40.18	6,822.06
7-Mar-13	39.53	6,861.59
7-Mar-13	42.14	6,903.73
7-Mar-13	39.26	6,942.99
7-Mar-13	42.86	6,985.85
11-Mar-13	38.50	7,024.35
11-Mar-13	36.70	7,061.05
11-Mar-13	39.20	7,100.25
11-Mar-13	39.10	7,139.35
11-Mar-13	34.00	7,173.35
11-Mar-13	37.50	7,210.85
12-Mar-13	34.70	7,245.55

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
12-Mar-13	37.30	7,282.85
12-Mar-13	37.40	7,320.25
12-Mar-13	38.20	7,358.45
12-Mar-13	37.80	7,396.25
12-Mar-13	39.70	7,435.95
12-Mar-13	39.10	7,475.05
12-Mar-13	37.00	7,512.05
12-Mar-13	37.80	7,549.85
13-Mar-13	35.30	7,585.15
13-Mar-13	37.10	7,622.25
13-Mar-13	37.20	7,659.45
13-Mar-13	37.50	7,696.95
13-Mar-13	37.40	7,734.35
13-Mar-13	36.30	7,770.65
13-Mar-13	37.40	7,808.05
13-Mar-13	37.00	7,845.05
14-Mar-13	37.80	7,882.85
14-Mar-13	36.90	7,919.75
14-Mar-13	36.60	7,956.35
14-Mar-13	39.00	7,995.35
14-Mar-13	39.40	8,034.75
14-Mar-13	36.80	8,071.55
14-Mar-13	37.00	8,108.55
14-Mar-13	35.50	8,144.05
14-Mar-13	37.90	8,181.95
14-Mar-13	37.50	8,219.45
14-Mar-13	35.30	8,254.75
14-Mar-13	38.80	8,293.55
15-Mar-13	38.20	8,331.75
15-Mar-13	38.10	8,369.85
15-Mar-13	36.10	8,405.95
15-Mar-13	37.70	8,443.65
15-Mar-13	38.10	8,481.75
15-Mar-13	39.60	8,521.35
15-Mar-13	39.60	8,560.95
15-Mar-13	37.80	8,598.75
15-Mar-13	36.90	8,635.65
15-Mar-13	37.60	8,673.25
15-Mar-13	36.90	8,710.15
18-Mar-13	38.90	8,749.05
18-Mar-13	38.00	8,787.05
18-Mar-13	38.30	8,825.35
18-Mar-13	38.60	8,863.95
18-Mar-13	38.50	8,902.45
18-Mar-13	38.00	8,940.45
18-Mar-13	39.10	8,979.55
18-Mar-13	38.30	9,017.85
18-Mar-13	38.90	9,056.75
19-Mar-13	37.90	9,094.65
19-Mar-13	39.00	9,133.65
19-Mar-13	37.60	9,171.25
19-Mar-13	38.80	9,210.05
21-Mar-13	38.70	9,248.75
21-Mar-13	38.60	9,287.35
21-Mar-13	38.20	9,325.55
21-Mar-13	38.30	9,363.85
22-Mar-13	38.50	9,402.35
22-Mar-13	38.50	9,440.85
22-Mar-13	38.40	9,479.25
22-Mar-13	39.00	9,518.25
22-Mar-13	37.90	9,556.15
22-Mar-13	38.60	9,594.75
22-Mar-13	38.20	9,632.95

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
25-Mar-13	38.20	9,671.15
25-Mar-13	37.80	9,708.95
25-Mar-13	37.30	9,746.25
25-Mar-13	38.10	9,784.35
25-Mar-13	37.80	9,822.15
5-Apr-13	38.60	9,860.75
5-Apr-13	38.70	9,899.45
5-Apr-13	39.00	9,938.45
5-Apr-13	38.10	9,976.55
5-Apr-13	38.60	10,015.15
5-Apr-13	38.50	10,053.65
5-Apr-13	38.70	10,092.35
5-Apr-13	38.40	10,130.75
5-Apr-13	38.40	10,169.15
5-Apr-13	38.30	10,207.45
8-Apr-13	37.10	10,244.55
8-Apr-13	37.40	10,281.95
8-Apr-13	37.60	10,319.55
8-Apr-13	38.70	10,358.25
8-Apr-13	39.70	10,397.95
8-Apr-13	38.10	10,436.05
8-Apr-13	38.70	10,474.75
8-Apr-13	37.60	10,512.35
8-Apr-13	38.10	10,550.45
8-Apr-13	39.10	10,589.55
8-Apr-13	38.70	10,628.25
8-Apr-13	38.60	10,666.85
8-Apr-13	38.50	10,705.35
8-Apr-13	38.20	10,743.55
8-Apr-13	37.50	10,781.05
9-Apr-13	36.80	10,817.85
9-Apr-13	35.50	10,853.35
9-Apr-13	35.10	10,888.45
9-Apr-13	38.00	10,926.45
9-Apr-13	37.20	10,963.65
9-Apr-13	36.20	10,999.85
9-Apr-13	36.30	11,036.15
9-Apr-13	35.30	11,071.45
9-Apr-13	35.40	11,106.85
9-Apr-13	36.10	11,142.95
9-Apr-13	36.90	11,179.85
9-Apr-13	39.10	11,218.95
9-Apr-13	37.30	11,256.25
9-Apr-13	38.20	11,294.45
9-Apr-13	35.00	11,329.45
10-Apr-13	36.50	11,365.95
10-Apr-13	36.50	11,402.45
10-Apr-13	38.60	11,441.05
10-Apr-13	35.90	11,476.95
10-Apr-13	38.50	11,515.45
10-Apr-13	37.20	11,552.65
10-Apr-13	37.10	11,589.75
10-Apr-13	37.20	11,626.95
10-Apr-13	35.10	11,662.05
10-Apr-13	41.40	11,703.45
10-Apr-13	35.70	11,739.15
10-Apr-13	38.60	11,777.75
10-Apr-13	36.20	11,813.95
10-Apr-13	37.40	11,851.35
10-Apr-13	39.40	11,890.75
10-Apr-13	36.30	11,927.05
10-Apr-13	35.90	11,962.95
11-Apr-13	39.70	12,002.65

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
11-Apr-13	38.70	12,041.35
11-Apr-13	37.20	12,078.55
11-Apr-13	39.90	12,118.45
11-Apr-13	34.70	12,153.15
11-Apr-13	37.70	12,190.85
11-Apr-13	39.40	12,230.25
11-Apr-13	38.00	12,268.25
11-Apr-13	34.30	12,302.55
11-Apr-13	35.20	12,337.75
11-Apr-13	36.30	12,374.05
11-Apr-13	34.90	12,408.95
11-Apr-13	40.10	12,449.05
11-Apr-13	40.70	12,489.75
11-Apr-13	37.80	12,527.55
11-Apr-13	37.70	12,565.25
11-Apr-13	36.00	12,601.25
11-Apr-13	34.20	12,635.45
15-Apr-13	39.50	12,674.95
15-Apr-13	34.70	12,709.65
15-Apr-13	34.90	12,744.55
15-Apr-13	35.70	12,780.25
15-Apr-13	35.30	12,815.55
15-Apr-13	38.10	12,853.65
15-Apr-13	39.40	12,893.05
15-Apr-13	35.90	12,928.95
15-Apr-13	36.70	12,965.65
15-Apr-13	35.80	13,001.45
15-Apr-13	35.00	13,036.45
15-Apr-13	35.30	13,071.75
15-Apr-13	40.60	13,112.35
15-Apr-13	36.70	13,149.05
15-Apr-13	40.00	13,189.05
15-Apr-13	35.60	13,224.65
15-Apr-13	39.90	13,264.55
15-Apr-13	36.10	13,300.65
15-Apr-13	36.00	13,336.65
15-Apr-13	39.70	13,376.35
15-Apr-13	35.90	13,412.25
15-Apr-13	37.60	13,449.85
15-Apr-13	40.40	13,490.25
15-Apr-13	38.10	13,528.35
15-Apr-13	35.80	13,564.15
15-Apr-13	36.30	13,600.45
16-Apr-13	36.00	13,636.45
16-Apr-13	34.80	13,671.25
16-Apr-13	34.90	13,706.15
16-Apr-13	36.40	13,742.55
16-Apr-13	39.50	13,782.05
16-Apr-13	36.20	13,818.25
16-Apr-13	36.30	13,854.55
16-Apr-13	35.40	13,889.95
16-Apr-13	34.90	13,924.85
16-Apr-13	39.10	13,963.95
16-Apr-13	37.90	14,001.85
16-Apr-13	38.20	14,040.05
16-Apr-13	35.00	14,075.05
16-Apr-13	36.70	14,111.75
16-Apr-13	36.90	14,148.65
16-Apr-13	39.10	14,187.75
16-Apr-13	39.80	14,227.55
16-Apr-13	38.20	14,265.75
16-Apr-13	35.50	14,301.25
16-Apr-13	35.80	14,337.05

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
16-Apr-13	40.40	14,377.45
16-Apr-13	36.20	14,413.65
16-Apr-13	35.70	14,449.35
16-Apr-13	39.70	14,489.05
16-Apr-13	38.80	14,527.85
16-Apr-13	35.00	14,562.85
16-Apr-13	34.70	14,597.55
17-Apr-13	34.00	14,631.55
17-Apr-13	38.50	14,670.05
17-Apr-13	34.60	14,704.65
17-Apr-13	35.40	14,740.05
17-Apr-13	39.70	14,779.75
17-Apr-13	35.60	14,815.35
17-Apr-13	38.30	14,853.65
17-Apr-13	35.90	14,889.55
17-Apr-13	35.00	14,924.55
17-Apr-13	41.00	14,965.55
17-Apr-13	36.30	15,001.85
17-Apr-13	38.20	15,040.05
17-Apr-13	38.80	15,078.85
17-Apr-13	34.90	15,113.75
17-Apr-13	34.60	15,148.35
17-Apr-13	34.20	15,182.55
17-Apr-13	39.30	15,221.85
17-Apr-13	37.20	15,259.05
17-Apr-13	35.10	15,294.15
17-Apr-13	36.50	15,330.65
17-Apr-13	39.30	15,369.95
17-Apr-13	38.30	15,408.25
17-Apr-13	35.40	15,443.65
17-Apr-13	38.00	15,481.65
17-Apr-13	35.80	15,517.45
17-Apr-13	37.90	15,555.35
18-Apr-13	39.80	15,595.15
18-Apr-13	39.80	15,634.95
18-Apr-13	39.70	15,674.65
18-Apr-13	35.80	15,710.45
18-Apr-13	39.40	15,749.85
18-Apr-13	36.00	15,785.85
18-Apr-13	35.70	15,821.55
18-Apr-13	38.90	15,860.45
18-Apr-13	38.80	15,899.25
18-Apr-13	40.10	15,939.35
18-Apr-13	36.70	15,976.05
18-Apr-13	39.50	16,015.55
18-Apr-13	36.00	16,051.55
18-Apr-13	38.50	16,090.05
18-Apr-13	37.40	16,127.45
18-Apr-13	35.40	16,162.85
18-Apr-13	35.50	16,198.35
18-Apr-13	38.10	16,236.45
19-Apr-13	35.70	16,272.15
19-Apr-13	39.90	16,312.05
19-Apr-13	38.10	16,350.15
19-Apr-13	38.60	16,388.75
19-Apr-13	40.00	16,428.75
19-Apr-13	35.70	16,464.45
19-Apr-13	39.60	16,504.05
19-Apr-13	39.40	16,543.45
19-Apr-13	40.80	16,584.25
19-Apr-13	40.00	16,624.25
19-Apr-13	38.00	16,662.25
19-Apr-13	38.10	16,700.35

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
19-Apr-13	35.50	16,735.85
19-Apr-13	39.60	16,775.45
19-Apr-13	35.50	16,810.95
19-Apr-13	40.80	16,851.75
19-Apr-13	35.70	16,887.45
19-Apr-13	39.90	16,927.35
19-Apr-13	39.20	16,966.55
19-Apr-13	40.10	17,006.65
19-Apr-13	39.30	17,045.95
19-Apr-13	35.60	17,081.55
19-Apr-13	40.40	17,121.95
22-Apr-13	39.50	17,161.45
22-Apr-13	35.60	17,197.05
22-Apr-13	35.50	17,232.55
22-Apr-13	35.90	17,268.45
22-Apr-13	35.60	17,304.05
22-Apr-13	39.40	17,343.45
22-Apr-13	39.70	17,383.15
22-Apr-13	39.90	17,423.05
22-Apr-13	38.70	17,461.75
22-Apr-13	38.00	17,499.75
22-Apr-13	36.00	17,535.75
22-Apr-13	35.80	17,571.55
22-Apr-13	40.00	17,611.55
22-Apr-13	36.00	17,647.55
22-Apr-13	35.60	17,683.15
22-Apr-13	39.20	17,722.35
22-Apr-13	40.00	17,762.35
22-Apr-13	38.40	17,800.75
22-Apr-13	38.70	17,839.45
22-Apr-13	39.00	17,878.45
22-Apr-13	39.60	17,918.05
22-Apr-13	39.80	17,957.85
23-Apr-13	38.20	17,996.05
23-Apr-13	37.40	18,033.45
23-Apr-13	33.70	18,067.15
23-Apr-13	33.90	18,101.05
23-Apr-13	34.70	18,135.75
23-Apr-13	38.30	18,174.05
23-Apr-13	35.60	18,209.65
23-Apr-13	34.70	18,244.35
23-Apr-13	38.70	18,283.05
23-Apr-13	38.80	18,321.85
23-Apr-13	34.90	18,356.75
23-Apr-13	36.90	18,393.65
23-Apr-13	40.00	18,433.65
23-Apr-13	38.70	18,472.35
23-Apr-13	39.40	18,511.75
23-Apr-13	39.40	18,551.15
23-Apr-13	38.10	18,589.25
23-Apr-13	35.30	18,624.55
23-Apr-13	36.30	18,660.85
23-Apr-13	37.50	18,698.35
24-Apr-13	39.70	18,738.05
24-Apr-13	38.50	18,776.55
24-Apr-13	37.10	18,813.65
24-Apr-13	35.10	18,848.75
24-Apr-13	35.20	18,883.95
24-Apr-13	34.90	18,918.85
24-Apr-13	38.30	18,957.15
24-Apr-13	39.10	18,996.25
29-Apr-13	36.20	19,032.45
29-Apr-13	38.70	19,071.15

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
29-Apr-13	35.40	19,106.55
29-Apr-13	39.00	19,145.55
29-Apr-13	39.60	19,185.15
29-Apr-13	35.90	19,221.05
29-Apr-13	36.10	19,257.15
21-May-13	37.70	19,294.85
21-May-13	38.60	19,333.45
21-May-13	38.50	19,371.95
21-May-13	37.20	19,409.15
21-May-13	37.30	19,446.45
21-May-13	38.30	19,484.75
21-May-13	37.80	19,522.55
22-May-13	38.70	19,561.25
22-May-13	37.80	19,599.05
17-Jun-13	41.45	19,640.50
17-Jun-13	39.70	19,680.20
17-Jun-13	38.20	19,718.40
17-Jun-13	39.05	19,757.45
17-Jun-13	39.25	19,796.70
11-Jul-13	40.85	19,837.55
11-Jul-13	39.30	19,876.85
26-Aug-13	35.90	19,912.75
26-Aug-13	36.00	19,948.75
26-Aug-13	38.85	19,987.60
26-Aug-13	38.65	20,026.25
26-Aug-13	39.00	20,065.25
26-Aug-13	40.00	20,105.25
26-Aug-13	39.30	20,144.55
26-Aug-13	37.45	20,182.00
27-Aug-13	39.60	20,221.60
27-Aug-13	38.65	20,260.25
27-Aug-13	39.15	20,299.40
27-Aug-13	40.90	20,340.30
27-Aug-13	39.00	20,379.30
27-Aug-13	40.30	20,419.60
27-Aug-13	39.80	20,459.40
27-Aug-13	38.00	20,497.40
28-Aug-13	39.55	20,536.95
28-Aug-13	38.90	20,575.85
28-Aug-13	39.90	20,615.75
28-Aug-13	38.55	20,654.30
28-Aug-13	37.70	20,692.00
28-Aug-13	40.40	20,732.40
28-Aug-13	40.00	20,772.40
28-Aug-13	36.05	20,808.45
28-Aug-13	39.95	20,848.40
16-Sep-13	39.05	20,887.45
16-Sep-13	39.40	20,926.85
16-Sep-13	40.50	20,967.35
17-Sep-13	38.95	21,006.30
17-Sep-13	38.30	21,044.60
17-Sep-13	38.80	21,083.40
17-Sep-13	39.45	21,122.85
17-Sep-13	38.25	21,161.10
17-Sep-13	38.95	21,200.05
17-Sep-13	38.75	21,238.80
17-Sep-13	39.05	21,277.85
17-Sep-13	38.90	21,316.75
17-Sep-13	37.80	21,354.55
17-Sep-13	39.70	21,394.25
17-Sep-13	36.15	21,430.40
17-Sep-13	36.05	21,466.45
17-Sep-13	38.60	21,505.05

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
17-Sep-13	38.95	21,544.00
17-Sep-13	38.25	21,582.25
17-Sep-13	39.05	21,621.30
17-Sep-13	39.05	21,660.35
17-Sep-13	35.35	21,695.70
17-Sep-13	36.05	21,731.75
17-Sep-13	38.10	21,769.85
18-Sep-13	35.90	21,805.75
18-Sep-13	35.60	21,841.35
18-Sep-13	38.45	21,879.80
18-Sep-13	38.45	21,918.25
18-Sep-13	40.65	21,958.90
18-Sep-13	38.95	21,997.85
18-Sep-13	38.20	22,036.05
18-Sep-13	35.75	22,071.80
18-Sep-13	35.75	22,107.55
18-Sep-13	38.30	22,145.85
18-Sep-13	38.10	22,183.95
18-Sep-13	37.10	22,221.05
18-Sep-13	38.00	22,259.05
18-Sep-13	33.88	22,292.93
18-Sep-13	32.40	22,325.33
18-Sep-13	37.20	22,362.53
18-Sep-13	37.95	22,400.48
18-Sep-13	37.35	22,437.83
18-Sep-13	37.70	22,475.53
18-Sep-13	37.15	22,512.68
18-Sep-13	32.45	22,545.13
18-Sep-13	32.68	22,577.81
18-Sep-13	37.65	22,615.46
18-Sep-13	37.70	22,653.16
18-Sep-13	37.75	22,690.91
18-Sep-13	38.10	22,729.01
18-Sep-13	37.65	22,766.66
18-Sep-13	33.05	22,799.71
18-Sep-13	32.90	22,832.61
19-Sep-13	32.90	22,865.51
19-Sep-13	32.95	22,898.46
19-Sep-13	37.70	22,936.16
19-Sep-13	38.45	22,974.61
19-Sep-13	38.25	23,012.86
19-Sep-13	37.75	23,050.61
19-Sep-13	32.95	23,083.56
19-Sep-13	32.25	23,115.81
19-Sep-13	38.20	23,154.01
19-Sep-13	38.80	23,192.81
19-Sep-13	37.70	23,230.51
19-Sep-13	38.20	23,268.71
19-Sep-13	38.35	23,307.06
19-Sep-13	38.75	23,345.81
19-Sep-13	38.60	23,384.41
19-Sep-13	38.15	23,422.56
19-Sep-13	33.00	23,455.56
19-Sep-13	33.25	23,488.81
19-Sep-13	38.95	23,527.76
19-Sep-13	38.55	23,566.31
19-Sep-13	38.05	23,604.36
19-Sep-13	38.70	23,643.06
19-Sep-13	38.95	23,682.01
19-Sep-13	32.75	23,714.76
19-Sep-13	33.55	23,748.31
19-Sep-13	38.45	23,786.76
19-Sep-13	38.55	23,825.31

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
19-Sep-13	38.25	23,863.56
19-Sep-13	37.75	23,901.31
20-Sep-13	33.30	23,934.61
20-Sep-13	38.75	23,973.36
20-Sep-13	33.60	24,006.96
20-Sep-13	38.30	24,045.26
20-Sep-13	36.60	24,081.86
20-Sep-13	37.35	24,119.21
20-Sep-13	38.40	24,157.61
20-Sep-13	38.20	24,195.81
20-Sep-13	33.65	24,229.46
20-Sep-13	33.30	24,262.76
20-Sep-13	38.20	24,300.96
20-Sep-13	36.25	24,337.21
20-Sep-13	38.20	24,375.41
20-Sep-13	38.80	24,414.21
20-Sep-13	38.30	24,452.51
20-Sep-13	38.05	24,490.56
20-Sep-13	39.20	24,529.76
20-Sep-13	32.85	24,562.61
20-Sep-13	32.88	24,595.49
20-Sep-13	37.40	24,632.89
20-Sep-13	37.65	24,670.54
20-Sep-13	37.75	24,708.29
20-Sep-13	36.70	24,744.99
20-Sep-13	38.25	24,783.24
20-Sep-13	38.40	24,821.64
20-Sep-13	37.90	24,859.54
20-Sep-13	32.90	24,892.44
20-Sep-13	32.25	24,924.69
20-Sep-13	39.70	24,964.39
20-Sep-13	37.65	25,002.04
23-Sep-13	34.95	25,036.99
23-Sep-13	35.85	25,072.84
23-Sep-13	38.45	25,111.29
23-Sep-13	39.00	25,150.29
23-Sep-13	38.05	25,188.34
23-Sep-13	38.45	25,226.79
23-Sep-13	32.50	25,259.29
23-Sep-13	38.70	25,297.99
23-Sep-13	38.95	25,336.94
23-Sep-13	35.75	25,372.69
23-Sep-13	36.00	25,408.69
23-Sep-13	38.65	25,447.34
23-Sep-13	38.40	25,485.74
23-Sep-13	38.45	25,524.19
23-Sep-13	38.05	25,562.24
23-Sep-13	33.50	25,595.74
23-Sep-13	38.45	25,634.19
23-Sep-13	33.00	25,667.19
23-Sep-13	38.20	25,705.39
23-Sep-13	38.85	25,744.24
23-Sep-13	36.00	25,780.24
23-Sep-13	36.35	25,816.59
23-Sep-13	38.45	25,855.04
24-Sep-13	38.35	25,893.39
24-Sep-13	38.65	25,932.04
24-Sep-13	35.05	25,967.09
24-Sep-13	38.75	26,005.84
24-Sep-13	35.25	26,041.09
24-Sep-13	34.35	26,075.44
24-Sep-13	37.00	26,112.44
24-Sep-13	37.90	26,150.34

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
24-Sep-13	37.80	26,188.14
24-Sep-13	38.00	26,226.14
24-Sep-13	38.15	26,264.29
24-Sep-13	38.10	26,302.39
24-Sep-13	38.25	26,340.64
24-Sep-13	36.30	26,376.94
24-Sep-13	38.30	26,415.24
24-Sep-13	38.50	26,453.74
24-Sep-13	38.25	26,491.99
24-Sep-13	38.10	26,530.09
24-Sep-13	38.85	26,568.94
24-Sep-13	38.05	26,606.99
24-Sep-13	38.65	26,645.64
24-Sep-13	35.20	26,680.84
24-Sep-13	36.15	26,716.99
24-Sep-13	36.20	26,753.19
24-Sep-13	38.30	26,791.49
24-Sep-13	38.35	26,829.84
24-Sep-13	38.40	26,868.24
25-Sep-13	35.85	26,904.09
25-Sep-13	34.75	26,938.84
25-Sep-13	35.60	26,974.44
25-Sep-13	36.50	27,010.94
25-Sep-13	38.90	27,049.84
25-Sep-13	38.05	27,087.89
25-Sep-13	38.65	27,126.54
25-Sep-13	34.85	27,161.39
25-Sep-13	35.25	27,196.64
25-Sep-13	38.30	27,234.94
25-Sep-13	37.45	27,272.39
25-Sep-13	38.60	27,310.99
25-Sep-13	37.85	27,348.84
25-Sep-13	38.25	27,387.09
25-Sep-13	37.10	27,424.19
25-Sep-13	36.15	27,460.34
25-Sep-13	36.00	27,496.34
25-Sep-13	35.35	27,531.69
25-Sep-13	37.35	27,569.04
25-Sep-13	37.65	27,606.69
25-Sep-13	38.35	27,645.04
25-Sep-13	37.05	27,682.09
25-Sep-13	37.65	27,719.74
25-Sep-13	35.45	27,755.19
25-Sep-13	35.40	27,790.59
25-Sep-13	34.95	27,825.54
25-Sep-13	38.05	27,863.59
25-Sep-13	37.80	27,901.39
25-Sep-13	37.75	27,939.14
25-Sep-13	37.90	27,977.04
25-Sep-13	38.85	28,015.89
26-Sep-13	35.50	28,051.39
26-Sep-13	40.05	28,091.44
26-Sep-13	38.25	28,129.69
26-Sep-13	38.40	28,168.09
26-Sep-13	38.85	28,206.94
26-Sep-13	36.65	28,243.59
26-Sep-13	36.20	28,279.79
26-Sep-13	35.15	28,314.94
26-Sep-13	38.35	28,353.29
26-Sep-13	35.05	28,388.34
26-Sep-13	38.50	28,426.84
26-Sep-13	38.25	28,465.09
26-Sep-13	38.15	28,503.24

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
26-Sep-13	38.30	28,541.54
26-Sep-13	35.50	28,577.04
26-Sep-13	38.70	28,615.74
26-Sep-13	38.75	28,654.49
26-Sep-13	36.50	28,690.99
26-Sep-13	38.30	28,729.29
26-Sep-13	35.65	28,764.94
26-Sep-13	35.80	28,800.74
26-Sep-13	38.40	28,839.14
26-Sep-13	38.50	28,877.64
26-Sep-13	35.00	28,912.64
26-Sep-13	34.80	28,947.44
26-Sep-13	37.25	28,984.69
26-Sep-13	37.35	29,022.04
26-Sep-13	34.20	29,056.24
26-Sep-13	36.55	29,092.79
26-Sep-13	36.20	29,128.99
26-Sep-13	37.20	29,166.19
26-Sep-13	36.70	29,202.89
26-Sep-13	37.45	29,240.34
27-Sep-13	35.00	29,275.34
27-Sep-13	35.30	29,310.64
27-Sep-13	34.30	29,344.94
27-Sep-13	36.10	29,381.04
27-Sep-13	38.65	29,419.69
27-Sep-13	36.25	29,455.94
27-Sep-13	36.40	29,492.34
27-Sep-13	38.10	29,530.44
27-Sep-13	38.45	29,568.89
27-Sep-13	36.10	29,604.99
27-Sep-13	38.60	29,643.59
27-Sep-13	34.85	29,678.44
27-Sep-13	36.90	29,715.34
27-Sep-13	35.35	29,750.69
27-Sep-13	37.30	29,787.99
27-Sep-13	37.55	29,825.54
27-Sep-13	35.65	29,861.19
27-Sep-13	37.85	29,899.04
27-Sep-13	36.55	29,935.59
27-Sep-13	36.35	29,971.94
27-Sep-13	35.75	30,007.69
27-Sep-13	35.00	30,042.69
27-Sep-13	38.05	30,080.74
27-Sep-13	38.15	30,118.89
27-Sep-13	34.70	30,153.59
27-Sep-13	37.85	30,191.44
27-Sep-13	34.80	30,226.24
27-Sep-13	35.95	30,262.19
27-Sep-13	36.55	30,298.74
27-Sep-13	37.40	30,336.14
27-Sep-13	33.95	30,370.09
27-Sep-13	36.25	30,406.34
27-Sep-13	37.55	30,443.89
27-Sep-13	38.05	30,481.94
27-Sep-13	37.95	30,519.89
30-Sep-13	34.70	30,554.59
30-Sep-13	37.40	30,591.99
30-Sep-13	37.95	30,629.94
30-Sep-13	37.30	30,667.24
30-Sep-13	38.35	30,705.59
30-Sep-13	35.25	30,740.84
30-Sep-13	38.60	30,779.44
30-Sep-13	35.90	30,815.34

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
30-Sep-13	36.10	30,851.44
30-Sep-13	38.10	30,889.54
30-Sep-13	37.80	30,927.34
30-Sep-13	38.25	30,965.59
30-Sep-13	35.25	31,000.84
30-Sep-13	38.45	31,039.29
30-Sep-13	35.05	31,074.34
30-Sep-13	37.75	31,112.09
30-Sep-13	35.80	31,147.89
30-Sep-13	36.40	31,184.29
30-Sep-13	34.95	31,219.24
30-Sep-13	38.20	31,257.44
30-Sep-13	38.50	31,295.94
30-Sep-13	38.05	31,333.99
30-Sep-13	37.75	31,371.74
30-Sep-13	34.90	31,406.64
30-Sep-13	35.75	31,442.39
30-Sep-13	36.20	31,478.59
30-Sep-13	36.40	31,514.99
30-Sep-13	38.35	31,553.34
30-Sep-13	37.25	31,590.59
30-Sep-13	35.15	31,625.74
1-Oct-13	35.30	31,661.04
1-Oct-13	36.10	31,697.14
1-Oct-13	36.05	31,733.19
1-Oct-13	38.00	31,771.19
1-Oct-13	38.65	31,809.84
1-Oct-13	35.20	31,845.04
1-Oct-13	35.90	31,880.94
1-Oct-13	35.85	31,916.79
1-Oct-13	36.00	31,952.79
1-Oct-13	38.60	31,991.39
1-Oct-13	35.15	32,026.54
1-Oct-13	38.15	32,064.69
1-Oct-13	38.35	32,103.04
1-Oct-13	38.15	32,141.19
1-Oct-13	38.45	32,179.64
1-Oct-13	36.40	32,216.04
1-Oct-13	36.30	32,252.34
1-Oct-13	36.40	32,288.74
1-Oct-13	34.85	32,323.59
1-Oct-13	37.60	32,361.19
1-Oct-13	38.45	32,399.64
1-Oct-13	38.25	32,437.89
1-Oct-13	38.55	32,476.44
1-Oct-13	35.45	32,511.89
1-Oct-13	36.20	32,548.09
1-Oct-13	37.75	32,585.84
1-Oct-13	35.60	32,621.44
1-Oct-13	38.05	32,659.49
1-Oct-13	35.40	32,694.89
1-Oct-13	37.85	32,732.74
1-Oct-13	34.95	32,767.69
1-Oct-13	37.30	32,804.99
1-Oct-13	38.75	32,843.74
1-Oct-13	38.10	32,881.84
1-Oct-13	35.05	32,916.89
2-Oct-13	37.50	32,954.39
2-Oct-13	38.65	32,993.04
2-Oct-13	35.50	33,028.54
2-Oct-13	38.10	33,066.64
2-Oct-13	38.20	33,104.84
2-Oct-13	37.85	33,142.69

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
2-Oct-13	35.65	33,178.34
2-Oct-13	35.95	33,214.29
2-Oct-13	36.00	33,250.29
2-Oct-13	35.75	33,286.04
2-Oct-13	38.65	33,324.69
2-Oct-13	36.45	33,361.14
2-Oct-13	35.65	33,396.79
2-Oct-13	36.10	33,432.89
2-Oct-13	37.35	33,470.24
2-Oct-13	36.05	33,506.29
2-Oct-13	36.15	33,542.44
2-Oct-13	37.60	33,580.04
2-Oct-13	34.55	33,614.59
2-Oct-13	35.30	33,649.89
2-Oct-13	36.50	33,686.39
2-Oct-13	37.55	33,723.94
2-Oct-13	36.50	33,760.44
2-Oct-13	36.35	33,796.79
2-Oct-13	36.10	33,832.89
2-Oct-13	35.90	33,868.79
2-Oct-13	37.70	33,906.49
2-Oct-13	35.20	33,941.69
3-Oct-13	34.60	33,976.29
3-Oct-13	35.15	34,011.44
3-Oct-13	38.60	34,050.04
3-Oct-13	36.15	34,086.19
3-Oct-13	38.20	34,124.39
3-Oct-13	37.90	34,162.29
3-Oct-13	36.05	34,198.34
3-Oct-13	36.15	34,234.49
3-Oct-13	36.05	34,270.54
3-Oct-13	35.75	34,306.29
3-Oct-13	37.75	34,344.04
3-Oct-13	37.70	34,381.74
3-Oct-13	36.20	34,417.94
3-Oct-13	37.25	34,455.19
3-Oct-13	35.10	34,490.29
3-Oct-13	35.40	34,525.69
3-Oct-13	35.60	34,561.29
3-Oct-13	35.80	34,597.09
3-Oct-13	36.55	34,633.64
3-Oct-13	37.85	34,671.49
3-Oct-13	36.00	34,707.49
3-Oct-13	37.80	34,745.29
3-Oct-13	36.20	34,781.49
3-Oct-13	38.25	34,819.74
3-Oct-13	37.25	34,856.99
3-Oct-13	36.35	34,893.34
3-Oct-13	36.00	34,929.34
3-Oct-13	36.00	34,965.34
3-Oct-13	38.65	35,003.99
3-Oct-13	36.15	35,040.14
3-Oct-13	35.85	35,075.99
3-Oct-13	37.15	35,113.14
4-Oct-13	34.35	35,147.49
4-Oct-13	35.55	35,183.04
4-Oct-13	35.40	35,218.44
4-Oct-13	38.40	35,256.84
4-Oct-13	37.70	35,294.54
4-Oct-13	35.50	35,330.04
4-Oct-13	35.25	35,365.29
4-Oct-13	38.15	35,403.44
4-Oct-13	37.45	35,440.89

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
4-Oct-13	34.75	35,475.64
4-Oct-13	35.15	35,510.79
4-Oct-13	34.75	35,545.54
4-Oct-13	35.05	35,580.59
4-Oct-13	38.70	35,619.29
4-Oct-13	35.55	35,654.84
4-Oct-13	38.80	35,693.64
4-Oct-13	39.30	35,732.94
4-Oct-13	38.60	35,771.54
4-Oct-13	34.70	35,806.24
4-Oct-13	35.80	35,842.04
4-Oct-13	35.40	35,877.44
4-Oct-13	35.75	35,913.19
4-Oct-13	36.20	35,949.39
4-Oct-13	34.90	35,984.29
4-Oct-13	36.00	36,020.29
4-Oct-13	35.40	36,055.69
4-Oct-13	37.85	36,093.54
4-Oct-13	37.40	36,130.94
4-Oct-13	38.15	36,169.09
4-Oct-13	34.95	36,204.04
4-Oct-13	35.20	36,239.24
7-Oct-13	33.10	36,272.34
7-Oct-13	38.95	36,311.29
7-Oct-13	36.70	36,347.99
7-Oct-13	35.55	36,383.54
7-Oct-13	38.40	36,421.94
7-Oct-13	35.75	36,457.69
7-Oct-13	36.90	36,494.59
7-Oct-13	35.30	36,529.89
7-Oct-13	34.00	36,563.89
7-Oct-13	39.00	36,602.89
7-Oct-13	36.60	36,639.49
7-Oct-13	38.30	36,677.79
7-Oct-13	37.30	36,715.09
7-Oct-13	35.85	36,750.94
7-Oct-13	36.90	36,787.84
7-Oct-13	34.85	36,822.69
7-Oct-13	34.70	36,857.39
7-Oct-13	36.65	36,894.04
7-Oct-13	36.75	36,930.79
7-Oct-13	37.30	36,968.09
7-Oct-13	32.60	37,000.69
7-Oct-13	36.65	37,037.34
7-Oct-13	35.40	37,072.74
7-Oct-13	38.60	37,111.34
7-Oct-13	36.55	37,147.89
7-Oct-13	34.45	37,182.34
8-Oct-13	34.65	37,216.99
8-Oct-13	35.70	37,252.69
8-Oct-13	36.30	37,288.99
8-Oct-13	34.00	37,322.99
8-Oct-13	36.80	37,359.79
8-Oct-13	35.55	37,395.34
8-Oct-13	35.00	37,430.34
8-Oct-13	37.60	37,467.94
8-Oct-13	34.75	37,502.69
9-Oct-13	35.75	37,538.44
9-Oct-13	37.80	37,576.24
9-Oct-13	38.75	37,614.99
9-Oct-13	34.65	37,649.64
9-Oct-13	37.40	37,687.04
9-Oct-13	35.10	37,722.14

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
9-Oct-13	38.40	37,760.54
9-Oct-13	36.05	37,796.59
9-Oct-13	36.00	37,832.59
9-Oct-13	35.85	37,868.44
9-Oct-13	36.05	37,904.49
9-Oct-13	35.90	37,940.39
9-Oct-13	38.45	37,978.84
9-Oct-13	34.50	38,013.34
9-Oct-13	35.90	38,049.24
9-Oct-13	36.00	38,085.24
9-Oct-13	38.55	38,123.79
9-Oct-13	35.85	38,159.64
9-Oct-13	36.25	38,195.89
9-Oct-13	35.80	38,231.69
9-Oct-13	37.65	38,269.34
9-Oct-13	36.00	38,305.34
10-Oct-13	35.00	38,340.34
10-Oct-13	35.95	38,376.29
10-Oct-13	36.15	38,412.44
10-Oct-13	37.95	38,450.39
10-Oct-13	35.80	38,486.19
10-Oct-13	36.55	38,522.74
10-Oct-13	37.90	38,560.64
10-Oct-13	38.25	38,598.89
10-Oct-13	36.10	38,634.99
10-Oct-13	35.90	38,670.89
10-Oct-13	36.35	38,707.24
10-Oct-13	38.00	38,745.24
10-Oct-13	37.10	38,782.34
10-Oct-13	36.05	38,818.39
10-Oct-13	40.00	38,858.39
10-Oct-13	35.90	38,894.29
10-Oct-13	36.05	38,930.34
10-Oct-13	38.10	38,968.44
10-Oct-13	38.15	39,006.59
10-Oct-13	38.45	39,045.04
10-Oct-13	36.05	39,081.09
10-Oct-13	35.85	39,116.94
15-Oct-13	34.65	39,151.59
15-Oct-13	37.95	39,189.54
15-Oct-13	35.45	39,224.99
15-Oct-13	34.60	39,259.59
15-Oct-13	35.55	39,295.14
15-Oct-13	37.30	39,332.44
15-Oct-13	38.35	39,370.79
15-Oct-13	37.80	39,408.59
15-Oct-13	35.40	39,443.99
15-Oct-13	34.75	39,478.74
15-Oct-13	37.85	39,516.59
15-Oct-13	34.90	39,551.49
15-Oct-13	36.00	39,587.49
15-Oct-13	37.90	39,625.39
15-Oct-13	35.15	39,660.54
15-Oct-13	37.95	39,698.49
15-Oct-13	35.20	39,733.69
15-Oct-13	38.00	39,771.69
15-Oct-13	38.45	39,810.14
15-Oct-13	35.25	39,845.39
15-Oct-13	35.75	39,881.14
15-Oct-13	38.55	39,919.69
15-Oct-13	38.10	39,957.79
15-Oct-13	35.00	39,992.79
16-Oct-13	35.70	40,028.49

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
16-Oct-13	35.60	40,064.09
16-Oct-13	38.90	40,102.99
16-Oct-13	36.50	40,139.49
16-Oct-13	34.45	40,173.94
16-Oct-13	38.35	40,212.29
16-Oct-13	35.55	40,247.84
16-Oct-13	39.50	40,287.34
16-Oct-13	38.60	40,325.94
16-Oct-13	35.85	40,361.79
16-Oct-13	40.30	40,402.09
16-Oct-13	37.60	40,439.69
16-Oct-13	40.05	40,479.74
16-Oct-13	37.75	40,517.49
16-Oct-13	37.00	40,554.49
16-Oct-13	39.15	40,593.64
16-Oct-13	37.55	40,631.19
16-Oct-13	35.60	40,666.79
16-Oct-13	35.05	40,701.84
16-Oct-13	34.65	40,736.49
16-Oct-13	35.25	40,771.74
16-Oct-13	35.85	40,807.59
16-Oct-13	34.15	40,841.74
16-Oct-13	38.15	40,879.89
16-Oct-13	35.55	40,915.44
16-Oct-13	36.70	40,952.14
16-Oct-13	35.65	40,987.79
17-Oct-13	34.10	41,021.89
17-Oct-13	36.70	41,058.59
17-Oct-13	35.85	41,094.44
17-Oct-13	36.35	41,130.79
17-Oct-13	38.15	41,168.94
17-Oct-13	38.55	41,207.49
17-Oct-13	35.95	41,243.44
17-Oct-13	37.65	41,281.09
17-Oct-13	36.20	41,317.29
17-Oct-13	38.55	41,355.84
17-Oct-13	37.50	41,393.34
17-Oct-13	35.80	41,429.14
17-Oct-13	34.20	41,463.34
17-Oct-13	37.50	41,500.84
17-Oct-13	34.70	41,535.54
17-Oct-13	39.05	41,574.59
17-Oct-13	37.40	41,611.99
17-Oct-13	37.90	41,649.89
17-Oct-13	38.20	41,688.09
17-Oct-13	35.80	41,723.89
17-Oct-13	36.00	41,759.89
17-Oct-13	39.55	41,799.44
17-Oct-13	38.75	41,838.19
17-Oct-13	35.90	41,874.09
17-Oct-13	36.00	41,910.09
17-Oct-13	35.85	41,945.94
21-Oct-13	36.45	41,982.39
21-Oct-13	35.60	42,017.99
21-Oct-13	35.65	42,053.64
21-Oct-13	36.45	42,090.09
21-Oct-13	35.25	42,125.34
21-Oct-13	35.45	42,160.79
21-Oct-13	40.20	42,200.99
21-Oct-13	36.15	42,237.14
21-Oct-13	38.35	42,275.49
21-Oct-13	35.60	42,311.09
21-Oct-13	35.60	42,346.69

ISS Final Engineering Report
Hempstead Intersection Street Former MGP Site

Date	Tons	Cummulative (Tons)
21-Oct-13	34.95	42,381.64
21-Oct-13	36.45	42,418.09
21-Oct-13	38.15	42,456.24
21-Oct-13	36.30	42,492.54
21-Oct-13	37.10	42,529.64
21-Oct-13	36.10	42,565.74
21-Oct-13	32.85	42,598.59
21-Oct-13	35.25	42,633.84
21-Oct-13	37.00	42,670.84
21-Oct-13	36.10	42,706.94
21-Oct-13	36.05	42,742.99
21-Oct-13	36.45	42,779.44
21-Oct-13	35.80	42,815.24
21-Oct-13	37.75	42,852.99
22-Oct-13	38.05	42,891.04
22-Oct-13	36.25	42,927.29
22-Oct-13	38.60	42,965.89
22-Oct-13	36.05	43,001.94
22-Oct-13	37.65	43,039.59
22-Oct-13	36.10	43,075.69
22-Oct-13	35.65	43,111.34
22-Oct-13	36.35	43,147.69
22-Oct-13	34.50	43,182.19
22-Oct-13	37.95	43,220.14
22-Oct-13	38.50	43,258.64
22-Oct-13	36.25	43,294.89
22-Oct-13	39.15	43,334.04
22-Oct-13	36.45	43,370.49
22-Oct-13	37.85	43,408.34
22-Oct-13	38.10	43,446.44
22-Oct-13	35.85	43,482.29
23-Oct-13	37.55	43,519.84
23-Oct-13	34.85	43,554.69
23-Oct-13	37.90	43,592.59
23-Oct-13	37.10	43,629.69
23-Oct-13	35.05	43,664.74
23-Oct-13	37.55	43,702.29
23-Oct-13	38.00	43,740.29
23-Oct-13	34.60	43,774.89
23-Oct-13	37.05	43,811.94
23-Oct-13	37.85	43,849.79
23-Oct-13	36.95	43,886.74
23-Oct-13	39.80	43,926.54
23-Oct-13	36.60	43,963.14
23-Oct-13	37.40	44,000.54
23-Oct-13	37.40	44,037.94
23-Oct-13	34.45	44,072.39
23-Oct-13	39.55	44,111.94
23-Oct-13	37.10	44,149.04
23-Oct-13	34.65	44,183.69

Table 7
Backfill Material Analytical Results
Hempstead Intersection Street Former MGP Site
Villages of Garden City and Hempstead

ENTACT Submittal No.				ENT-E7918-T-014			ENT-E7918-T-014d	ENT-E7918-T-014g	ENT-E7918-T-014u		
Sample ID				General Fill - Pinelawn	Topsoil - Pinelawn	Uniform Stone - 284 AG	General Fill - Pinelawn	General Fill - Pinelawn	General Fill - Pinelawn (1)	General Fill - Pinelawn (2)	General Fill - Pinelawn (3)
Date Sampled				9/21/2011	9/21/2011	9/21/2011	12/13/2012	4/26/2013	12/5/2013	12/5/2013	12/5/2013
Parameter	Units	Unrestricted Criteria*	Residential Criteria*								
Metals											
Arsenic	mg/kg	13	16	2.3	4.2	3.5	3.0	3.2	2.2	1.9	2.1
Barium	mg/kg	350	350	16.3 B	23.7	12.2 B	32.0	15.8 B	15.9 B	15.4 B	16.6 B
Beryllium	mg/kg	7.2	14	0.11 B	0.15 B	0.49 B	0.26 B	0.21 B	0.11 B	0.13 B	0.15 B
Cadmium	mg/kg	2.5	2.5	0.021 U	0.091 B	0.16 B	0.043 B	0.011 U	0.016 U	0.016 U	0.021 B
Chromium, trivalent	mg/kg	30	36	6.1	11.8	14.4	19.5	9.1	7.8	8.9	10.0
Chromium, hexavalent	mg/kg	1	22	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U
Copper	mg/kg	50	270	3.8	12.9	26.5	6.7	3.0	3.8	3.6	4.3
Lead	mg/kg	63	400	3	12.2	16.2 B	16.2	10.1	4.2	1.1	2.9
Manganese	mg/kg	1600	2000	253	109	335	112	102	114	138	160
Mercury	mg/kg	0.18	0.81	0.025 B	0.039	0.017 U	0.036 B	0.033 B	0.034 B	0.024 B	0.033 B
Nickel	mg/kg	30	140	3.9 B	5.1	15.0	6.4	4.2 B	3.5 B	3.2	3.9 B
Selenium	mg/kg	3.9	36	0.41 U	0.44 U	8.0 U	0.41 B	0.25 U	1.4	2.3	1.6
Silver	mg/kg	2	36	0.026 U	0.028 U	0.025 U	0.032 U	0.021 U	0.046 U	0.045 U	0.045 U
Zinc	mg/kg	109	2200	15.4	27.5	53.4	21.6	16.0	19.2	23.1	21.1
Cyanide, Total	mg/kg	27	27	0.53 U	0.57 U	0.52 U	0.54 U	0.53 U	0.53 U	0.51 U	0.53 U
Herbicides											
2,4,5-TP (Silvex)	mg/kg	3.8	58	0.0053 U	0.0057 U	0.0052 U	0.0054 U	0.0053 U	0.0053 U	0.0052 U	0.0053 U
Polychlorinated Biphenyls											
Aroclor 1016	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Aroclor 1221	mg/kg	0.1	1	0.071 U	0.076 U	0.070 U	0.073 U	0.071 U	0.071 U	0.069 U	0.071 U
Aroclor 1232	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Aroclor 1242	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Aroclor 1248	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Aroclor 1254	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Aroclor 1260	mg/kg	0.1	1	0.035 U	0.038 U	0.034 U	0.036 U	0.035 U	0.035 U	0.034 U	0.035 U
Pesticides											
4,4'-DDD	mg/kg	0.0033	2.6	0.0036 P	0.0038 U	0.0034 U	0.0036 U	0.0056 P	0.0035 U	0.0034 U	0.0035 U
4,4'-DDE	mg/kg	0.0033	1.8	0.0059 P	0.023	0.0034 U	0.0034 J	0.0083 P	0.0059	0.0047 P	0.0063
4,4'-DDT	mg/kg	0.0033	1.7	0.0049	0.027	0.0034 U	0.0092	0.0037 P	0.0035 U	0.0034 U	0.0035 U
Aldrin	mg/kg	0.005	0.019	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
alpha-BHC	mg/kg	0.02	0.097	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
alpha-Chlordane	mg/kg	0.094	0.91	0.0044 P	0.008 P	0.0018 U	0.0087 P	0.0044	0.0022 P	0.0018 U	0.0028 P
beta-BHC	mg/kg	0.036	0.072	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
delta-BHC	mg/kg	0.04	100	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Dieldrin	mg/kg	0.005	0.039	0.0035 U	0.0046	0.0034 U	0.0036 U	0.0026 J	0.0035 U	0.0034 U	0.0035 U
Endosulfan I	mg/kg	2.4	4.8	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Endosulfan II	mg/kg	2.4	4.8	0.0035 U	0.0038 U	0.0034 U	0.0036 U	0.0035 U	0.0035 U	0.0034 U	0.0035 U
Endosulfan sulfate	mg/kg	2.4	4.8	0.0035 U	0.0025 J	0.0034 U	0.0036 U	0.0035 U	0.0035 U	0.0034 U	0.0035 U
Endrin	mg/kg	0.014	2.2	0.0035 U	0.0038 U	0.0034 U	0.0036 U	0.0035 U	0.0035 U	0.0034 U	0.0035 U
gamma-BHC (Lindane)	mg/kg	0.1	0.28	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Heptachlor	mg/kg	0.042	0.42	0.0018 U	0.0019 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Semivolatile Organic Compounds											
2-Methylphenol (o-cresol)	mg/kg	0.33	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
3-Methylphenol (m-cresol)	mg/kg	0.33	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
4-Methylphenol (p-cresol)	mg/kg	0.33	34	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Acenaphthene	mg/kg	20	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Acenaphthylene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Anthracene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Benzo(a)anthracene	mg/kg	1	1	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Benzo(a)pyrene	mg/kg	1	1	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Benzo(b)fluoranthene	mg/kg	1	1	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Benzo(g,h,i)perylene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Benzo(k)fluoranthene	mg/kg	0.8	1	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Chrysene	mg/kg	1	1	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Dibenz(a,h)anthracene	mg/kg	0.33	0.33	0.140 U	0.150 U	0.130 U	0.140 U	0.140 U	0.140 U	0.130 U	0.140 U
Dibenzofuran	mg/kg	7	14	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Fluoranthene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Fluorene	mg/kg	30	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Hexachlorobenzene	mg/kg	0.33	0.33	0.140 U	0.150 U	0.130 U	0.140 U	0.140 U	0.140 U	0.130 U	0.140 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	0.5	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Naphthalene	mg/kg	12	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Pentachlorophenol	mg/kg	0.8	2.4	0.890 U	0.950 U	0.860 U	0.900 U	0.880 U	0.880 U	0.860 U	0.880 U
Phenanthrene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Phenol	mg/kg	0.33	100	0.210 J	0.210 J	0.170 J	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U
Pyrene	mg/kg	100	100	0.350 U	0.380 U	0.340 U	0.360 U	0.350 U	0.350 U	0.340 U	0.350 U

Backfill Material Analytical Results
Hempstead Intersection Street Former MGP Site
Villages of Garden City and Hempstead

ENTACT Submittal No.				ENT-E7918-T-014			ENT-E7918-T-014d	ENT-E7918-T-014g	ENT-E7918-T-014u		
Sample ID				General Fill - Pinelawn	Topsoil - Pinelawn	Uniform Stone - 284 AG	General Fill - Pinelawn	General Fill - Pinelawn	General Fill - Pinelawn (1)	General Fill - Pinelawn (2)	General Fill - Pinelawn (3)
Date Sampled				9/21/2011	9/21/2011	9/21/2011	12/13/2012	4/26/2013	12/5/2013	12/5/2013	12/5/2013
Parameter	Units	Unrestricted Criteria*	Residential Criteria*								
Volatile Organic Compounds											
1,1,1-Trichloroethane	mg/kg	0.68	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,2,4-Trimethylbenzene	mg/kg	3.6	47	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,3,5-Trimethylbenzene	mg/kg	8.4	47	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,2-Dichlorobenzene	mg/kg	1.1	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,3-Dichlorobenzene	mg/kg	2.4	17	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,4-Dichlorobenzene	mg/kg	1.8	9.8	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,4-Dioxane	mg/kg	0.1	9.8	0.27 U	0.29 U	0.26 U	0.27 U	0.27 U	0.27 U	0.26 U	0.26 U
1,1-Dichloroethane	mg/kg	0.27	19	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,1-Dichloroethene	mg/kg	0.33	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
1,2-Dichloroethane	mg/kg	0.02	2.3	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
cis-1,2-Dichloroethene	mg/kg	0.25	59	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
trans-1,2-Dichloroethene	mg/kg	0.19	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Acetone	mg/kg	0.05	100	0.004 BJ	0.004 BJ	0.005 BJ	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Benzene	mg/kg	0.06	2.9	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
n-Butylbenzene	mg/kg	12	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Carbon tetrachloride	mg/kg	0.76	1.4	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Chlorobenzene	mg/kg	1.1	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Chloroform	mg/kg	0.37	10	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Ethylbenzene	mg/kg	1	30	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Methyl ethyl ketone (2-Butanone)	mg/kg	0.12	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Methyl tert-butyl ether	mg/kg	0.93	62	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Methylene chloride	mg/kg	0.05	51	0.002 BJ	0.002 BJ	0.002 BJ	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
n-Propylbenzene	mg/kg	3.9	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
sec-Butylbenzene	mg/kg	11	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
tert-Butylbenzene	mg/kg	5.9	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Tetrachloroethene	mg/kg	1.3	5.5	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Toluene	mg/kg	0.7	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Trichloroethene	mg/kg	0.47	10	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Vinyl chloride	mg/kg	0.02	0.21	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U
Xylene (total)	mg/kg	0.26	100	0.011 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U

Notes:

* - 6 NYCRR Subpart 375-6, Tables 6.8 (a+b): Restricted Use Soil Cleanup Objectives, Effective December 14, 2006.
- Concentration exceeds 6 NYCRR Part 375-6, Table 6.8a Unrestricted Criteria.
- Concentration exceeds 6 NYCRR Part 375-6, Table 6.8b Residential Criteria.
- Concentration exceeds 6 NYCRR Part 375-6, Tables 6.8 a+b Unrestricted and Residential Criteria.
U - Not detected.
B (Organics) - Compound detected in the associated method blank.
J (or B Inorganics) - Estimated result above the method detection limit, but below the quantitation limit.
P - Percent difference between dual-column analysis >25%.

Table 7 (cont.)
Detected Backfill Material Analytical Results
Hempstead Intersection Street Former MGP Site
Villages of Garden City and Hempstead

ENTACT Submittal No.			ENT-E7918-T-014			ENT-E7918-T-014d	ENT-E7918-T-014g	ENT-E7918-T-014u		
Sample ID			General Fill - Pinelawn	Topsoil - Pinelawn	Uniform Stone - 284 AG	General Fill - Pinelawn	General Fill - Pinelawn	General Fill - Pinelawn (1)	General Fill - Pinelawn (2)	General Fill - Pinelawn (3)
Date Sampled			9/21/2011	9/21/2011	9/21/2011	12/13/2012	4/26/2013	12/5/2013	12/5/2013	12/5/2013
Parameter	Units	Residential Criteria*								
Metals										
Arsenic	mg/kg	16	2.3	4.2	3.5	3.0	3.2	2.2	1.9	2.1
Barium	mg/kg	350	16.3 B	23.7	12.2 B	32.0	15.8 B	15.9 B	15.4 B	16.6 B
Beryllium	mg/kg	14	0.11 B	0.15 B	0.49 B	0.26 B	0.21 B	0.11 B	0.13 B	0.15 B
Cadmium	mg/kg	2.5		0.091 B	0.16 B	0.043 B				0.021 B
Chromium, trivalent	mg/kg	36	6.1	11.8	14.4	19.5	9.1	7.8	8.9	10.0
Copper	mg/kg	270	3.8	12.9	26.5	6.7	3.0	3.8	3.6	4.3
Lead	mg/kg	400	3	12.2	16.2 B	16.2	10.1	4.2	1.1	2.9
Manganese	mg/kg	2000	253	109	335	112	102	114	138	160
Mercury	mg/kg	0.81	0.025 B	0.039		0.036 B	0.033 B	0.034 B	0.024 B	0.033 B
Nickel	mg/kg	140	3.9 B	5.1	15.0	6.4	4.2 B	3.5 B	3.2	3.9 B
Selenium	mg/kg	36				0.41 B		1.4	2.3	1.6
Zinc	mg/kg	2200	15.4	27.5	53.4	21.6	16.0	19.2	23.1	21.1
Pesticides										
4,4'-DDD	mg/kg	2.6	0.0036 P				0.0056 P			
4,4'-DDE	mg/kg	1.8	0.0059 P	0.023		0.0034 J	0.0083 P	0.0059	0.0047 P	0.0063
4,4'-DDT	mg/kg	1.7	0.0049	0.027		0.0092	0.0037 P			
alpha-Chlordane	mg/kg	0.91	0.0044 P	0.008 P		0.0087 P	0.0044	0.0022 P		0.0028 P
Dieldrin	mg/kg	0.039		0.0046			0.0026 J			
Endosulfan sulfate	mg/kg	4.8		0.0025 J						
Semivolatile Organic Compounds										
Phenol	mg/kg	100	0.210 J	0.210 J	0.170 J					
Volatile Organic Compounds										
Acetone	mg/kg	100	0.004 BJ	0.004 BJ	0.005 BJ					
Methylene chloride	mg/kg	51	0.002 BJ	0.002 BJ	0.002 BJ					

Notes:
Only detected results are reported. Samples were analyzed for all 6 NYCRR Part 375-6 parameters.
* - 6 NYCRR Subpart 375-6, Tables 6.8 (a+b): Restricted Use Soil Cleanup Objectives, Effective December 14, 2006.

B (Organics) - Compound detected in the associated method blank.
J (or B Inorganics) - Estimated result above the method detection limit, but below the quantitation limit.
P - Percent difference between dual-column analysis >25%.

Table 8

Vertical Relief Drain Construction

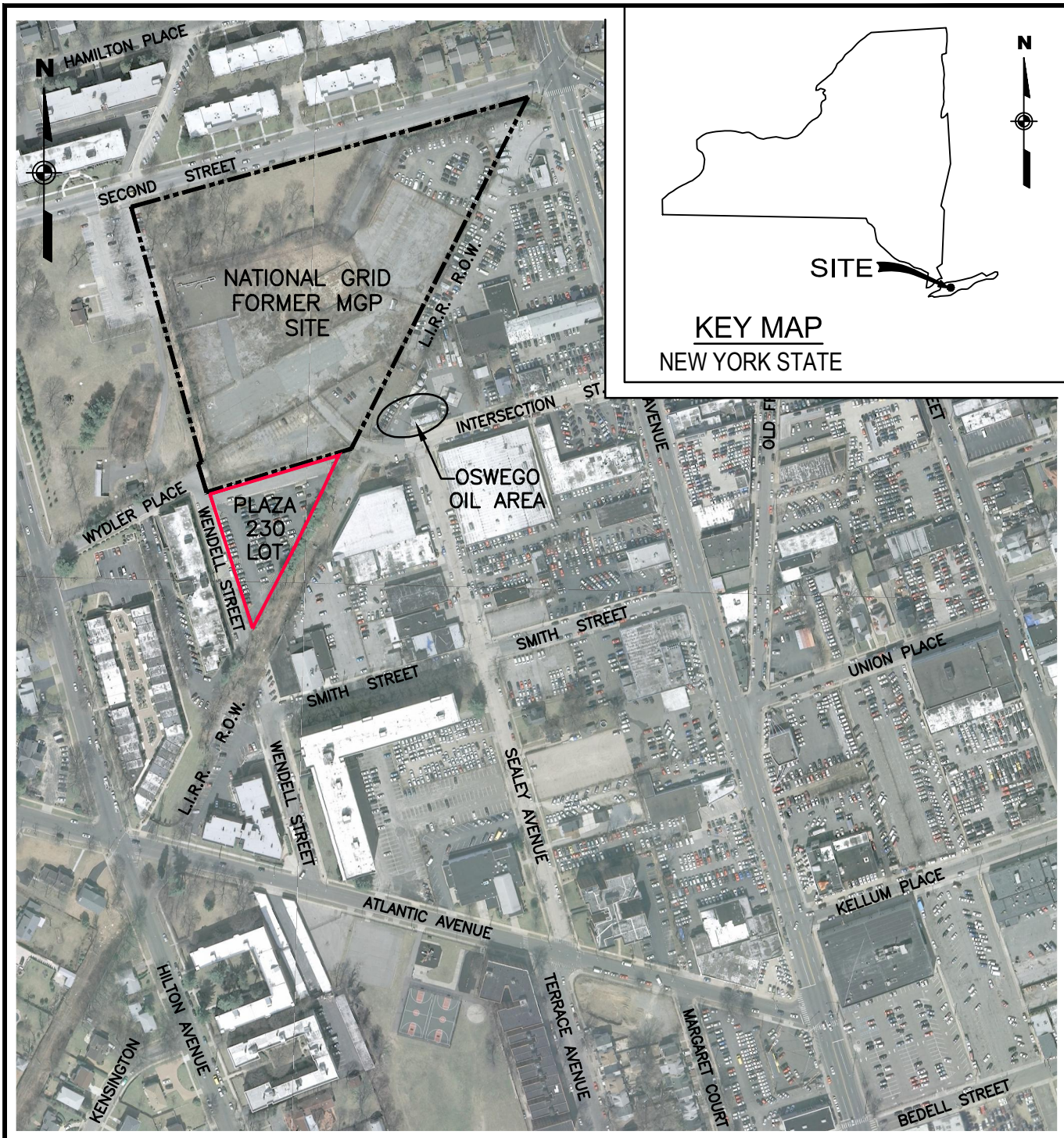
Drain Number	20-Slot Screen Length Above ISS Floor (Backfill Soil Zone) (feet)	Solid Riser Length Through ISS Floor (feet)	10-Slot Screen Length Below Floor (Native Soil Zone) (feet)
D1	13.8	22.4	5
D2	13.1	20.2	5
D3	11.4	21.1	5
D4	10.7	23.8	5
D5	11.9	21.2	5

NOTES:

(1) All materials are Schedule 40 PVC.

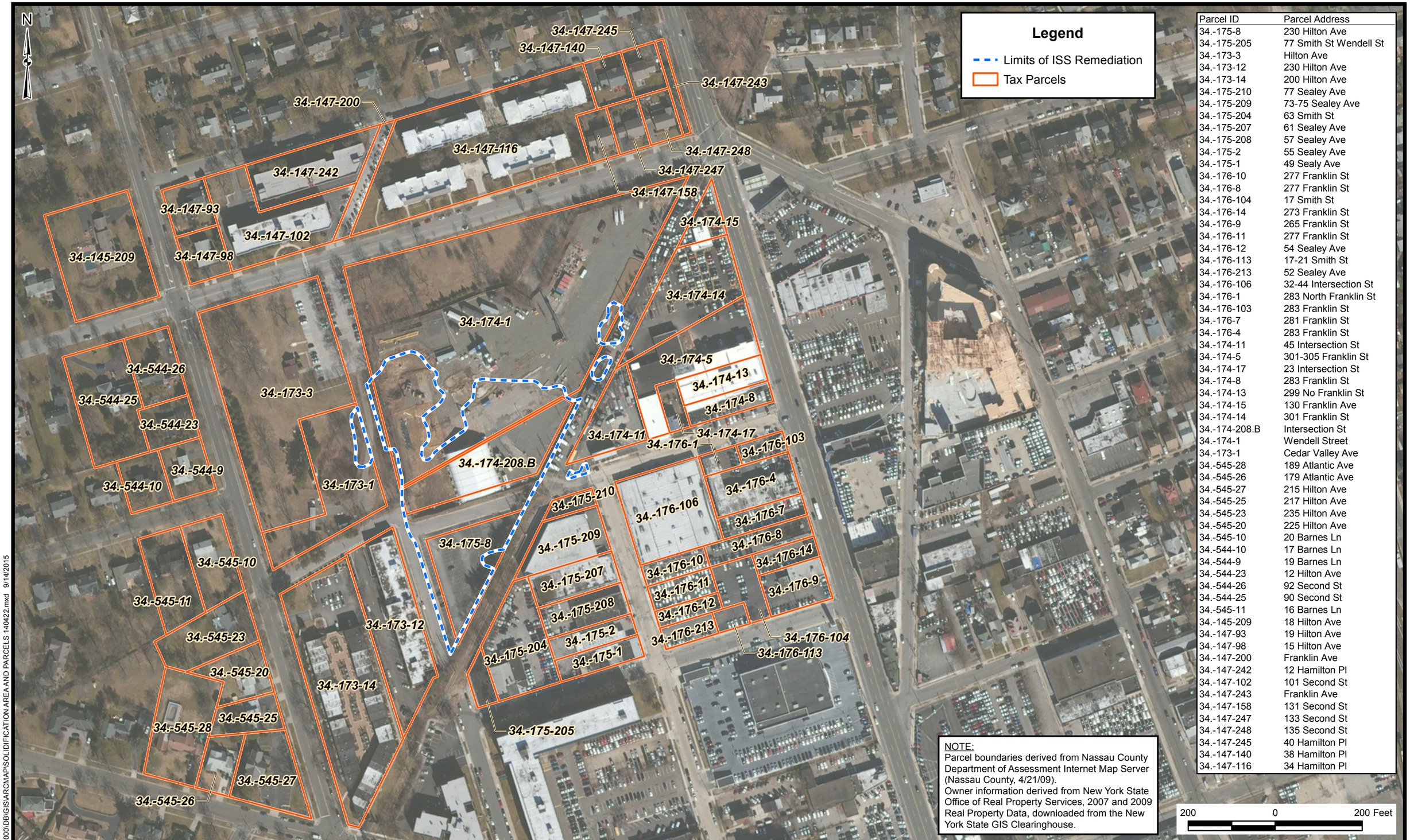
(2) Screens are continuous wrap.

FIGURES



IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	SITE LOCATION DATE: SEPT. 2015 — FIGURE 1
URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\ISS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 1.dwg, 8/4/15, 1:1, 1– RAL



Parcel ID	Parcel Address
34.-175-8	230 Hilton Ave
34.-175-205	77 Smith St Wendell St
34.-173-3	Hilton Ave
34.-173-12	230 Hilton Ave
34.-173-14	200 Hilton Ave
34.-175-210	77 Sealey Ave
34.-175-209	73-75 Sealey Ave
34.-175-204	63 Smith St
34.-175-207	61 Sealey Ave
34.-175-208	57 Sealey Ave
34.-175-2	55 Sealey Ave
34.-175-1	49 Sealy Ave
34.-176-10	277 Franklin St
34.-176-8	277 Franklin St
34.-176-104	17 Smith St
34.-176-14	273 Franklin St
34.-176-9	265 Franklin St
34.-176-11	277 Franklin St
34.-176-12	54 Sealey Ave
34.-176-113	17-21 Smith St
34.-176-213	52 Sealey Ave
34.-176-106	32-44 Intersection St
34.-176-1	283 North Franklin St
34.-176-103	283 Franklin St
34.-176-7	281 Franklin St
34.-176-4	283 Franklin St
34.-174-11	45 Intersection St
34.-174-5	301-305 Franklin St
34.-174-17	23 Intersection St
34.-174-8	283 Franklin St
34.-174-13	299 No Franklin St
34.-174-15	130 Franklin Ave
34.-174-14	301 Franklin St
34.-174-208.B	Intersection St
34.-174-1	Wendell Street
34.-173-1	Cedar Valley Ave
34.-545-28	189 Atlantic Ave
34.-545-26	179 Atlantic Ave
34.-545-27	215 Hilton Ave
34.-545-25	217 Hilton Ave
34.-545-23	235 Hilton Ave
34.-545-20	225 Hilton Ave
34.-545-10	20 Barnes Ln
34.-544-10	17 Barnes Ln
34.-544-9	19 Barnes Ln
34.-544-23	12 Hilton Ave
34.-544-26	92 Second St
34.-544-25	90 Second St
34.-545-11	16 Barnes Ln
34.-145-209	18 Hilton Ave
34.-147-93	19 Hilton Ave
34.-147-98	15 Hilton Ave
34.-147-200	Franklin Ave
34.-147-242	12 Hamilton Pl
34.-147-102	101 Second St
34.-147-243	Franklin Ave
34.-147-158	131 Second St
34.-147-247	133 Second St
34.-147-248	135 Second St
34.-147-245	40 Hamilton Pl
34.-147-140	38 Hamilton Pl
34.-147-116	34 Hamilton Pl

J:\Projects\11175065.00000\DB\GISVARCMAP\SOLIDIFICATION AREA AND PARCELS 140422.mxd 9/14/2015

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

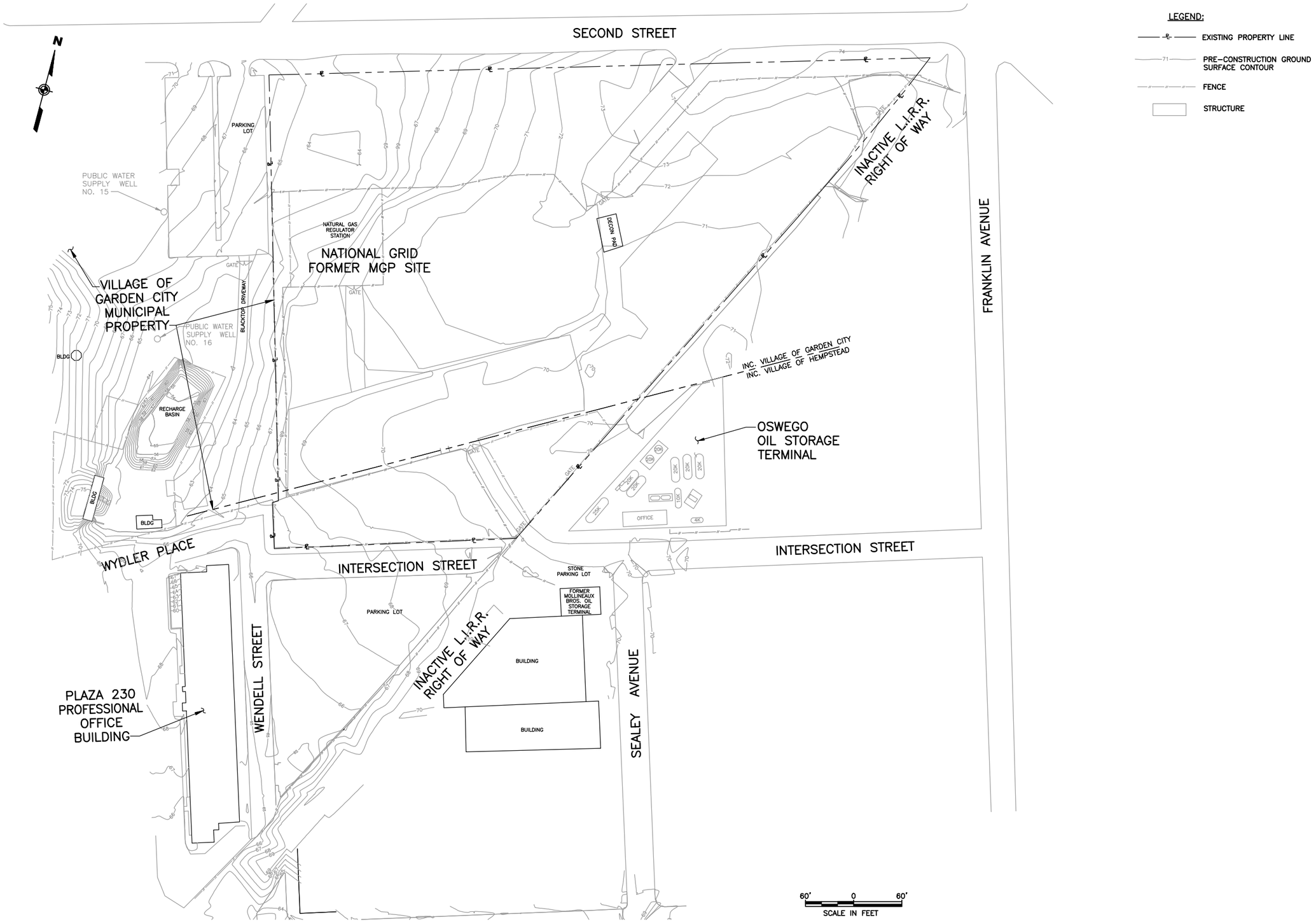
IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

PARCEL BOUNDARIES

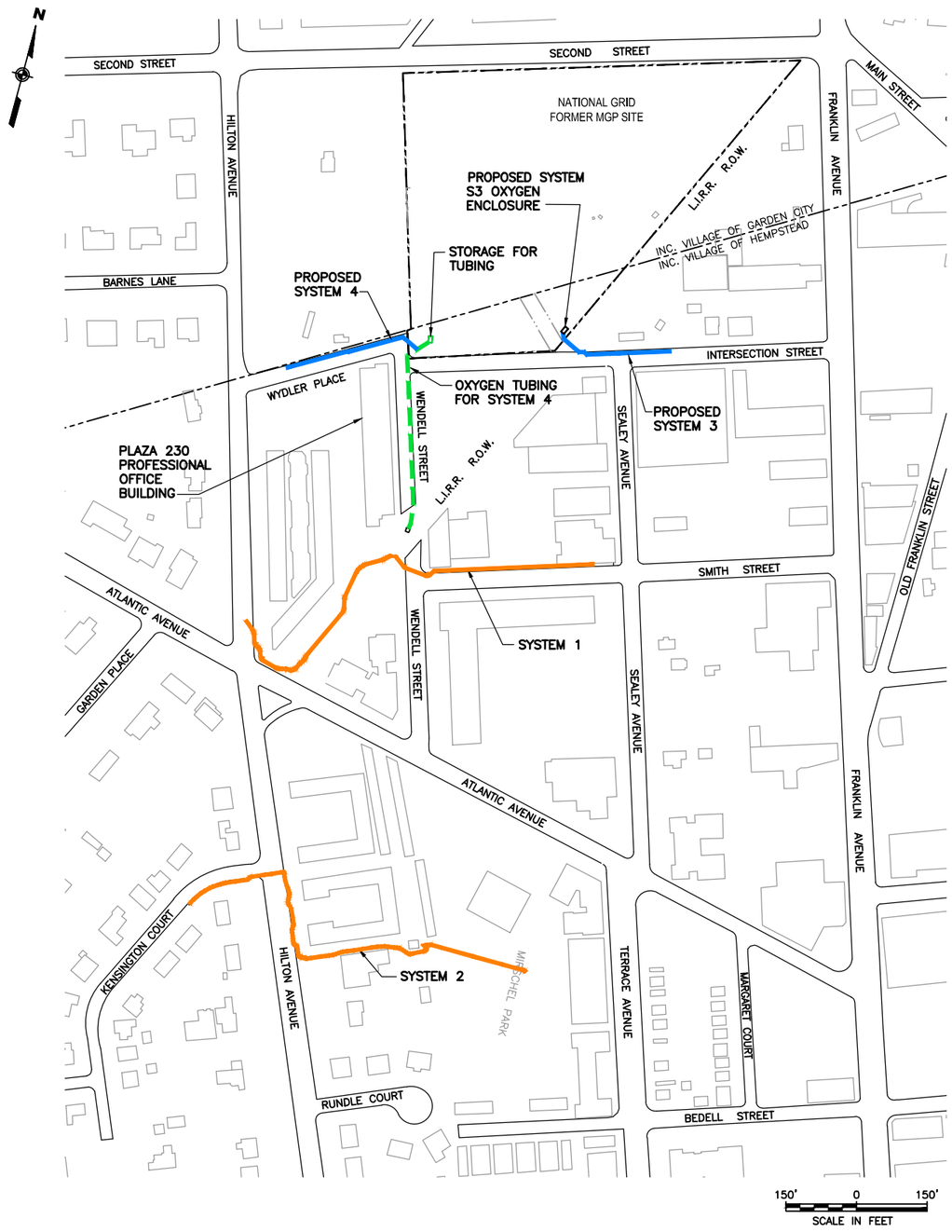
DATE: SEPT 2015

FIGURE 2



J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 3 & 4.dwg, FIGURE 3A, 1:2, 9/14/15 -1-RAL

URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY	IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	PROJECT SITE MAP DATE: SEPT. 2015 FIGURE 3



LEGEND:

- STRUCTURE
- EXISTING OXYGEN DELIVERY SYSTEM
- POTENTIAL FUTURE OXYGEN DELIVERY SYSTEM
- OXYGEN DELIVERY TUBING FOR OXYGEN DELIVERY SYSTEM 4

THIS FIGURE CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\ISS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 3 & 4.dwg, FIGURE 4, 1:2, 9/14/15 -1--RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

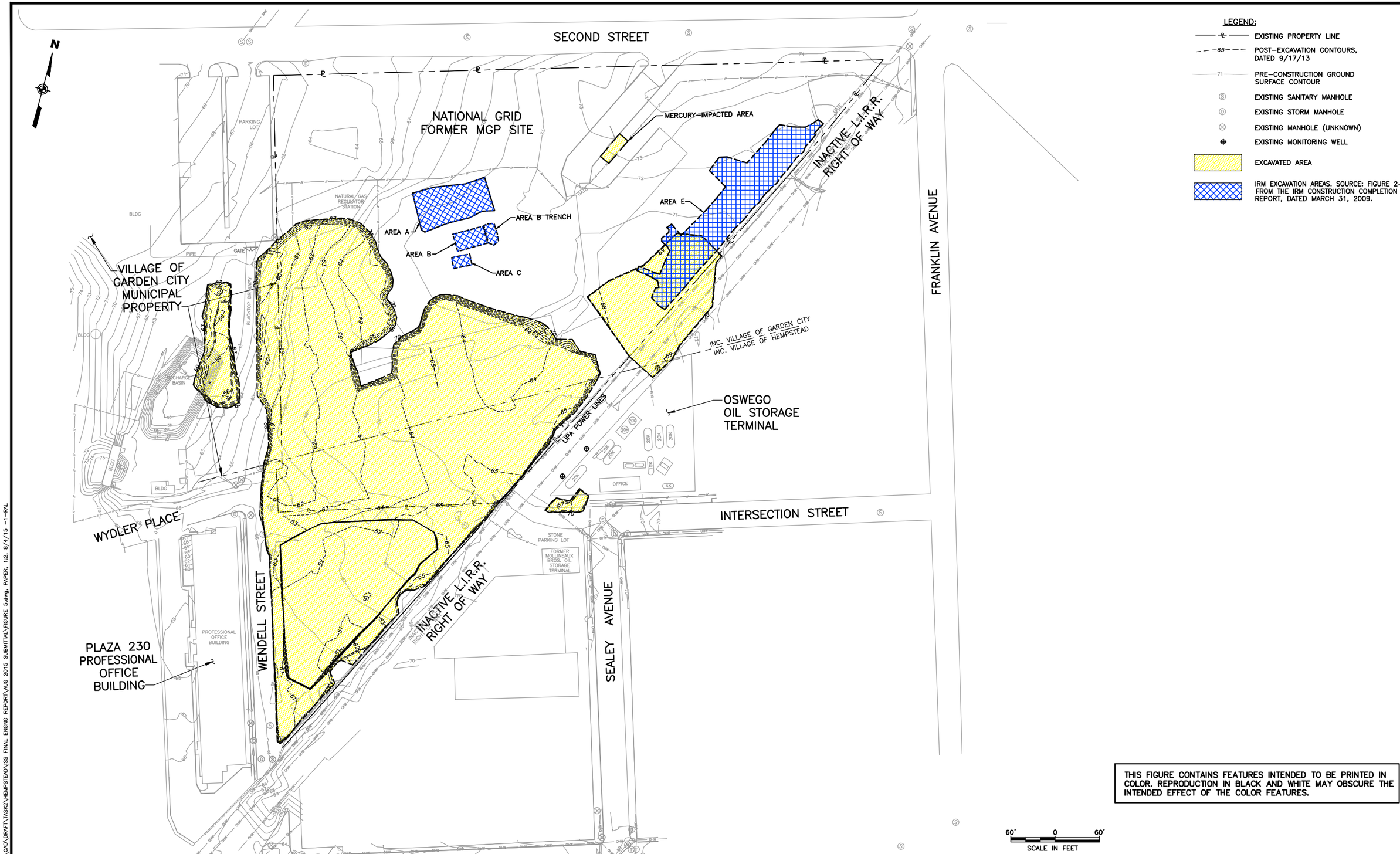
IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

GROUNDWATER OXYGENATION SYSTEMS

DATE: SEPT. 2015

FIGURE 4



LEGEND:

- EXISTING PROPERTY LINE
- POST-EXCAVATION CONTOURS, DATED 9/17/13
- PRE-CONSTRUCTION GROUND SURFACE CONTOUR
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING MANHOLE (UNKNOWN)
- EXISTING MONITORING WELL
- EXCAVATED AREA
- IRM EXCAVATION AREAS. SOURCE: FIGURE 2-2 FROM THE IRM CONSTRUCTION COMPLETION REPORT, DATED MARCH 31, 2009.

THIS FIGURE CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

J:\Projects\11175085.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 5.dwg, PAPER, 1:2, 8/4/15 -1-RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

EXCAVATION AREAS

DATE: SEPT. 2015

FIGURE 5

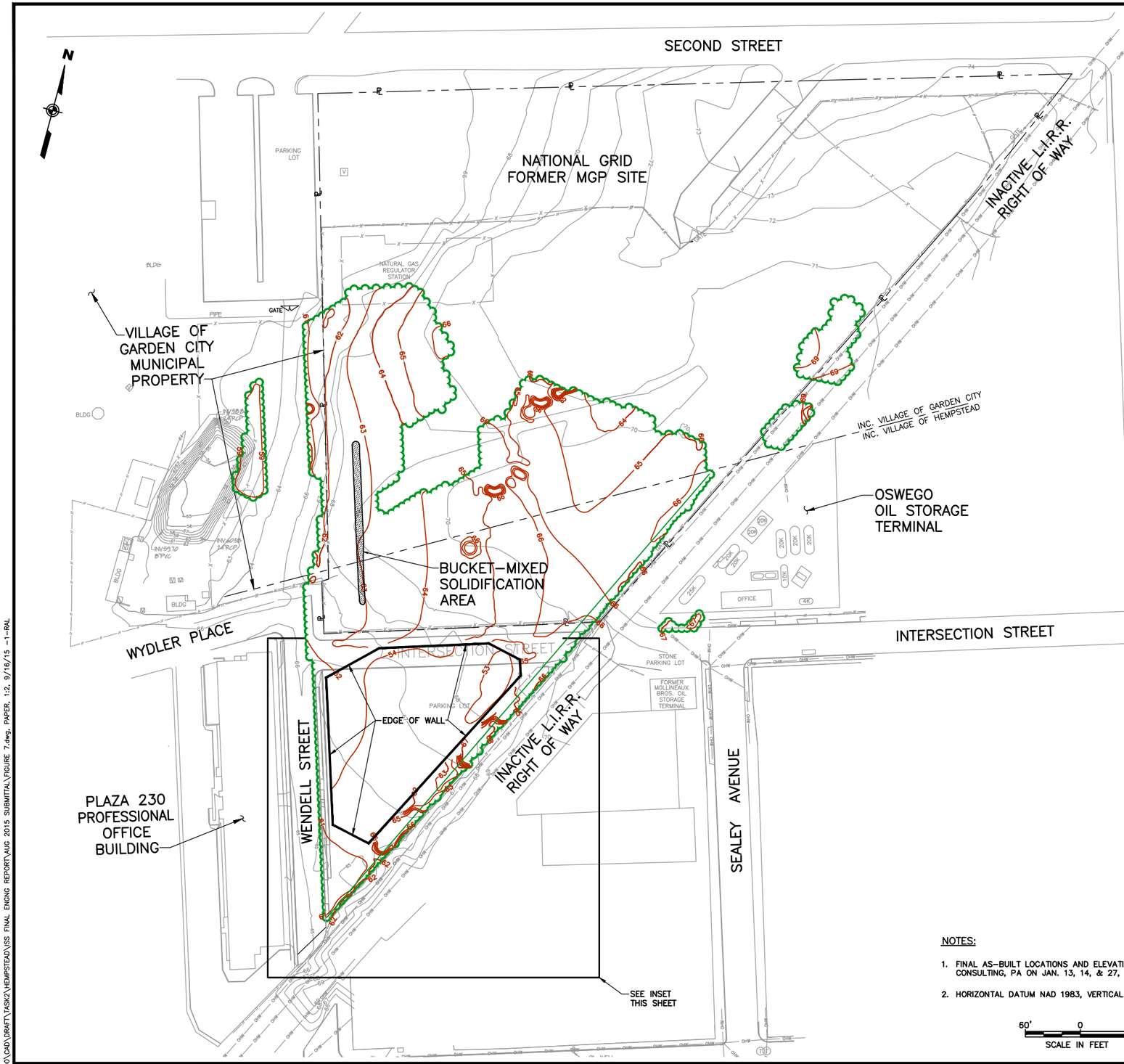
NOTES:

1. FINAL AS-BUILT LOCATIONS AND ELEVATIONS OBTAINED BY MASER CONSULTING, PA ON JAN. 13, 14, & 27, 2014.
2. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NAVD 1988.
3. FILL IS DEFINED AS BACKFILL PLACED ON TOP OF SOLIDIFIED SOIL INCLUDING FINAL COVER.

THIS DRAWING CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR AS SHOWN ON ORIGINAL CONTRACT DRAWINGS. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY	IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	FILL THICKNESS MAP DATE: SEPT. 2015 FIGURE 6

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 6.dwg, PAPER, 1:2, 8/4/15 -1-RAL



LEGEND:

- EXISTING FENCE
- CONSTRUCTED FENCE
- 66 — TOP OF ISS CONTOUR (FT. NAVD 1988)
- 71 — PRE-CONSTRUCTION GROUND SURFACE CONTOUR
- APPROXIMATE PROPERTY LINE
- LOCATION OF EXISTING STRUCTURE
- LIMIT OF MGP SOURCE MATERIAL TREATMENT
- PROPOSED DRY WELL
- PROPOSED RELIEF DRAIN
- CB #3 — STORM INLET
- VRD D2 — VERTICAL RELIEF DRAIN
- DW #4 — DRY WELL

INSET

40' 0 40'

SCALE IN FEET

NOTES:

1. FINAL AS-BUILT LOCATIONS AND ELEVATIONS OBTAINED BY MASER CONSULTING, PA ON JAN. 13, 14, & 27, 2014.
2. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NAVD 1988.

60' 0 60'

SCALE IN FEET

THIS DRAWING CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR AS SHOWN ON ORIGINAL CONTRACT DRAWINGS. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\ISS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 7.dwg, PAPER, 1:2, 9/16/15 --1--RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

TOP OF ISS CONTOUR MAP

DATE: SEPT. 2015

FIGURE 7

SECOND STREET

NATIONAL GRID
FORMER MGP SITE

INACTIVE L.I.R.R. RIGHT OF WAY

FRANKLIN AVENUE

VILLAGE OF GARDEN CITY MUNICIPAL PROPERTY

INC. VILLAGE OF GARDEN CITY
INC. VILLAGE OF HEMPSTEAD

OSWEGO OIL STORAGE TERMINAL

WYDLER PLACE

INTERSECTION STREET

WENDELL STREET

PLAZA 230 PROFESSIONAL OFFICE BUILDING

SEALEY AVENUE

FORMER MOLLINEAUX BROS. OIL STORAGE TERMINAL

STONE PARKING LOT

PARKING LOT

NATURAL GAS REGULATOR STATION

OFFICE

LEGEND:

- EXISTING FENCE
- CONSTRUCTED FENCE
- 35 — BOTTOM OF ISS CONTOUR (FT. NAVD 1988)
- 71 — PRE-CONSTRUCTION GROUND SURFACE CONTOUR
- PROPERTY LINE — APPROXIMATE PROPERTY LINE
- LOCATION OF EXISTING STRUCTURE
- LIMIT OF MGP SOURCE MATERIAL TREATMENT
- PROPOSED DRY WELL
- PROPOSED RELIEF DRAIN

NOTES:

1. FINAL AS-BUILT LOCATIONS AND ELEVATIONS OBTAINED BY MASER CONSULTING, PA ON JAN. 13, 14, & 27, 2014.
2. HORIZONTAL DATUM NAD 1983, VERTICAL DATUM NAVD 1988.

THIS DRAWING CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR AS SHOWN ON ORIGINAL CONTRACT DRAWINGS. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

60' 0 60'
SCALE IN FEET

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\ISS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 8.dwg, PAPER, 1:2, 9/16/15 --1--RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

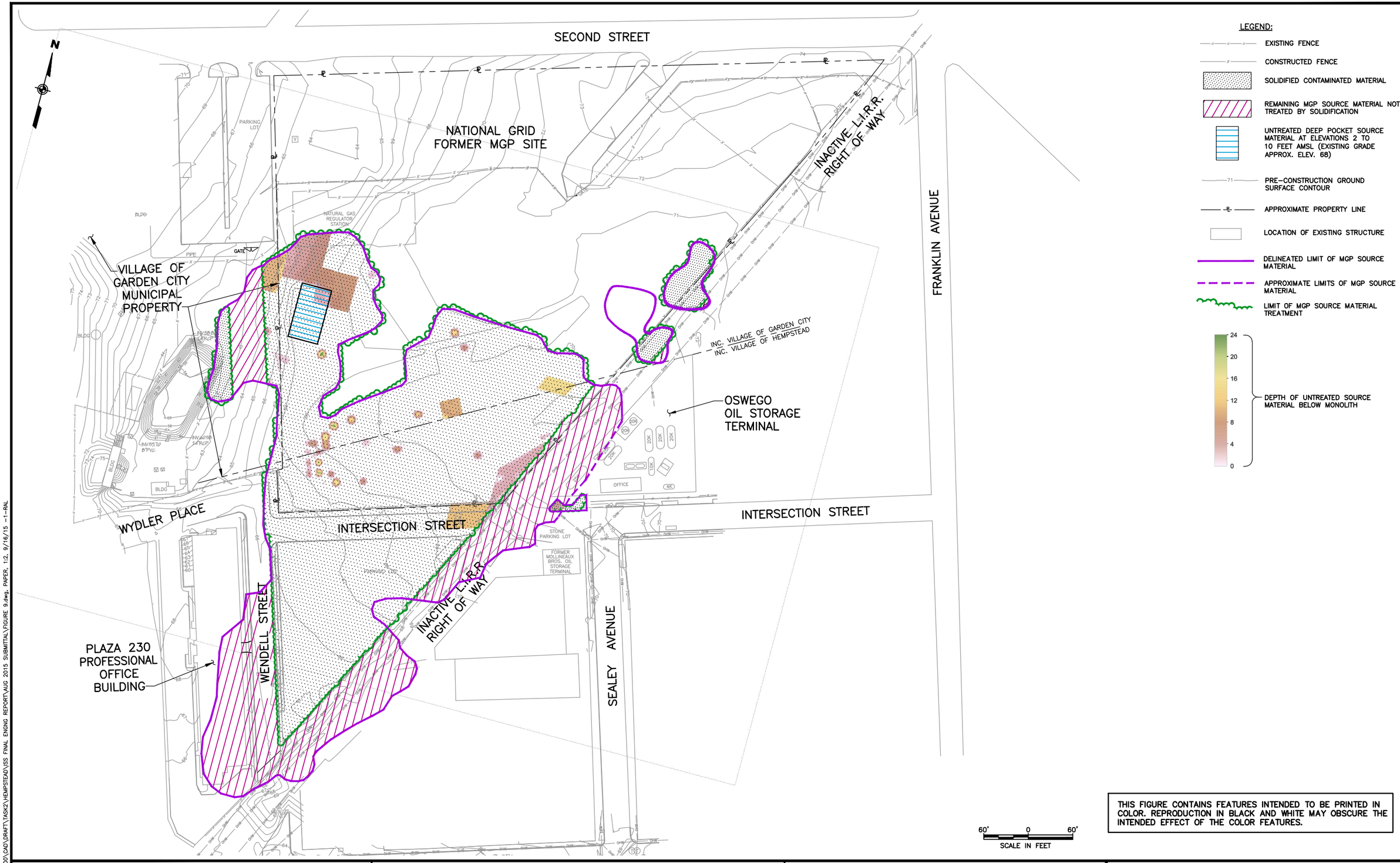
IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

BOTTOM OF ISS CONTOUR MAP

DATE: SEPT. 2015

FIGURE 8



THIS FIGURE CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 9.dwg, PAPER, 1:2, 9/16/15 -1-RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

REMAINING MGP SOURCE MATERIAL

DATE: SEPT. 2015

FIGURE 9

SECOND STREET

NATIONAL GRID
FORMER MGP SITE

INACTIVE L.I.R.R. RIGHT OF WAY

FRANKLIN AVENUE

PARKING LOT

ACCESS ROAD

STORAGE SILO PAD

VILLAGE OF GARDEN CITY MUNICIPAL PROPERTY

SEE SITE RESTORATION COVER SECTION, FIGURE 11

MEDIAN

SWALE

NEW PAVEMENT EDGE

INC. VILLAGE OF GARDEN CITY
INC. VILLAGE OF HEMPSTEAD

ACCESS ROAD

OSWEGO OIL STORAGE TERMINAL

WYDLER PLACE

INTERSECTION STREET

WENDELL STREET

INACTIVE L.I.R.R. RIGHT OF WAY

STONE PARKING LOT

FORMER MOLLINEAUX BROS. OIL STORAGE TERMINAL

SEALEY AVENUE

INTERSECTION STREET

PLAZA 230 PROFESSIONAL OFFICE BUILDING

SEE INSET THIS SHEET

LEGEND:

- EXISTING FENCE
- CONSTRUCTED FENCE
- SELECT STONE COVER
- LANDSCAPED AREA
- CONCRETE
- ROADWAY PAVEMENT
- FORMER MGP PROPERTY AND VGC MUNICIPAL PROPERTY ASPHALT PAVEMENT
- PARKING LOT ASPHALT
- PAINTED PARKING LOT ASPHALT
- GRAVEL ISLAND
- APPROXIMATE PROPERTY LINE
- LOCATION OF EXISTING STRUCTURE
- LIMIT OF MGP SOURCE MATERIAL TREATMENT
- CB #3 STORM INLET
- VRD D2 VERTICAL RELIEF DRAIN
- DW #4 DRY WELL

THIS FIGURE CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

60' 0 60'
SCALE IN FEET

INTERSECTION STREET

CB #6 CB #2

DW #1

DW #2

DW #3

12" HDPE PIPE (TYP.)

DW #4

VRD D1

VRD D3

VRD D2

PARKING LOT

DW #9

VRD D5

DW #8

DW #7

DW #6

12" HDPE PIPE (TYP.)

VRD D4

DW #5

CB #1

CB #3

WENDELL STREET

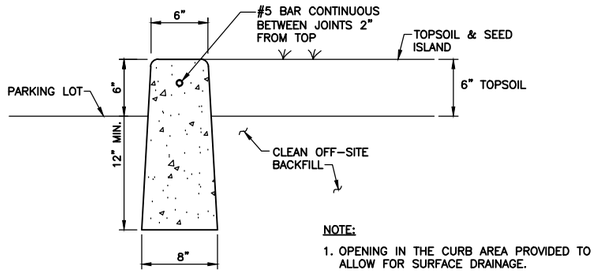
INACTIVE L.I.R.R. RIGHT OF WAY

INSET

40' 0 40'
SCALE IN FEET

URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY	IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	SITE -WIDE COVER PLAN DATE: SEPT. 2015 FIGURE 10

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 10.dwg, PAPER, 1:2, 9/16/15 --RAL

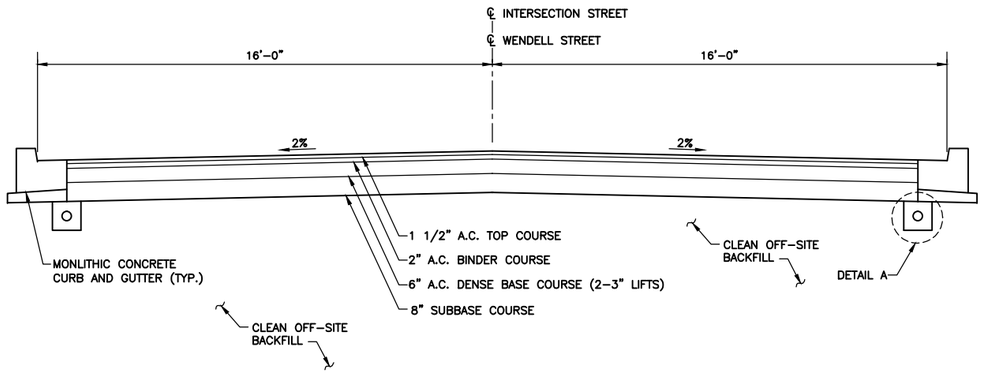


NOTE:

1. OPENING IN THE CURB AREA PROVIDED TO ALLOW FOR SURFACE DRAINAGE.

PARKING LOT CURB ISLAND

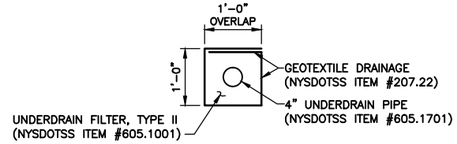
NOT TO SCALE



RESTORED ROADWAY AREA

0' 3' 6'

SCALE: 3/8"= 1'-0"

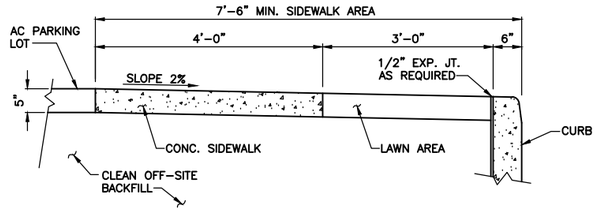


DETAIL A

(CONNECT TO STORM DRAIN SYSTEM)

0' 1' 2'

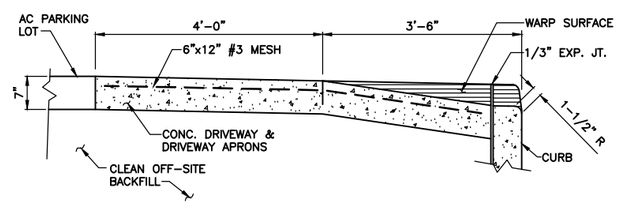
SCALE: 3/4"= 1'-0"



CONCRETE SIDEWALK DETAIL

0' 1' 2'

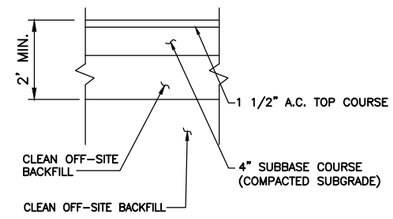
SCALE: 3/4"= 1'-0"



CONCRETE DRIVEWAY & DRIVEWAY APRONS DETAIL

0' 1' 2'

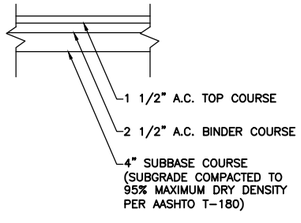
SCALE: 3/4"= 1'-0"



FORMER MGP PROPERTY AND VGC MUNICIPAL PROPERTY PAVEMENT SECTION

0' 1' 2'

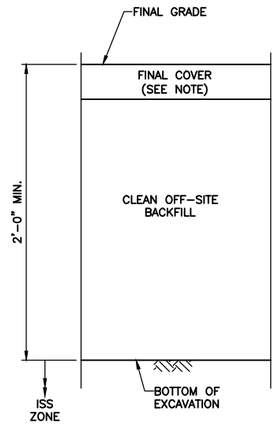
SCALE: 3/4"= 1'-0"



OSWEGO OIL STORAGE TERMINAL AREA AND PLAZA 230 PARKING LOT PAVEMENT SECTION

0' 1' 2'

SCALE: 3/4"= 1'-0"



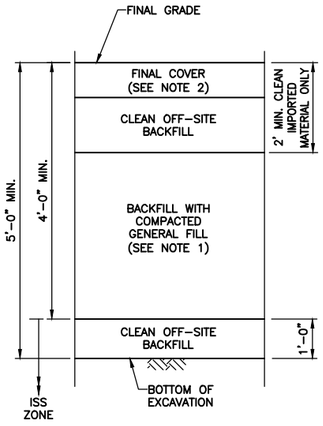
BACKFILL DETAIL OUTSIDE FORMER MGP PROPERTY

NOT TO SCALE

NOTE:

SELECTION OF FINAL COVER MATERIAL AS SHOWN ON SITE RESTORATION COVER SECTION, FIGURE 11:

- MIN. 6" TOPSOIL, VEGETATED; OR
- MIN 4" SELECT STONE COVER; OR
- ASPHALT, MIN. THICKNESS AS SHOWN THIS SHEET; OR
- 6" DECORATIVE GRAVEL AT 2 GRAVEL ISLANDS.



BACKFILL DETAIL FORMER MGP PROPERTY

NOT TO SCALE

NOTES:

1. ON-SITE EXCAVATED SOIL WAS USED AS BACKFILL BUT NO CLOSER THAN TWO (2) FEET FROM FINAL GRADE, PROVIDED IT WAS NOT CLASSIFIED AS SOURCE MATERIAL.
2. SELECTION OF FINAL COVER MATERIAL AS SHOWN ON SITE RESTORATION COVER SECTION, FIGURE 11:
   - MIN. 6" TOPSOIL, VEGETATED; OR
   - MIN 4" SELECT STONE COVER; OR
   - ASPHALT, MIN. THICKNESS AS SHOWN THIS SHEET

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

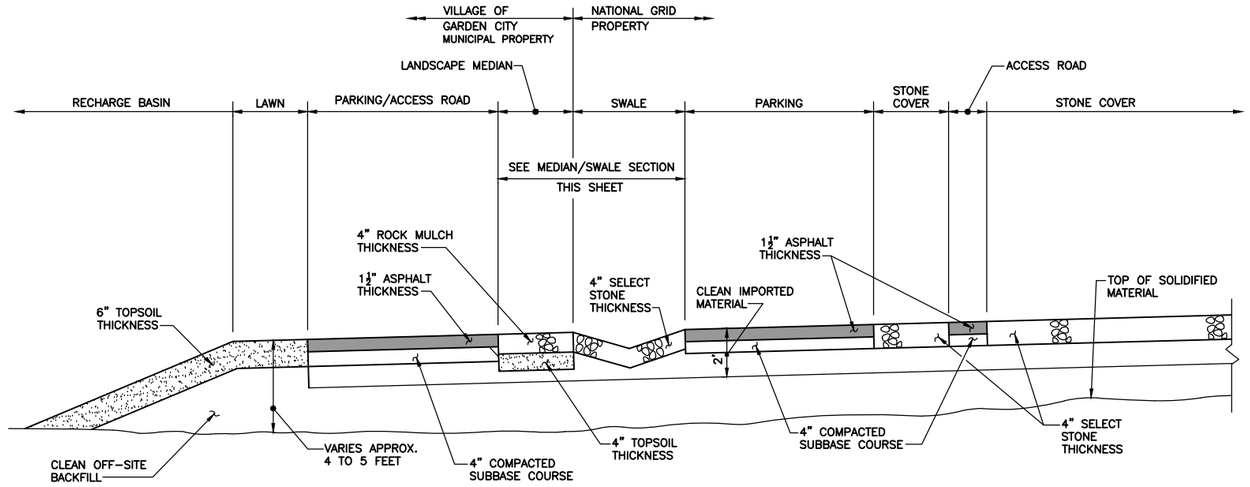
IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

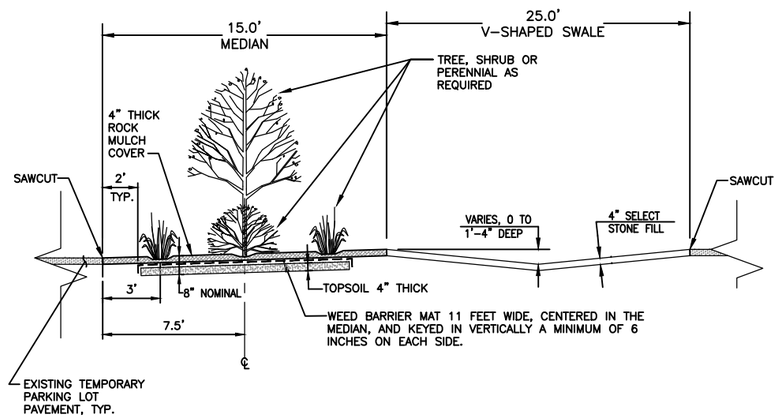
TYPICAL COVER DETAILS
(SHEET 1 OF 2)

DATE: SEPT. 2015

FIGURE 11



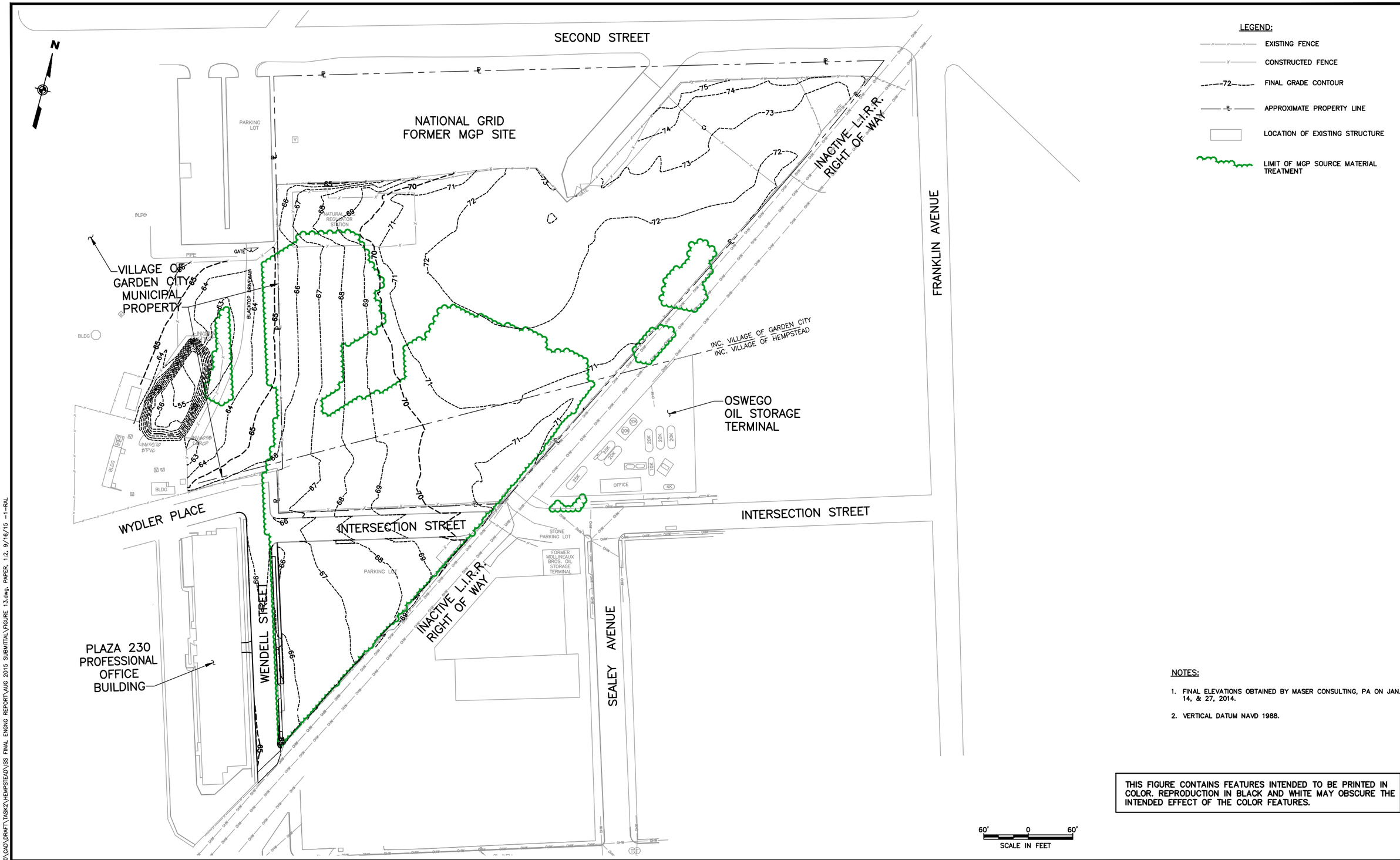
SITE RESTORATION COVER SECTION
(FROM FIGURE 9)
NOT TO SCALE



MEDIAN/SWALE SECTION
(FROM SITE RESTORATION COVER SECTION, THIS SHEET)
NOT TO SCALE

URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY	IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	TYPICAL COVER DETAILS (SHEET 2 OF 2) DATE: SEPT. 2015 FIGURE 12

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 11 & 12.dwg, FIGURE 12, 1:2, 9/16/15 -1-RAL



NOTES:

1. FINAL ELEVATIONS OBTAINED BY MASER CONSULTING, PA ON JAN. 13, 14, & 27, 2014.
2. VERTICAL DATUM NAVD 1988.

THIS FIGURE CONTAINS FEATURES INTENDED TO BE PRINTED IN COLOR. REPRODUCTION IN BLACK AND WHITE MAY OBSCURE THE INTENDED EFFECT OF THE COLOR FEATURES.

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\SS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 13.dwg, PAPER, 1:2, 9/16/15 --I--RAL

URS Corporation

NATIONAL GRID
HEMPSTEAD INTERSECTION STREET
FORMER MGP SITE
HEMPSTEAD/GARDEN CITY, NY

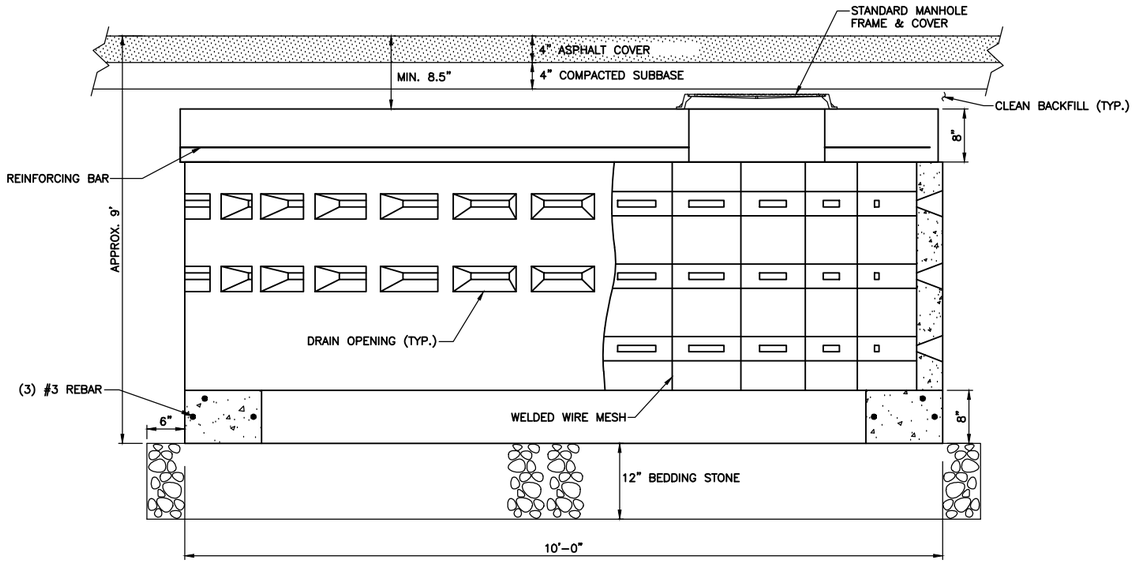
IN-SITU SOLIDIFICATION

FINAL ENGINEERING REPORT

CONTOUR MAP OF FINAL GRADES

DATE: SEPT. 2015

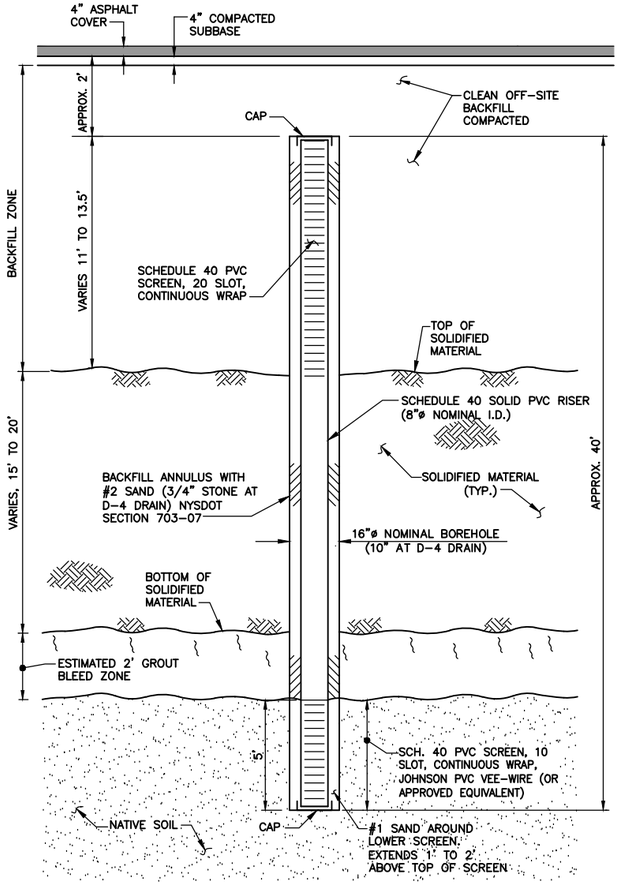
FIGURE 13



DRY WELL AT POB PARKING LOT DETAIL
NOT TO SCALE

NOTES:

1. CONCRETE 4,000 PSI @ 28 DAYS.
2. REBAR ASTM A-615 GRADE 60.
3. WELDED WIRE FABRIC ASTM A-185.



TYPICAL VERTICAL RELIEF DRAIN DETAIL
NOT TO SCALE

J:\Projects\11175065.00000\CAD\DRAFT\TASK2\HEMPSTEAD\ISS FINAL ENGNG REPORT\AUG 2015 SUBMITTAL\FIGURE 14.dwg, PAPER (2), 1:2, 9/16/15 -1-RAL

URS Corporation	NATIONAL GRID HEMPSTEAD INTERSECTION STREET FORMER MGP SITE HEMPSTEAD/GARDEN CITY, NY	IN-SITU SOLIDIFICATION FINAL ENGINEERING REPORT	VERTICAL RELIEF DRAIN AND DRY WELL DETAILS DATE: SEPT. 2015 — FIGURE 14

APPENDICES