Former Kent Avenue Generating Station

KINGS COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: V00732-2

Prepared for:
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue
Long Island City, New York

Prepared by:
Shaw Environmental & Infrastructure Engineering of New York, P.C.
1633 Broadway, 30th Floor
New York, NY 10019
(212) 290-6000

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

FEBRUARY 2015

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

AAR	Alternatives Analysis Report
ACM	Asbestos-containing material
amsl	Above mean sea level
AOC	Area of Concern
bgs	Below ground surface
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
COC	Contaminants of concern
Con Edison	Consolidated Edison Company of New York, Inc.
DUSR	Data Usability Summary Report
DCR	Declaration of Covenants and Restrictions
EC	Engineering Controls
ECL	Environmental Conservation Law
EWP	Excavation Work Plan
ft	Feet
HASP	Health and Safety Plan
IC	Institutional Controls
IRM	Interim Remedial Measure
MGP	Manufactured Gas Plant
NAVD	North American Vertical Datum of 1988
NGVD	National Geodetic Vertical Datum of 1929
NYCDOH	New York City Department of Health
NYCRR	New York Code, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation

NYSDOH	New York State Department of Health
PCBs	Polychlorinated biphenyls
PAHs	Polycyclic Aromatic Hydrocarbons
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
SCO	Soil Cleanup Objective
sf	Square feet
Shaw	Shaw Environmental & Infrastructure Engineering of New York, P.C.
SMP	Site Management Plan
SVI	Soil vapor intrusion
SVOC	Semivolatile Organic Compound
TOGS	NYSDEC Technical & Operation Guidance Series 1.1.1, Ambient Water Quality Standards and Guidance
USEPA	U. S. Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the Former Kent Avenue Generating Station (hereinafter referred to as the "Site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Voluntary Cleanup Agreement (VCA) #D2-0003-02-08, Amendment #2, Site No. V-00732-2, which was executed on July 26, 2002 and last amended on July 16, 2010.

1.1.1 General

Consolidated Edison Company of New York, Inc. (Con Edison) entered into a VCA with the NYSDEC to remediate a 2.6 acre property located in Brooklyn, Kings County, New York (**Figure 1**). This VCA required the Remedial Party, Con Edison, to investigate and remediate contaminated media at the Site. A figure showing the site location and boundaries of this 2.6-acre site is provided in **Figure 2**. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Declaration of Covenants and Restrictions (DCR) presented in **Appendix A**.

After completion of the remedial work described in the Remedial Action Work Plan (RAWP) and the Alternatives Analysis Report (AAR), some contamination was left in the subsurface at this site, which is hereafter referred to as "remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the Site until the DCR is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Shaw Environmental & Infrastructure Engineering of New York, P.C. (Shaw), on behalf of Con Edison, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the DCR for the Site.

1.1.2 Purpose

The Site contains contamination left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. A DCR recorded with the Kings County Clerk will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the DCR for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the DCR and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; and (2) a Monitoring Plan for implementation of Site Monitoring.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the DCR. Failure to properly implement the SMP is a violation of the

DCR , which is grounds for revocation of the Release and Covenant Not to Sue (RCNS);

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 New York Code, Rules and Regulations (NYCRR) Part 375 and the VCA (Index #D2-003-02-08; Site No. V00732-2) for the site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the DCR for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Site is located in Brooklyn, Kings County, New York and is identified as Block 2023 and Lot 10 on the Tax Map of the Borough of Brooklyn/Kings County. The site is an approximately 2.6-acre area bounded by Division Avenue to the north, a former manufactured gas plant (MGP) site that is being addressed by National Grid to the south, Kent Avenue to the east, and Wallabout Channel to the west (see **Figure 2**). The boundaries of the Site are more fully described in **Appendix B** – Metes and Bounds.

1.2.2 Site History

According to maps found in the technical literature[1], the Site location appears to be one that was landfilled sometime between 1844 and 1900. Landfills in New York City during this time period were typically composed of sediments consisting of coal ash, cinders, slag, brick, wood, and cement. An 1887 Sanborn fire insurance map in the Phase I Environmental Site Investigation Report of the Site[2] showed that the Site was occupied by the following:

---

[1] Landfills in New York City: 1844-1994, Walsh, D.C., and LaFleur, R.G., GROUND WATER, v. 33, No. 4, 1995.

[2] Holzmacher, McLendon & Murrell, P.C., *Phase I Environmental Site Assessment, Kent Avenue Power Plant, 500 Kent Avenue, Brooklyn*, New York, September 9, 1999.

- Moller, Sierek & Company (a sugar refinery located in the northern 1/3 of the Site);
- Knickerbocker Ice Company (located in the center 1/3 of the Site);
- C.I. Totten's Coal Yard (located in the southwest and central portions of the southern 1/3 third of the Site); and
- Wallabout Oil Works (a petroleum oil, naphtha, machinery oil, and gasoline refinery located in the southeast portion of the southern 1/3 of the Site, as well as on the all of the property immediately south of the Site).

The 1904 Sanborn fire insurance map shows that the Brooklyn Rapid Transit Company and Brooklyn City Railroad Power Company occupied the northern ½ of the Site and the southern ½ was vacant, but noted for future use by Brooklyn Rapid Transit Company. The property to the south was owned by Brooklyn Union Gas, Nassau Branch which operated a manufactured gas plant, including a gas oil tank immediately southwest of the Site and a purifying house immediately south and southeast of the Site.

By 1906, Brooklyn Rapid Transit Corporation had constructed a boiler house building on the southern portion of the Site for a power plant. In 1936 the original boiler house building was demolished, and the plant footprint was expanded northward within the Site. Based on later site investigations and remedial activity, it appears that the original boiler house building was demolished into the basement of the structure, approximately eight to ten feet (ft) below ground surface (bgs). Con Edison had acquired the property by 1959. Prior to 2009, Con Edison had ceased power generating operations at the Site, and in 2009 demolished the remaining power plant structures. After the demolition of the buildings, the basement was backfilled with stone and the Site was left generally flat.

1.2.3 Geologic Conditions

The Site is located in Kings County on the northwestern shore of Long Island. The Site is generally flat and lies at an elevation of approximately 10 feet (ft) above mean sea level (amsl). The geology of Long Island consists of varying thicknesses of Pleistocene-age glacial till, outwash sediments (consisting of fine to coarse grained sand with interstitial lenses of gravel and silt), and marine deposits, overlying a sloping bedrock surface.

Bedrock elevation in the Site vicinity is approximately -100 ft NGVD (National Geodetic Vertical Datum of 1929).[3] During 2004-2005 drilling activities conducted by others associated with the former Nassau Gas Works MGP at locations west and southwest of the southern boundary of the Site, bedrock was encountered between 103 and 108 ft below ground surface (bgs) (-94.04 and -97.34 ft NAVD (North American Vertical Datum of 1988)).[4]

The site-specific stratigraphy consists of 18 to 23 feet of fill material. Some of the fill material is from the demolition of former on-site buildings (i.e., brick, concrete, steel, piping, timber, etc). Most of the fill, as mentioned in Section 1.2.2, consists of coal ash, cinders, slag, brick, wood, and cement that were used to "make" the land on which the Site is located. Below the fill are alluvial deposits of gray to brown silty sands to medium sand to a depth of at least 50 ft bgs (deepest soil boring was 50 ft bgs).

Depth to groundwater is approximately 8 ft bgs and is likely influenced by the tides in Wallabout Channel. Based on the topography of the area (higher elevations to the east of the Site), groundwater is inferred to flow to the west (towards Wallabout Channel).

1.3 SUMMARY OF SITE INVESTIGATIONS FINDINGS

1.3.1 Site Investigations

Con Edison has completed three Site investigations to characterize the site environmental conditions. The last two Site investigations were approved by the NYSDEC pursuant to the VCA. The following reports and work plans were submitted to the NYSDEC in connection with the Site investigations:

- *Site Investigation Summary Report: Consolidated Edison Former Kent Avenue Generating Station*, Shaw, April 2007;
- *Pre-Design Investigation Work Plan: Former Kent Avenue Generating Station*, Shaw, April, 2009;

[3] Buxton, H. T., J. Soren, A. Posner, and P. K. Shernoff, 1981. *Reconnaissance of the Ground-Water Resources of Kings and Queens Counties, New York*. United States Geological Survey Open-File Report 81-1186.
[4] GEI Consultants, *Final Remedial Investigation Report, Nassau Gas Works, Kent Avenue and Clymer Street, Brooklyn, New York*. October 2007, p. 36.

- *Pre-Design Investigation Report: Former Kent Avenue Generating Station*, Shaw, June, 2010;
- *Pre-Interim Remedial Measure (IRM) Investigation Work Plan: Former Kent Avenue Generating Station*, Shaw, April, 2012; and
- *Pre- IRM Investigation Summary Report: Former Kent Avenue Generating Station*, Shaw, August, 2012.

Additionally, groundwater from the single remaining monitoring well was monitored quarterly and reported to the NYSDEC.

The three Site investigations reports provided documentation and a description of the procedures and findings of the Site investigation activities. The Site investigations, in general, consisted of sampling and analyses of soil and groundwater within the Site.

The compounds detected in the soil and groundwater at the Site includes volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals with asbestos-containing material (ACM) detected in the soil. Many of the metals and SVOCs detected in the on-Site soil and groundwater typically occur in urban fill, which forms the uppermost soil layer of the Site. The VOCs were associated with petroleum hot spots that were remediated (i.e., soil removal and disposal off of the Site) during the 2006 Site investigation. The chemical and physical data presented in the remedial investigation reports are summarized below according to media.

Urban Fill – The uppermost soils of the Site (from the ground surface to approximately 11 ft bgs) consisted of urban fill materials that were impacted by the demolition of former buildings on the Site. SVOCs and metals were detected in soil samples at concentrations that exceed the 6 NYCRR Part 375-6.8(b) Restricted Residential Soil Cleanup Objectives (SCOs). ACM was detected in soil samples in excess of the one percent (1%) asbestos content threshold for ACM as established in Title 15, Chapter 1 of the Rules of the City of New York (Title 15, Chapter 1).

Subsurface Soil – Four SVOCs and one metal were detected in two deeper (30 to 35 ft bgs) soil samples at concentrations that exceed the NYSDEC Restricted Residential SCOs. The sample in which all four SVOCs were detected was collected from the southwest portion of the Site. The four SVOCs are Polycyclic Aromatic Hydrocarbons (PAHs), which occur in oil, coal, and tar deposits, and are produced as byproducts of fuel burning.

Groundwater – Initial groundwater sample results from the on-Site wells showed exceedances of the NYSDEC Technical & Operation Guidance Series 1.1.1, Ambient Water Quality Standards and Guidance (TOGS) for VOCs, SVOCs and metals. The only VOC and SVOC exceedances were the sample from MW-2 in the southwest portion of the Site. Long-term monitoring of VOCs in MW-2 groundwater samples showed several VOCs were detected at the beginning of the monitoring program. However, the detected concentrations decreased over time, and no VOCs were detected by the end of the monitoring program. Long-term monitoring of SVOCs showed multiple detections in each sample during the monitoring program. Nine of 16 SVOCs reported during the quarterly program had at least two exceedances of the corresponding TOGS criteria. Unlike the VOCs, the concentrations had some variance, but did not decrease with time.

Underground Storage Tank - A geophysical investigation of the Site during Shaw's 2006 investigation delineated an elongated anomaly that coincided with a buried 1,500 gallon fuel oil tank located along the northern portion of the property near Division Avenue. The underground storage tank (UST) had been identified on a 1961 Insurance Map for the Kent Avenue Generating Station. The location of the 1,500-gallon UST was confirmed as part of a geophysical survey during Shaw's 2010 Pre-Design Investigation.

1.3.2 National Grid Investigation of Nassau Gas Works Manufactured Gas Plant

In 2014 National Grid, in compliance with a Consent Order (W2-1090-06-06) with the NYSDEC, conducted an investigation within the southern portion of the Site to determine whether MGP contamination has migrated from the former Nassau Gas Works MGP located immediately south of the Site. The investigation was performed based on the NYSDEC-approved *Revised Supplemental Remedial Investigation Work Plan, Former Kent Avenue Generating Station [Off-Site Area], Nassau Gas Works Manufactured Gas Plant (MGP) Site*, dated March 6, 2009. Beginning May 8, 2014, a total of six soil borings were advanced up to 105 ft bgs. In addition, two monitoring well pairs comprising a deep and a shallow well were installed at two of the six boring locations. The drilling and well development activities were completed on May 30, 2014.

On June 18 and 19, 2014, the monitoring wells were surveyed and sampled. Summary tables of all soil and groundwater laboratory analyses, and a figure showing the soil boring and monitoring well locations, and monitoring well construction logs are provided in **Appendix C**.

1.3.3 Conceptual Site Model

For review purposes, the Site consists of three areas, northern, central, and southern. The northern portion of the Site, immediately east of the Ash Pit (**Figure 2**), is shaped like a triangle and covers approximately 5,250 square feet (sf) (0.12 acres). Several soil samples previously collected from within the northern portion of the Site had exceedances of several metals and SVOCs. The central portion of the Site, approximately 1.64 acres in area, was covered by the former power plant which was demolished in 2009. The demolition included removing all of the building and contents, except the basement walls and floor. The basement floor, at elevation 8 feet amsl, had numerous holes drilled to penetrate through the concrete slab to enable rainfall to percolate to prevent ponding/flooding of the Site. The entire basement was then backfilled with environmentally clean backfill. The southern portion of the Site is somewhat rectangular and covers approximately 36,500 square feet (sf) (0.84 acres); most of the southern area lies within the footprint of the original boiler house building. Numerous soil and groundwater samples previously collected from within the southern portion of the Site had exceedances of several metals, SVOCs and VOCs. Based on field observations during the Site Investigation completed by Shaw in 2006, the on-site materials consist of considerable amounts of building debris down to a depth ranging between 8 to 10 ft bgs. The material below the building slab is presumed to be historic urban fill that was placed between 1844 and 1900 to build up the Site for the construction of the original power plant. This historic urban fill contains elevated concentrations of metals.

1.4 SUMMARY OF REMEDIAL ACTIONS

The Site was remediated in accordance with the NYSDEC-approved Remedial Action Work Plan, dated September 2012, and the October 13, 2013 Area of Concern (AOC) Letter (approved by the NYSDEC on October 21, 2013).

The following is a summary of the Remedial Actions performed at the site:

1. Excavation of soil/fill exceeding the Part 375-6.8(b) restricted residential SVOC and Metals SCOs, as well as soil/fill containing more than one percent asbestos, to the water table or to the concrete slab floor in the North and South Excavation Areas (**Figure 3**);
2. Backfill of the North and South Excavations Areas with compacted virgin quarry structural fill topped with ¾-inch stone;

3. Construction and maintenance of a soil cover system consisting of 20 inches of compacted virgin structural fill, topped with four inches of ¾-inch stone to prevent human exposure to contaminated soil/fill remaining at the Site;

4. Execution and recording of a DCR to restrict land use and prevent future exposure to any contamination remaining at the Site; and

5. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the DCR , which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) maintenance and (4) reporting;

Remedial activities were completed at the site in February 2014.

1.4.1 Removal of Contaminated Materials from the Site

The Kent Avenue remedial program involved the removal and off-site disposal of non-hazardous ACM and decontamination fluids/construction water. The remedial program also included the removal of a UST and its contents.

The SCOs for the primary contaminants of concern (COC) for this site are the restricted residential criteria as defined by 6 NYCRR Part 375-1.8(g). The areas where excavation and capping were performed, as well as the location of the UST that was removed, are shown in **Figure 3**.

All solid material excavated and removed from the Site was transported and disposed of as non-hazardous ACM. The material consisted of cinder, ash, soil, concrete, brick, timber, and metal (pipes as well as structural steel). The non-hazardous ACM was initially excavated from the North Excavation Area, and once all of that material was removed, the excavation activities moved to the South Excavation Area (see **Figure 3**). As-built drawings showing the final elevations of the excavation bottom (**FOUNDATION REMAINS FOUND AT 500 KENT AVENUE**) and showing the final grade contours (**FINAL ASBUILT**) are presented in **Appendix D**. A total of 13,702.95 tons of non-hazardous ACM (including an estimated 12 tons of sand removed from the interior of the UST) was removed from the Site. None of the excavated material was reused on the Site.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

The Site Investigation Summary Report, dated April 2007, for the Former Kent Avenue Generating Station discusses the history of the Site, including how the Site was landfilled sometime between 1844 and 1900. Much of the landfill material at that time consisted of coal ash, cinders, slag, brick, wood and cement. The 2007 report acknowledged finding similar materials at the Site. It is these older landfill materials, often referred to as "historic urban fill", that have elevated levels of SVOCs and metals that may exceed regulatory cleanup objectives. **Table 1** and **Figure 4** summarize the results of samples of soil remaining in the North Excavation Area at the Site after completion of the remedial program that exceed the restricted residential SCOs.

The Site is underlain by historic urban fill and soil impacted by historic industrial operations at depths beyond the remedial excavation limits. **Figure 5** delineates the areas of the Site with residual contamination. In the North and South Excavation Areas, a demarcation layer (orange plastic fencing) was placed at the base of the excavation. Any material below the demarcation layer should be considered contaminated. When the former generating station located in the center of the Site was demolished in 2007-2009, the basement walls and slab floor remained in place. The interior portion of the basement was backfilled with environmentally clean backfill. No demarcation layer was installed before the basement was backfilled. Within the former generating station footprint, any material below the concrete slab floor should be considered contaminated material. In the southwest portion of the Site, contaminated material was left in place, covered with a demarcation layer and capped with two feet of clean soil and stone. It should be assumed that any soil within this southwest area is contaminated.

In the northeast corner of the South Excavation Area, there is a 35 ft by 6.5 ft section with contaminated soil (below 4 ft) that has been left in place above the concrete slab floor and adjacent to the basement wall (**Figure 5**). The top four feet of the strip of soil is clean fill that was placed during the 2009 generating station demolition and from the 2011 Ash Pit IRM. There is no demarcation layer between the clean and contaminated soil. It should be assumed that any soil within this strip that is deeper than four feet is contaminated.

NYSDEC is overseeing a supplemental remedial investigation being conducted by National Grid of the Nassau Gas Works (a former MGP site located immediately to the south of the Site). National Grid collected soil and groundwater samples from the Former Kent Avenue Generation Station Site in May and June 2014. The results of the

investigation show additional contamination beneath the Site. Additionally, the MGP waste is impacting the groundwater quality beneath the Site.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil and groundwater exists beneath the site, Engineering Controls and Institutional Controls are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the DCR;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Soil Cover and Cap

Exposure to remaining contamination in soil/fill at the Site is prevented by a soil cover system placed over the Site. This cover system is comprised of a minimum of 24 inches of clean soil. The Excavation Work Plan that appears in **Appendix E** outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 3 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the Decision Document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Cover System

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface

contamination; and (3) limit the use and development of the Site to restricted residential, commercial or industrial uses only. Adherence to these Institutional Controls on the Site is required by the DCR and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the DCR and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater, soil vapor and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

Institutional Controls identified in the DCR may not be discontinued without an amendment to or extinguishment of the DCR. Adherence to these Institutional Controls is required by the DCR. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted residential, commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws, provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted or residential use without additional remediation and amendment of the DCR, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property for the use of potable or process water without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or New York City Department of Health (NYCDOH) is prohibited;
- The potential for vapor intrusion must be evaluated for any buildings developed on the Site, and any potential impacts that are identified must be monitored or mitigated;

- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will complete and submit a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(g) to NYSDEC.

2.3.1 Excavation Work Plan

The site has been remediated for restricted residential, commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws. Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as **Appendix E** to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. A sample HASP is attached as **Appendix F** to this SMP that is in current compliance with DER-10, and 29 Code of Federal Regulations (CFR) 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP, presented in **Appendix G**, will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures, a soil vapor intrusion (SVI) evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner within 30 days of validation. SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the DCR;
- Achievement of remedial performance criteria;

- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Voluntary Cleanup Agreement, 6 NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or engineering control that reduces or has the potential to reduce the effectiveness of an Engineering Control and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the VCA, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Con Edison EH&S. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 2: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 3: Contact Numbers

Con Edison EH&S - David Rubin	(718) 204-4219

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 500 Kent Avenue, Brooklyn, NY

Nearest Hospital Name: Woodhull Medical Center

Hospital Location: 760 Broadway, Brooklyn, NY

Hospital Telephone: (718) 963-8000

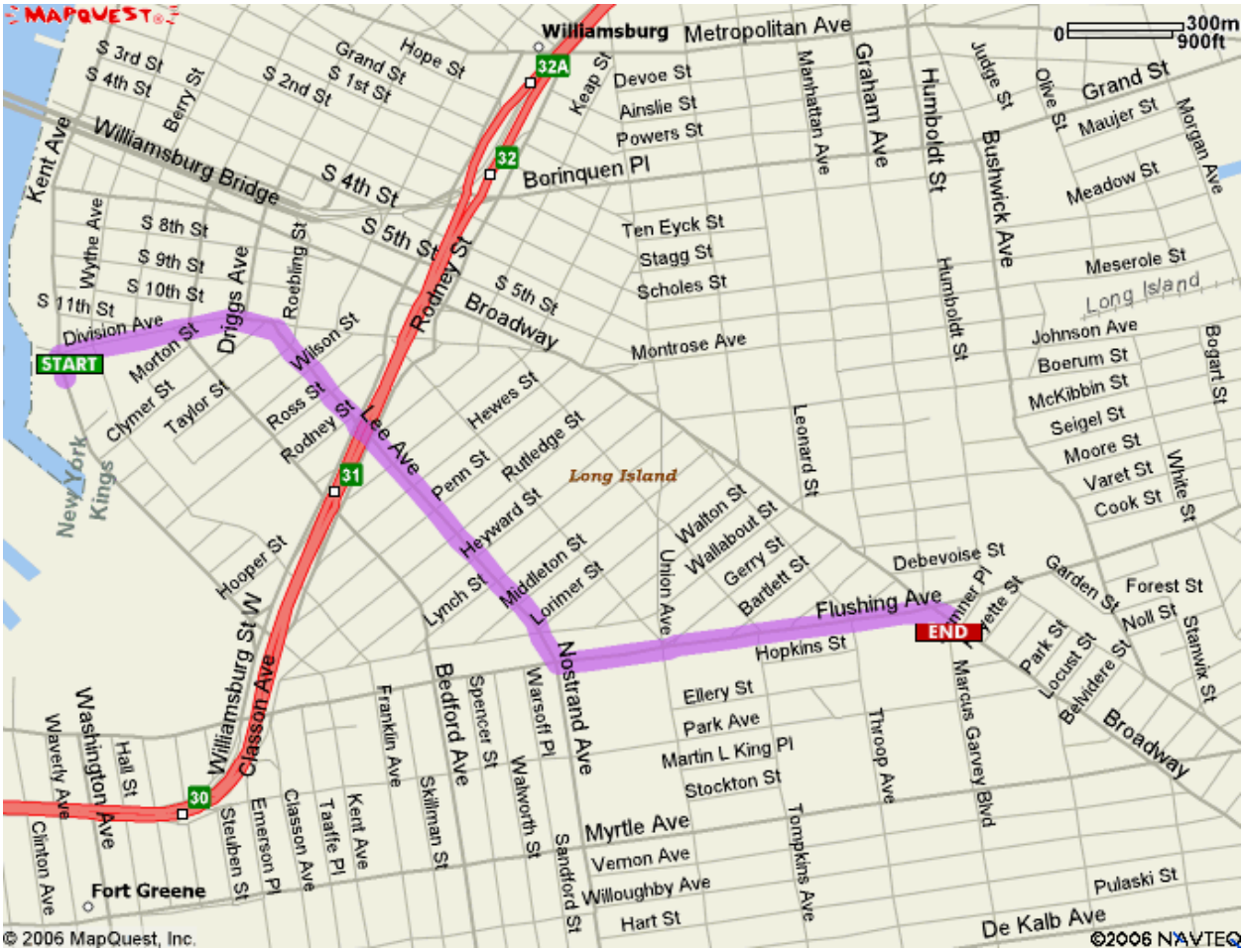
Directions to the Hospital:

1. Depart Kent Ave toward Division Ave;
2. Turn right onto Division Ave;
3. Turn right onto Lee Ave;
4. Turn left onto Flushing Ave;
5. Turn right onto Broadway; and
6. Arrive at 760 Broadway, Brooklyn, NY 11206

Total Distance: 1.73 miles

Total Estimated Time: 6 minutes

Map Showing Route from the site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (**Table 2**). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

The Site is currently vacant with no structures and no proposed site activities. In this situation, no emergency response is anticipated. Should the Site be developed at a later date, this subsection should be revised based on any designed structures, new engineering controls, and/or anticipated site activities.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, the soil cover system, and all affected site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater and soil vapor;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards;
- Assessing achievement of the remedial performance criteria;
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Reporting requirements;
- Inspection and maintenance requirements for soil cover system and groundwater monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Annual monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted for the first five (5) years. The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in groundwater in the affected areas will be evaluated to determine if the remedy continues to be

effective in achieving remedial goals. Monitoring programs are summarized in **Table 4** and outlined in detail in Sections 3.2 and 3.3 below.

Table 4: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Cover System	Annual	Soil	Observation and Reporting
Groundwater	TBD	Groundwater	TBD

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

TBD – To Be Determined. See Section 3.3.

3.2 COVER SYSTEM MONITORING

Exposure to subsurface soils will be prevented by a cover system that has been constructed on the Site. The cover system, as shown on **Figure 6**, consists of four different configurations:

- A deep cover system that consists of a total thickness of between 4.5 to 11 feet, consisting of compacted structural fill covered with a minimum of 4 inches of ¾-inch stone. This deep cover system, located within the North and South Excavation Areas, has a demarcation layer (orange plastic fencing) placed directly on top of the concrete slab floor at the base of the remedial program excavation;
- A deep cover system that consists of a total thickness of between 8 to 12 feet, consisting of clean fill covered with a minimum of 4 inches of ¾-inch stone. This deep cover system, located within the Former Generating Station Building Foundation, does not have a demarcation layer placed directly on top of the concrete slab floor within the building foundation;
- A soil cap located within the southwest portion of the Site that consists of 20 inches of compacted structural fill covered with a minimum of 4 inches of ¾-inch stone. This cap has a demarcation layer (orange plastic fencing) at its base, directly overlying contaminated soil/fill; and

- A 4 foot thick cover system consisting of clean fill, overlain by structural fill, overlain by a minimum of 4 inches of ¾-inch stone. This clean fill directly overlies contaminated soil/fill that was not removed during the remedial program, and there is no demarcation layer separating the clean fill from the contaminated soil/fill.

As-built drawings showing the final elevations of the excavation bottom (**FOUNDATION REMAINS FOUND AT 500 KENT AVENUE**) and the final grade contours (**FINAL ASBUILT**) within the North and South Excavation Areas are presented in **Appendix D**. The drawing with the excavation bottom elevations shows that there are a number of concrete structures that penetrate up from the overall concrete slab floor. An as-built cross section of the soil cap in the southwest portion of the Site is presented in **Figure 7**. The clean fill within the Former Generating Station Building Foundation was placed at the completion of the 2009 demolition of the Former Generation Station Building, and there are no as-built drawings available for this area.

Monitoring of the cover systems will be performed by an annual inspection of the cover materials as detailed in Section 3.4 below.

3.3 MEDIA MONITORING PROGRAM

With the exception of the historic urban fill underlying the entire Site, all sources of contamination have been removed from the Site and very little known soil/fill contamination remains at the Site above the water table. Based on the current use of the property, no soil monitoring is anticipated.

There is known groundwater contamination at the Site that is related to the former MGP that was located immediately to the south of the Site. The full impact of the MGP-related contamination on the Site was determined by the 2014 subsurface investigation that was conducted by National Grid at the Site. It is anticipated that some groundwater monitoring will be required at the Site.

Previous site investigations did not collect any soil vapor data, and because of historic operations at the Site and the adjacent MGP, the potential for soil vapor intrusion exists. However, since there are no structures remaining on the property, the current site use does not warrant any discussion about soil vapor monitoring, and Section 2.3.2 states that a soil vapor intrusion evaluation will be required prior to the construction of any enclosed structures. This evaluation will be utilized by NYSDEC to determine whether any soil vapor monitoring will be required in the future.

3.3.1 Groundwater Monitoring

Once National Grid has completed and reported on its MGP-related subsurface investigation at the Former Kent Avenue Generating Station Site, NYSDEC can identify the requirements of a groundwater monitoring program for the Site. Con Edison will negotiate an access agreement with National Grid to ensure that National Grid performs any DEC-required MGP-related groundwater monitoring at the Site. It is anticipated that National Grid will submit a Groundwater Monitoring Program Plan that will provide details for the following;

- A groundwater monitoring well location plan (particularly if new wells are added);
- Construction details of all monitoring wells used in the program;
- The analytes for which the samples will be analyzed;
- The frequency of the groundwater monitoring;
- The monitoring well sampling protocol;
- How monitoring wells would be repaired or replaced if necessary;
- How monitoring wells will be decommissioned once the groundwater monitoring program can be terminated;
- The quality assurance/quality control for the sampling protocols as well as the laboratory analyses; and
- The reporting requirements of the groundwater monitoring results.

The reporting requirements will include submission of all final reports to Con Edison for incorporation into the Periodic Review Report discussed in detail in Section 5.3.

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy implemented by National Grid for the Former Nassau Gas Works MGP immediately south of the Site.

The network of monitoring wells has been installed to monitor groundwater conditions at the site. The network of on-site wells has been designed to complement the groundwater monitoring system on the property immediately south of the Site.

Monitoring well construction logs are included in **Appendix C.**

The sampling frequency may be modified with the approval of NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Monitoring Well Repairs, Replacement and Decommissioning

Con Edison will provide the necessary access to repair, replace or decommission wells as directed by the NYSDEC.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (**Appendix H)**. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Groundwater Monitoring Program Plan. Main Components of the QAPP will include:

- Quality Assurance/Quality Control (QA/QC) Objectives for Data Measurement;
- Sampling Program:

- Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
- Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol requirements.
- Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.

- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in U.S. Environmental Protection Agency (USEPA) SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file with the property owner and on site if facilities are

constructed on site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan (Section 5.0 below) of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (o be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables will be summarized in the Groundwater Monitoring Program Plan.

4.0 OPERATION AND MAINTENANCE PLAN

The site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections will be recorded on the appropriate forms for their respective system which are contained in **Appendix H**. Additionally, a general site-wide inspection form will be completed during the site-wide inspection. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and Final Engineering Report.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Use of the site is compliant with the DCR;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices;
- The information presented in this report is accurate and complete; and
- 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, [name], of [business address], am certifying as Consolidated Edison Company of New York, Inc.'s Designated Site Representative for the Site.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year, beginning fifteen months after the Release and Covenant Not to Sue is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in **Appendix B** (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific Decision Document;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;

- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

TABLES

TABLE 1
SUMMARY OF SEMIVOLATILE ORGANIC COMPOUNDS, METALS AND ASBESTOS EXCEEDANCES
2013 SITE REMEDIATION
500 KENT AVENUE
BROOKLYN, NEW YORK

Excavation Area		North Excavation Area						
Sample Name		SW-S	EP-1	SW-S-2	EP-2	EP-3	SW-N-5	EP-5
Sample Date		11/14/2013	11/14/2013	11/15/2013	11/15/2013	11/19/2013	11/22/2013	11/22/2013
Depth (ft. bgs)		13	13	11	11	13	5	5
SVOCs (mg/Kg)	**Restricted Residential (mg/Kg)**							
Acenaphthene	100	0.131	0.0768	0.154	0.0874 J	0.143	0.264	0.00909 U
Acenaphthylene	100	0.0568 J	0.0580 J	0.0837	0.0179 U	0.0653 J	0.0406 J	0.00818 U
Anthracene	100	0.587	0.238	0.428	0.192	0.417	0.730	0.263
Benzo(a)anthracene	1	**1.76**	0.827	**1.36**	0.597	**1.10**	**2.44**	**1.15**
Benzo(a)pyrene	1	**1.69**	0.722	**1.26**	0.580	0.998	**2.50**	**1.17**
Benzo(b)fluoranthene	1	**2.15**	0.923	**1.75**	0.705	**1.24**	**3.06**	**1.64**
Benzo(g,h,i)perylene	100	1.12	0.465	0.706	0.313	0.541	2.89	0.733
Benzo(k)fluoranthene	3.9	0.845	0.345	0.627	0.326	0.516	1.03	0.556
Chrysene	3.9	1.66	0.802	1.31	0.587	1.09	2.33	1.13
Dibenz(a,h)anthracene	0.33	0.273	0.132	0.190	0.0140 U	0.161	**0.847**	0.166
Fluoranthene	100	3.27	1.46	2.63	1.22	2.43	5.57	2.18
Fluorene	100	0.113	0.0642 J	0.14	0.0239 U	0.135	0.219	0.0592 J
Indeno(1,2,3-cd)pyrene	0.5	**1.01**	0.389	**0.62**	0.240	0.498	**1.63**	**0.637**
2-Methylphenol	100	0.0926 U	0.0916 U	0.0911 U	0.185 U	0.105 U	0.0892 U	0.0846 U
3-Methylphenol	100	0.0199 U	0.0197 U	0.0196 U	0.0399 U	0.0225 U	0.0192 U	0.0182 U
4-Methylphenol	100	0.0199 U	0.0197 U	0.0196 U	0.0399 U	0.0225 U	0.0192 U	0.0182 U
Naphthalene	100	0.0641 J	0.00887 U	0.0479 J	0.0179 U	0.0101 U	0.146	0.0400 J
Pentachlorophenol	6.7	0.124 U	0.123 U	0.122 U	0.249 U	0.141 U	0.120 U	0.114 U
Phenanthrene	100	2.11	0.934	1.72	0.768	1.68	2.90	1.06
Phenol	100	0.0139 U	0.0138 U	0.0479 J	0.0279 U	0.0158 U	0.0351 J	0.0313 J
Pyrene	100	3.18	1.55	2.57	1.09	2.12	4.89	1.89
Metals (mg/Kg)	**Restricted Residential (mg/Kg)**							
Arsenic	16	14.8	9.98	2.78	**22.2**	7.52	**35.4** NJ-	**28.6** NJ-
Barium	400	189	99.4	28.10 EJ	104 EJ	71.9 NJ+	156 NJ+	234 NJ+
Beryllium	72	0.380 J	0.390 J	0.189 J	0.424 J	0.307 J	0.356 J	0.379 J
Cadmium	4.3	0.119 U	0.115 U	0.118 U	0.141 J	0.118 U	0.111 U	0.118 U
Chromium, Hexavalent	110	0.232 U	0.233 U	0.232 UNJ-	0.232 UNJ-	0.237 UNJ-	0.225 UNJ-	0.232 UNJ
Chromium, trivalent	180	28.8	15.5	7.68	11.5	15.6	28.0	21.5
Copper	270	82.7	103	27.2	73.1	113	268 NJ-	230 NJ-
Total Cyanide	27	0.720 UNJ-	0.717 UNJ-	6.47 NJ-	1.54 NJ-	0.716 UNR	0.700 U	0.703 U
Lead	400	396	**890**	70.4	**859**	310	**830**	**986**
Manganese	2,000	248 NJ+	236 NJ+	160	144	221	401	339
Total Mercury	0.81	0.688 NJ+	0.423 NJ+	0.151 NJ+	0.392 NJ+	**1.70**	**1.55**	**2.09**
Nickel	310	19.4	20.2	9.29	18.6	18.0	36.4	40.5
Selenium	180	1.78 U	1.81 J	1.77 U	1.77 U	1.77 U	4.09	3.34
Silver	180	0.356 U	0.344 U	0.354 U	0.353 U	0.354 U	0.490 J	0.355 U
Zinc	10,000	290 B	248 B	58.0	152	110	617 NJ+	493 NJ+
Asbestos (%)	**Site Soil Cleanup Goal (%)**							
Asbestos	1.0	NAD	NAD	NAD	NAD	NAD	0.71	0.86

Notes:
mg/Kg = milligrams per kilogram (parts per million).
ft bgs = feet below ground surface.
U = Not Detected.
J = Indicates an estimated value.
(J) = Data validation qualificaiton superseded by previous qualification.
J+ = The result is an estimated value, but the result may be biased high.
J- = The result is an estimated value, but the result may be biased low.
N = The matrix spike sample recovery in the associated QC sample is not within QC limits.
* = Duplicate not within controls limits; indeterminate bias direction.
E = The reported value is estimated because of the presence of interference; indeterminate bias direction.
B = This compound was detected in the laboratory method blank as well as the sample.
R = The sample result is rejected.
NAD = No Asbestos Detected. A percent of asbestos in soil value could not be made because no asbestos was detected.
1.76 Bolded and shaded values represent exceedances of the corresponding cleanup objectives.

TABLE 1
SUMMARY OF SEMIVOLATILE ORGANIC COMPOUNDS, METALS AND ASBESTOS EXCEEDANCES
2013 SITE REMEDIATION
500 KENT AVENUE
BROOKLYN, NEW YORK

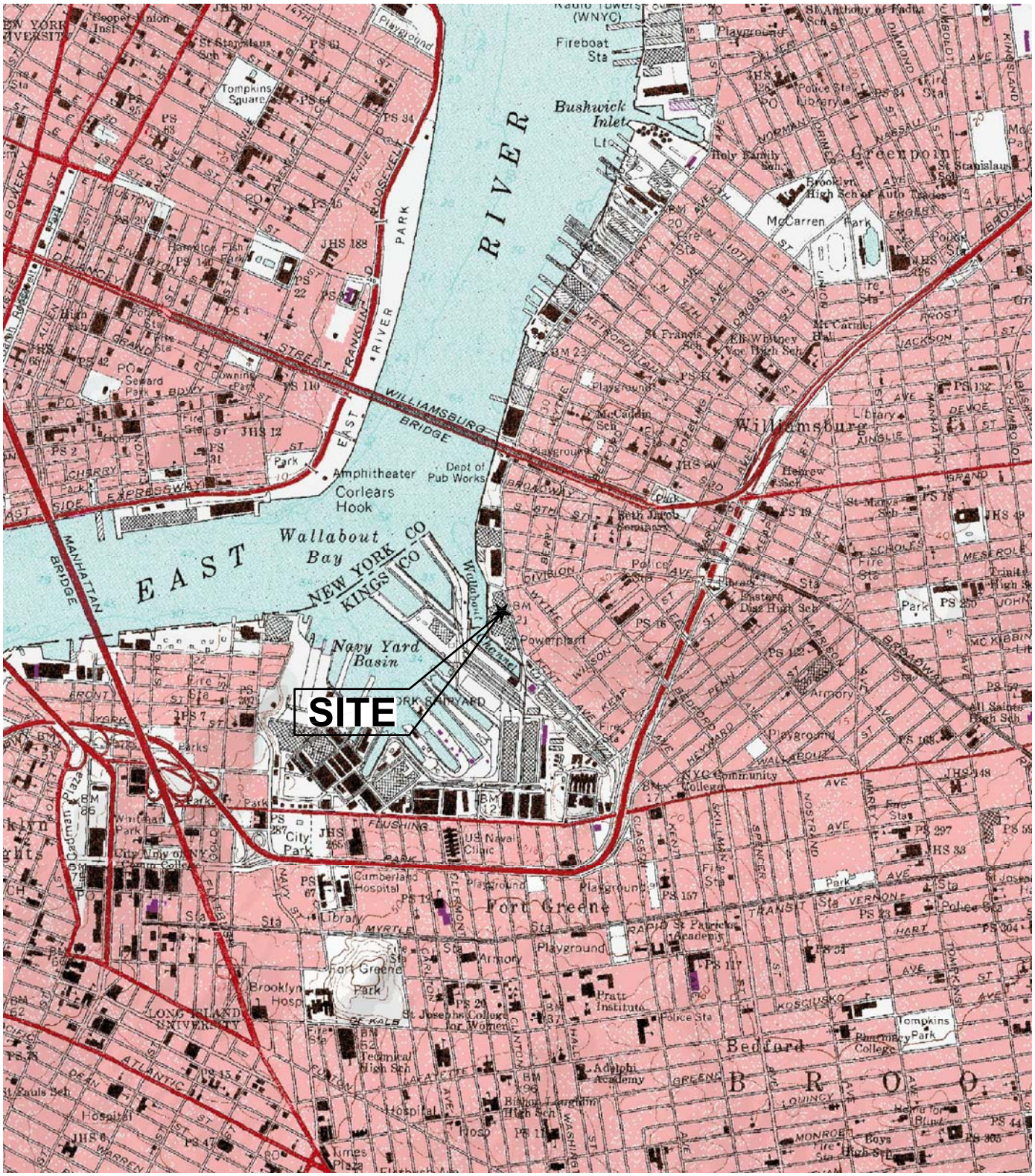
Excavation Area		North Excavation Area						
Sample Name		SW-W-6	EP-6	EP-7	SW-SW-8	EP-8	SW-W-9	EP-9
Sample Date		11/26/2013	11/26/2013	11/25/2013	12/4/2013	12/4/2013	12/6/2013	12/6/2013
Depth (ft. bgs)		11	11	10	11	11	11	11
SVOCs (mg/Kg)	**Restricted Residential (mg/Kg)**							
Acenaphthene	100	0.0113 U	0.0116 U	0.28	9.94	5.66	0.00974 UJ	0.320 J
Acenaphthylene	100	0.0102 U	0.0104 U	0.06 J	0.521	0.0503 U	0.00876 UJ	0.00893 UJ
Anthracene	100	0.0232 J	0.0256 J	1.04	17.1	8.81	0.0424 (J)	0.711 J
Benzo(a)anthracene	1	0.0873	0.116	**2.22**	**34.1**	**15.8**	0.142 J	**1.23** J
Benzo(a)pyrene	1	0.0825	0.0626 J	**1.95**	**27.1**	**12.2**	0.111 J	**1.03** J
Benzo(b)fluoranthene	1	0.124	0.142	**2.78**	**35.4**	**16.1**	0.151 J	**1.32** J
Benzo(g,h,i)perylene	100	0.0594 J	0.0563 J	1.13	15.1	6.37	0.0635 (J)	0.554 J
Benzo(k)fluoranthene	3.9	0.0429 J	0.0491 J	0.86	**14.3**	**7.32**	0.0794 J	0.664 J
Chrysene	3.9	0.0863	0.104	2.12	**33.9**	**14.6**	0.153 J	1.12 J
Dibenz(a,h)anthracene	0.33	0.00792 U	0.00810 U	**0.341**	**5.55**	**2.15**	0.00682 UJ	0.117 J
Fluoranthene	100	0.170	0.214	6.20	80.0	44.3	0.341 J	2.58 J
Fluorene	100	0.0136 U	0.0139 U	0.305	9.62	5.46	0.0117 UJ	0.291 J
Indeno(1,2,3-cd)pyrene	0.5	0.0466 J	0.0496 J	**1.06**	**13.1**	**5.93**	0.0511 (J)	**0.511** J
2-Methylphenol	100	0.105 U	0.108 U	0.0925 U	0.211 U	0.520 U	0.0906 UJ	0.0922 UJ
3-Methylphenol	100	0.0226 U	0.0231 U	0.0199 U	0.159 J	0.112 U	0.0195 UJ	0.0198 UJ
4-Methylphenol	100	0.0226 U	0.0231 U	0.0199 U	0.159 J	0.112 U	0.0195 UJ	0.0198 UJ
Naphthalene	100	0.0102 U	0.0104 U	0.00895 U	10.2	5.48	0.00876 UJ	0.0619 (J)
Pentachlorophenol	6.7	0.141 U	0.145 U	0.124 U	0.284 U	0.698 U	0.122 UJ	0.124 UJ
Phenanthrene	100	0.106	0.0983	4.38	72.9	43.0	0.189 J	2.04 J
Phenol	100	0.0158 U	0.0162 U	0.0139 U	0.0903 J	0.0782 U	0.0136 UJ	0.0139 UJ
Pyrene	100	0.135	0.167	4.32	58.9	32.1	0.269 J	1.89 J
Metals (mg/Kg)	**Restricted Residential (mg/Kg)**							
Arsenic	16	3.51	3.73	7.30	4.34 NJ+	5.73 NJ+	2.87 J-	1.67 (J)
Barium	400	93.5	135	59.3	105	161	22.7 J-	39.7 J-
Beryllium	72	0.248 J	0.318 J	0.350 J	0.369 J	0.347 J	0.387 (J)	0.212 (J)
Cadmium	4.3	0.113 U	0.114 U	0.117 U	0.115 U	0.116 U	0.114 UJ-	0.118 UJ-
Chromium, Hexavalent	110	0.227	0.233 U	0.240 UNJ-	0.225 U	0.232 U	0.0114 UJ-	0.0121 UJ-
Chromium, trivalent	180	5.66	8.03	13.0	12.5	16.8	9.96 J-	16.3 J-
Copper	270	16.9	54.3	92.8	18.9 *NJ	62.9 *NJ	10.8 J-	27.2 J-
Total Cyanide	27	0.681 U	0.699 U	0.730 U	0.688 U*NJ-	0.707 U*NJ-	0.685 UNJ-	0.724 UNJ-
Lead	400	**499**	**589**	148	**816**	292	72.1 J-	102 J-
Manganese	2,000	256	315	256 BNJ-	391 *NJ	239 *NJ	122 NJ-	251 NJ-
Total Mercury	0.81	0.321 NJ+	0.303 NJ+	**1.38**	0.298	0.455	0.0355 NJ-	0.137 NJ-
Nickel	310	13.4	20.5	18.8	30.0	25.3	14.7 J-	15.4 J-
Selenium	180	1.69 U	1.71 U	1.75 U	1.73 U	1.73 U	1.71 UJ-	1.77 UJ-
Silver	180	0.338 U	0.341 U	0.350 U	0.346 U	0.347 U	0.342 UJ-	0.353 UJ-
Zinc	10,000	130 NJ+	208 NJ+	580	179 B*NJ	164 B*NJ	29.6 J-	63.6 J-
Asbestos (%)	**Site Soil Cleanup Goal (%)**							
Asbestos	1.0	**1.8**	<0.19	**1.8**	<0.17	**1.3**	**1.8**	**1.7**

Notes:
mg/Kg = milligrams per kilogram (parts per million).
ft bgs = feet below ground surface.
U = Not Detected.
J = Indicates an estimated value.
(J) = Data validation qualificaiton superseded by previous qualification.
J+ = The result is an estimated value, but the result may be biased high.
J- = The result is an estimated value, but the result may be biased low.
N = The matrix spike sample recovery in the associated QC sample is not within QC limits.
* = Duplicate not within controls limits; indeterminate bias direction.
E = The reported value is estimated because of the presence of interference; indeterminate bias direction.
B = This compound was detected in the laboratory method blank as well as the sample.
R = The sample result is rejected.
NAD = No Asbestos Detected. A percent of asbestos in soil value could not be made because no asbestos was detected.
1.76 Bolded and shaded values represent exceedances of the corresponding cleanup objectives.

FIGURES

OFFICE
NEW YORK, NY

DRAWING NUMBER
FIGURE 1



VERIFY SCALE
0 1"

APPROXIMATE SCALE
0 2000 4000 6000 FEET

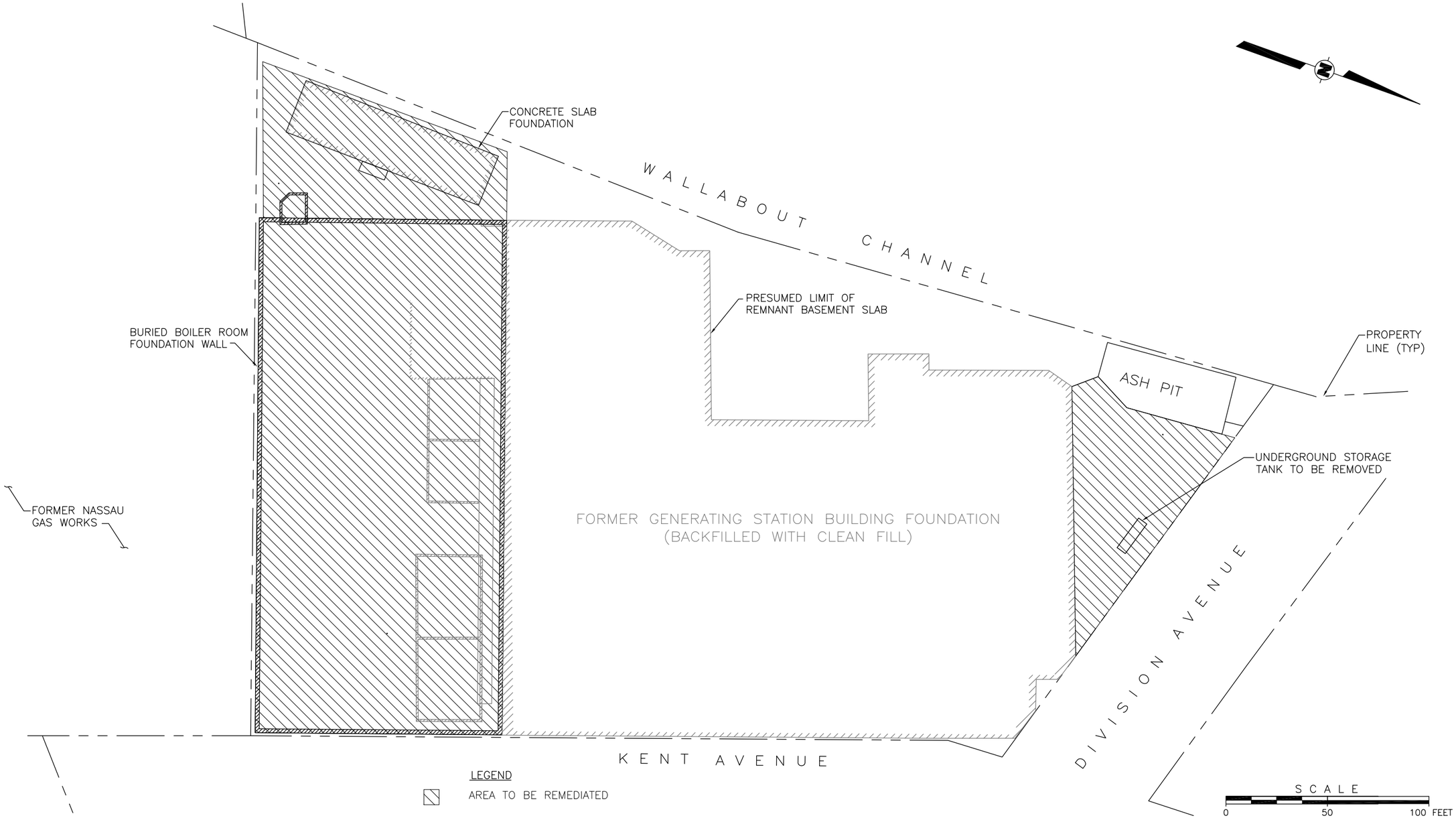
REFERENCE:
7.5 MINUTE SERIES TOPOGRAPHIC MAP OF BROOKLYN, NY
USGS GEOLOGICAL SURVEY, 1966, 1927 NORTH AMERICAN DATUM

Shaw Environmental & Infrastructure
Engineering of NY, PC

DESIGNED BY: S. SHATZ	CON EDISON LONG ISLAND CITY, NEW YORK			
DRAWN BY: S. SHATZ	SITE LOCATION MAP FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK			
CHECKED BY: C. KRAEMER				
APPROVED BY: D. CHEN	DATE: 04/25/14	SCALE: AS SHOWN	DRAWING NO. FIGURE 1	REV NO. -

File: V:\— CLIENT\Con Edison\146740 Kent Ave\Working\IRM\CADD\IRM\FER & SMP\Figure 1.dwg
Plot Date/Time: May 06, 2014 — 10:13am
Plotted By: sara.shatz

OFFICE NEW YORK, NY | DRAWING NUMBER | FIGURE 2



SOURCE: "PHASE II INVESTIGATION REPORT:KENT AVENUE SITE", LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP, DATE: FEBRUARY 2000

Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK
CHECKED BY: C. KRAEMER	SITE PLAN
	FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK

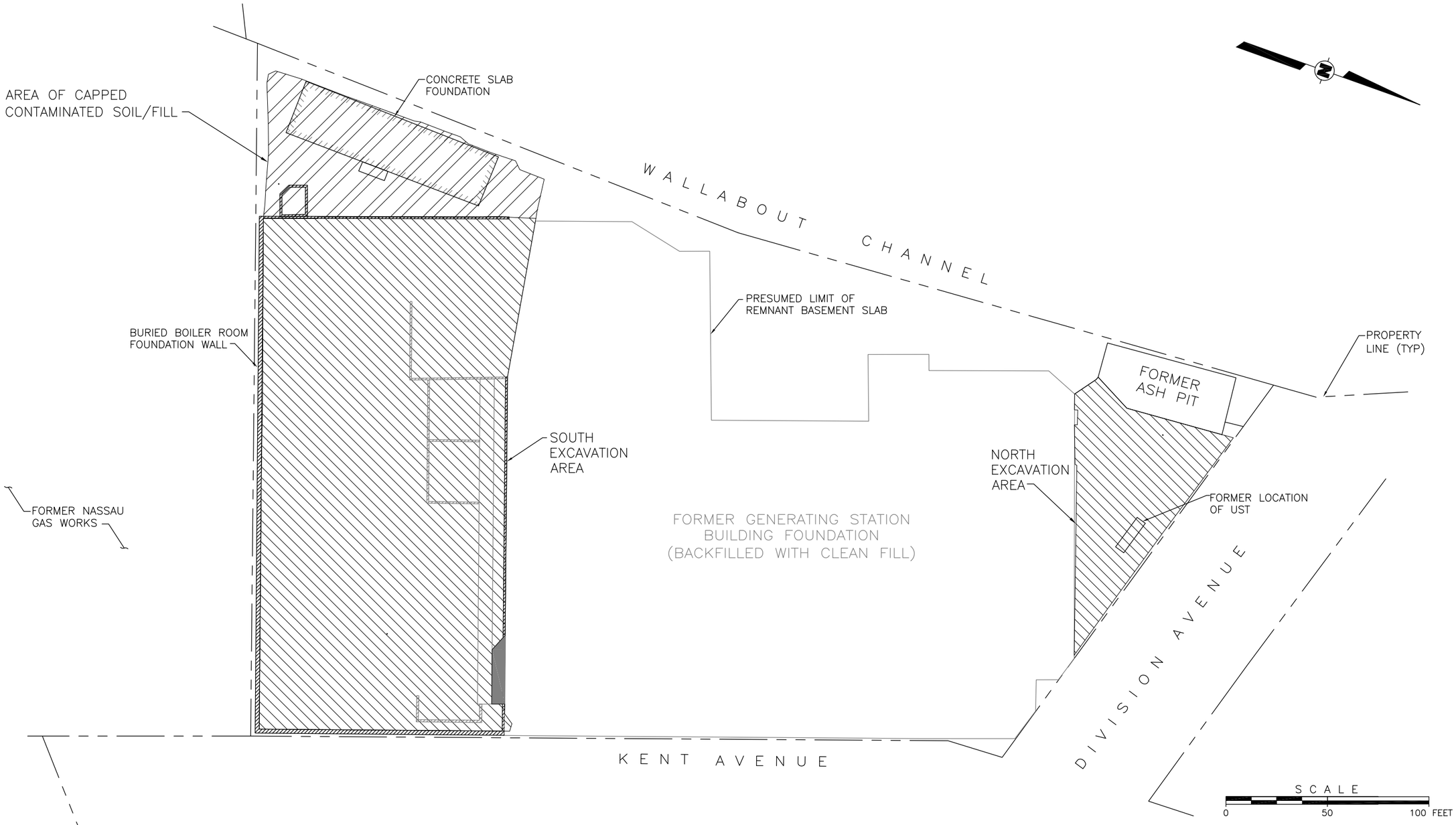
APPROVED BY:	DATE:	SCALE:	DRAWING NO.	REV NO.
D. CHEN	04/25/14	AS SHOWN	FIGURE 2	-

File: V:\~ CLIENT\Con Edison\146740 Kent Ave\Working\IRM\CADD\IRM\FER & SMP\Figure 2.dwg
Plot Date/Time: May 06, 2014 - 10:14am
Plotted By: sara.shatz

FIGURE 3

DRAWING NUMBER

OFFICE NEW YORK, NY



LEGEND

- AREA WITH EXCAVATION OF CONTAMINATED SOIL/FILL
- AREA OF CAPPED CONTAMINATED SOIL/FILL
- AREA NOT REMEDIATED BELOW FOUR FEET

SOURCE: "PHASE II INVESTIGATION REPORT:KENT AVENUE SITE", LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP, DATE: FEBRUARY 2000

Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON			
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK			
CHECKED BY: C. KRAEMER	AREAS OF REMEDIATION			
	FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK			
APPROVED BY: D. CHEN	DATE: 6/24/14	SCALE: AS SHOWN	DRAWING NO. FIGURE 3	REV NO. -

FIGURE 4

DRAWING NUMBER

OFFICE NEW YORK, NY

SW–SW–8		
12/4/2013		
11’		
BENZO(a)ANTHRACENE	1	34.1
BENZO(a)PYRENE	1	27.1
BENZO(b)FLUORANTHENE	1	35.4
BENZO(k)FLUORANTHENE	3.9	14.3
CHRYSENE	3.9	33.9
DIBENZ(a,h)ANTHRACENE	0.33	5.55
INDENO(1,2,3–cd)PYRENE	0.5	13.1
LEAD	400	816

EP–8		
12/4/2013		
11’		
BENZO(a)ANTHRACENE	1	15.8
BENZO(a)PYRENE	1	12.2
BENZO(b)FLUORANTHENE	1	16.1
BENZO(k)FLUORANTHENE	3.9	7.32
CHRYSENE	3.9	14.6
DIBENZ(a,h)ANTHRACENE	0.33	2.15
INDENO(1,2,3–cd)PYRENE	0.5	5.93
ASBESTOS	1%	1.3%

LEGEND

EP–7 SAMPLE LOCATION AND IDENTIFIER

EP–6			
11/26/2013			← DATE SAMPLING WAS PERFORMED
11’			← DEPTH OF COLLECTION
LEAD	400	589	
↑ COMPOUND	↑ RRSCO (ppm)	↑ ANALYTICAL RESULT (ppm)	

← SAMPLE IDENTIFIER

EP–9		
12/6/2013		
11’		
BENZO(a)ANTHRACENE	1	1.23J
BENZO(a)PYRENE	1	1.03J
BENZO(b)FLUORANTHENE	1	1.32J
INDENO(1,2,3–cd)PYRENE	0.5	0.511J
ASBESTOS	1%	1.7%

SW–S–9		
12/6/2013		
11’		
ASBESTOS	1%	1.8%

EP–3		
11/19/2013		
13’		
BENZO(a)ANTHRACENE	1	1.10
BENZO(b)FLUORANTHENE	1	1.24
TOTAL MERCURY	0.81	1.70

SW–S–2		
11/15/2013		
11’		
BENZO(a)ANTHRACENE	1	1.36
BENZO(a)PYRENE	1	1.26
BENZO(b)FLUORANTHENE	1	1.75
INDENO(1,2,3–cd)PYRENE	0.5	0.62

EP–2		
11/15/2013		
11’		
ARSENIC	16	22.2
LEAD	400	859

SW–S		
11/14/2013		
13’		
BENZO(a)ANTHRACENE	1	1.76
BENZO(a)PYRENE	1	1.69
BENZO(b)FLUORANTHENE	1	2.15
INDENO(1,2,3–cd)PYRENE	0.5	1.01

EP–1		
11/14/2013		
13’		
LEAD	400	890

SW–W–6		
11/26/2013		
11’		
LEAD	400	499
ASBESTOS	1%	1.8%

EP–6		
11/26/2013		
11’		
LEAD	400	589

SW–N–5		
11/22/2013		
5’		
BENZO(a)ANTHRACENE	1	2.44
BENZO(a)PYRENE	1	2.50
BENZO(b)FLUORANTHENE	1	3.06
DIBENZ(a,h)ANTHRACENE	0.33	0.847
INDENO(1,2,3–cd)PYRENE	0.5	1.63
ARSENIC	16	35.4NJ–
LEAD	400	830
TOTAL MERCURY	0.81	1.55

EP–5		
11/22/2013		
5’		
BENZO(a)ANTHRACENE	1	1.15
BENZO(a)PYRENE	1	1.17
BENZO(b)FLUORANTHENE	1	1.64
INDENO(1,2,3–cd)PYRENE	0.5	0.637
ARSENIC	16	28.6NJ–
LEAD	400	986
TOTAL MERCURY	0.81	2.09

EP–7		
11/25/2013		
10’		
BENZO(a)ANTHRACENE	1	2.22
BENZO(a)PYRENE	1	1.95
BENZO(b)FLUORANTHENE	1	2.78
DIBENZ(a,h)ANTHRACENE	0.33	0.341
INDENO(1,2,3–cd)PYRENE	0.5	1.06
TOTAL MERCURY	0.81	1.38
ASBESTOS	1%	1.8%

SW–SW–8
EP–8

SW–W–6
EP–6

SW–S–9
EP–9

SW–N–5
EP–5

SW–S–3
EP–3

EP–7

SW–N–4
EP–4

FORMER LOCATION OF UST

SW–S–2
EP–2

SW–S
EP–1

DIVISION AVE.

NOTES:

1. ”EP” DESIGNATION REFERS TO FILL SAMPLES COLLECTED AT THE WATER TABLE.
2. ”SW” DESIGNATION REFERS TO FILL SAMPLES COLLECTED FROM THE SIDE WALL OF THE EXCAVATION, APPROXIMATELY ONE FOOT ABOVE THE WATER TABLE.
3. ”J” INDICATES AN ESTIMATED CONCENTRATION.
4. ”N” INDICATES THAT THE MATRIX SPIKE SAMPLE RECOVERY IN THE ASSOCIATED QC SAMPLE IS NOT WITHIN QC LIMITS.
5. ”J–” INDICATES THAT THE RESULT IS AN ESTIMATED VALUE, BUT THE RESULT MAY BE BIASED LOW.

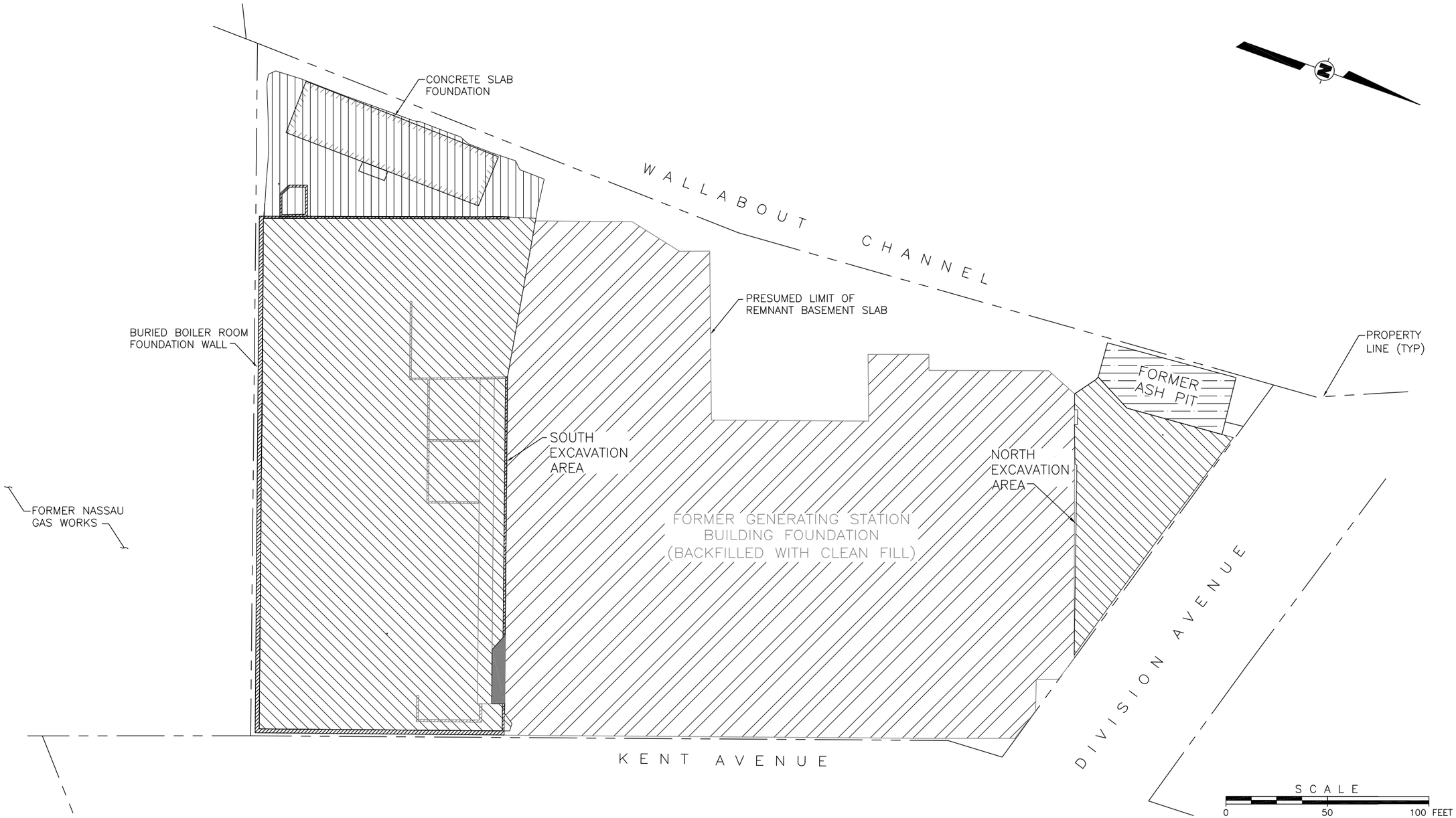
Shaw Environmental & Infrastructure
Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK
CHECKED BY: C. KRAEMER	POST-EXCAVATION DOCUMENTATION SAMPLE PLAN FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK

APPROVED BY:	DATE:	SCALE:	DRAWING NO.	REV NO.
D. CHEN	06/10/14	AS SHOWN	FIGURE 4	-

File: V:\– CLIENT\Con Edison\146740 Kent Ave\Working\IRM\CADD\IRM\FER & SMP\Figure 4.dwg
Plot Date/Time: Jun 24, 2014 – 9:29am
Plotted By: sara.shatz

OFFICE NEW YORK, NY | DRAWING NUMBER FIGURE 5



LEGEND

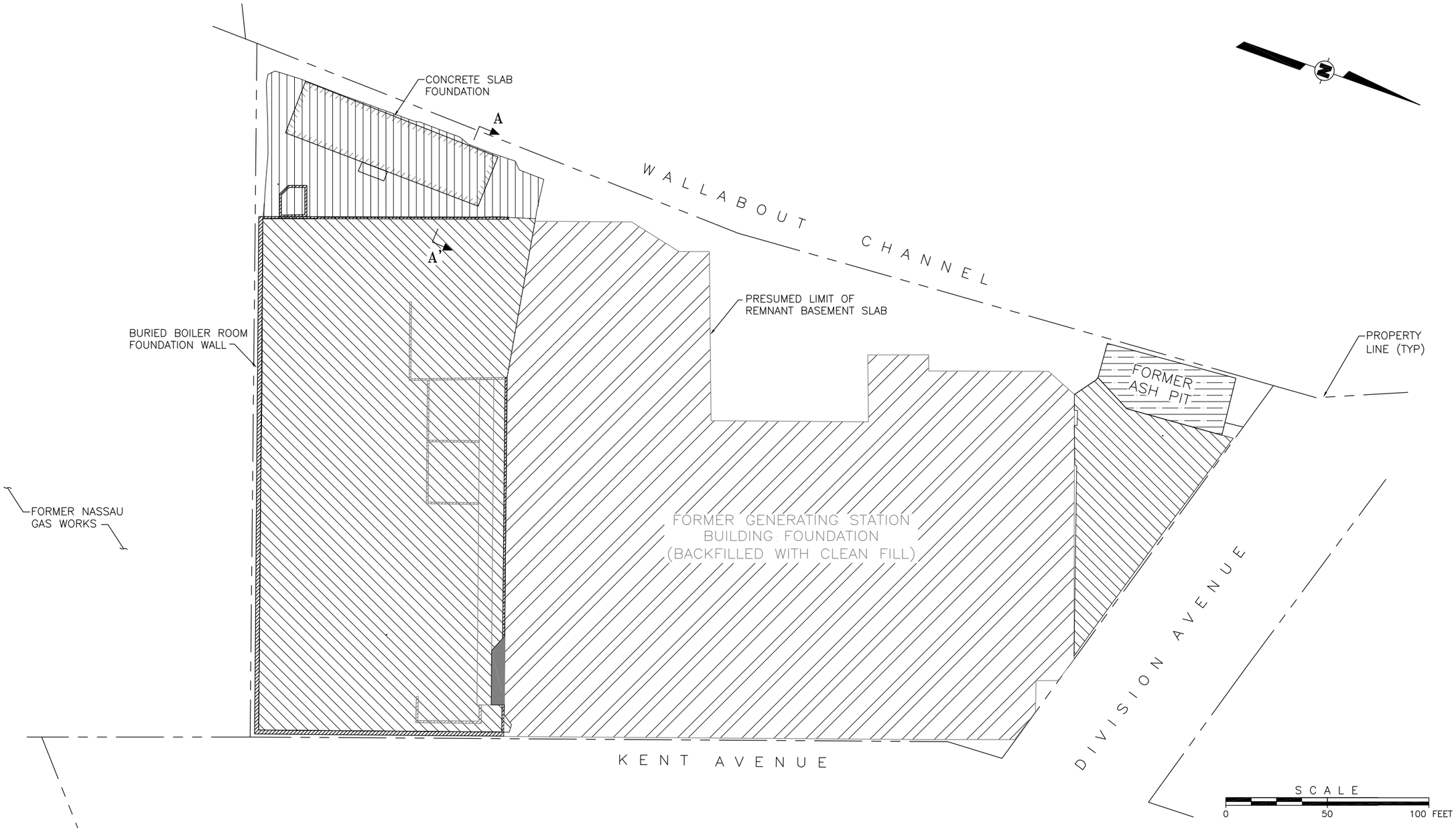
- AREA WITH CONTAMINATED SOIL BELOW DEMARCATION BARRIER
- AREA BACKFILLED WITH CLEAN FILL AND CONTAMINATED SOIL BELOW CONCRETE FLOOR SLAB
- AREA WITH NO EXCAVATION OF CONTAMINATED SOIL AND CAPPED WITH A DEMARCATION BARRIER AND 2 FEET OF STRUCTURAL FILL AND ¾" STONE
- AREA NOT REMEDIATED BELOW 4 FEET
- PREVIOUSLY REMEDIATED AREA

SOURCE: "PHASE II INVESTIGATION REPORT:KENT AVENUE SITE", LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP, DATE: FEBRUARY 2000

Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON			
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK			
CHECKED BY: C. KRAEMER	CONTAMINATION REMAINING ON SITE			
	FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK			
APPROVED BY: D. CHEN	DATE: 6/24/14	SCALE: AS SHOWN	DRAWING NO. FIGURE 5	REV NO. -

OFFICE NEW YORK, NY | DRAWING NUMBER FIGURE 6



LEGEND

- DEEP COVER SYSTEM WITH DEMARCATION BARRIER ABOVE CONCRETE SLAB BOTTOM
- DEEP COVER SYSTEM WITH NO DEMARCATION BARRIER ABOVE CONCRETE SLAB BOTTOM
- SOIL CAP (2 FOOT THICK) SYSTEM
- FOUR FOOT THICK COVER SYSTEM WITH NO DEMARCATION BARRIER
- A — CROSS SECTION MARK (SECTION SHOWN ON FIGURE 7)
- CONCRETE CAP

SOURCE: "PHASE II INVESTIGATION REPORT:KENT AVENUE SITE", LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP, DATE: FEBRUARY 2000

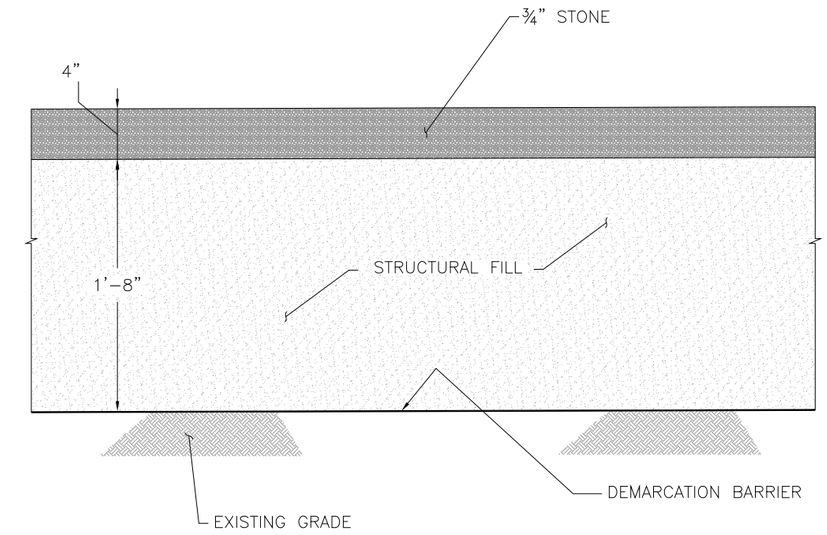
Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON			
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK			
CHECKED BY: C. KRAEMER	SITE COVER SYSTEMS			
	FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK			
APPROVED BY: D. CHEN	DATE: 6/24/14	SCALE: AS SHOWN	DRAWING NO. FIGURE 6	REV NO. -

FIGURE 7

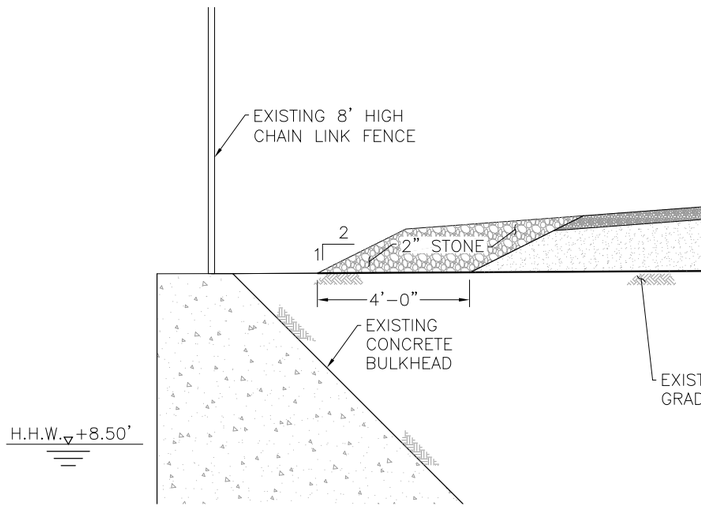
DRAWING NUMBER

OFFICE NEW YORK, NY



TYPICAL SOIL CAP DETAIL

SCALE: 1"=1'



SECTION A–A'

SCALE: ¼"=1'

SCALE: ¼" = 1'–0"

Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON
DRAWN BY: S. SHATZ	LONG ISLAND CITY, NEW YORK
CHECKED BY: C. KRAEMER	AS-BUILT CROSS SECTION OF CAPPED AREA
	FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK

APPROVED BY:	DATE:	SCALE:	DRAWING NO.	REV NO.
D. CHEN	6/24/14	AS SHOWN	FIGURE 7	-

File: V:\- CLIENT\Con Edison\146740 Kent Ave\Working\IRM\CADD\IRM\FER & SMP\SMP Figure 7.dwg
Plot Date/Time: Jun 24, 2014 - 9:55am
Plotted By: sara.shatz

APPENDIX A

DECLARATION OF COVENANTS AND RESTRICTIONS AND PROOF OF FILING

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2015010500429001002EA451

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 12**

Document ID: 2015010500429001 Document Date: 12-23-2014 Preparation Date: 01-05-2015
Document Type: SUNDRY MISCELLANEOUS
Document Page Count: 11

PRESENTER:

TO BE PICKED UP BY COMMONWEALTH
COMMONWEALTH LAND TITLE INSURANCE CO.
140 EAST 45TH STREET, 22ND FLOOR
NEW YORK, NY 10017
212-949-0100
ROSEMARIE.TREPPIEDI@FNF.COM/SS140377/JW

RETURN TO:

TO BE PICKED UP BY COMMONWEALTH
COMMONWEALTH LAND TITLE INSURANCE CO.
140 EAST 45TH STREET, 22ND FLOOR
NEW YORK, NY 10017
212-949-0100
ROSEMARIE.TREPPIEDI@FNF.COM/SS140377/JW

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BROOKLYN	2023	10	Entire Lot	500 KENT AVENUE

Property Type: NON-RESIDENTIAL VACANT LAND

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year_____ Reel____ Page_____ *or* File Number_____

PARTIES

PARTY 1:
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
4 IRVING PLACE
NEW YORK , NY 10003

PARTY 2:
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC
4 IRVING PLACE
NEW YORK , NY 10003

FEES AND TAXES

Mortgage :		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	92.00
Affidavit Fee:	$	0.00

Filing Fee:	$	0.00
NYC Real Property Transfer Tax:	$	0.00
NYS Real Estate Transfer Tax:	$	0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 01-08-2015 14:49
City Register File No.(CRFN):
2015000008944

City Register Official Signature

DECLARATION OF COVENANTS AND RESTRICTIONS

23rd **THIS DECLARATION OF COVENANTS AND RESTRICTIONS** is made this day of December, 2014, by **CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.** ("**Con Edison**"), a corporation organized and existing under the laws of the State of New York with an office for the transaction of business at 4 Irving Place, New York, New York:

WHEREAS, the Former Kent Avenue Generating Station Site (Site #V00732-2) is the subject of Voluntary Cleanup Agreement Index # D2-0003-02-08 (the "**VCA**"), executed by Con Edison as part of the Voluntary Cleanup Program of the New York State Department of Environmental Conservation (the "**Department**" having an address at 625 Broadway, Albany, New York 12233), namely that parcel of real property located at the address of 500 Kent Avenue in the County of Kings, City and State of New York, being the same as (or part of) that property conveyed to Con Edison by the City of New York by deed(s) dated August 1, 1962, and recorded on August 2, 1962, in the Office of the City Register, Kings County, in Liber 9038 of Conveyances, Pages 265 through 272, and being more particularly described in Schedule "A" attached to this Declaration of Covenants and Restrictions and made a part hereof, and hereinafter referred to as the "**Property**"; and

WHEREAS, the Department approved a remedy (the "**Remedy**") that eliminates or mitigates all significant threats to the environment presented by the contamination disposed of at the Property and such Remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, Con Edison, for itself and its successors and/or assigns, covenants that:

FIRST: The Property subject to this Declaration of Covenants and Restrictions is as shown on the map annexed to this Declaration of Covenants and Restrictions as Schedule "B" and made a part hereof.

SECOND: Unless prior written approval by the Department or, if the Department shall no longer exist, by any New York State agency or agencies subsequently created to protect the environment of the State of New York and the health of the State's citizens, hereinafter referred to as "**the Relevant Agency**," is first obtained, where contamination remains on the Property subject to the provisions of the Site Management Plan approved by the Department for the Property (the "**SMP**"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls required for the Remedy or which results in unacceptable human exposure to contaminated soils. The

SMP may be obtained from the New York State Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, New York 12233.

THIRD: The owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of the engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner of the Property obtains a written waiver of such prohibition from the Department or Relevant Agency.

FOURTH: The owner of the Property shall prohibit the Property from ever being used for purposes other than "Commercial" use, "Industrial" use, or "Restricted Residential" use, as such terms are defined in 6 NYCRR Part 375-1.8(g), without the express written waiver of such prohibition by the Department or Relevant Agency.

FIFTH: The use of the groundwater underlying the Property is prohibited without necessary water quality treatment as determined by the New York State Department of Health or the New York City Department of Health to render such groundwater safe for use as drinking water or for industrial purposes, and the user of such groundwater must first notify and obtain written approval to do so from the Department or Relevant Agency.

SIXTH: The owner of the Property shall provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

SEVENTH: The owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner of the Property first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which SMP is incorporated and made enforceable hereto, subject to such modifications thereto as may be approved by the Department or Relevant Agency.

EIGHTH: This Declaration of Covenants and Restrictions is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner of the Property and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the VCA requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement of such prohibitions and restrictions.

NINTH: Any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such

covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the day written below.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

By: _____

Title: VP and Treasurer

Date: 12/23/2014

GRANTOR'S ACKNOWLEDGEMENT

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On the 23rd day of December in the year 2014, before me, the undersigned, personally appeared Scott Sanders, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public

SYLVEN GLYNN
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01GL5065881
Qualified in Kings County
Commission Expires September 16, 2018

SCHEDULE A

METES AND BOUNDS DESCRIPTION OF THE PROPERTY

The "**Property**" subject to this Declaration of Covenants and Restrictions consists of all that certain plot, parcel, or tract of land being, lying, and situated in the County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point on the westerly side of Kent Avenue distant 103.52 feet northerly from the southerly side of Rush Street extended to the said westerly side of Kent Avenue;

RUNNING THENCE, northerly along the said westerly side of Kent Avenue 342.17 feet to an angle in said westerly side of Kent Avenue;

THENCE, continuing northerly along said westerly side of Kent Avenue 29.39 feet to the corner formed by the intersection of said westerly side of Kent Avenue with the southerly side of Division Avenue;

THENCE, westerly along said southerly side of Division Avenue 227 feet to the Pierhead and Bulkhead Line approved by the Secretary of War on December 19, 1901;

THENCE, southerly along said Pierhead and Bulkhead Line 278.67 feet to an angle in said Pierhead and Bulkhead Line;

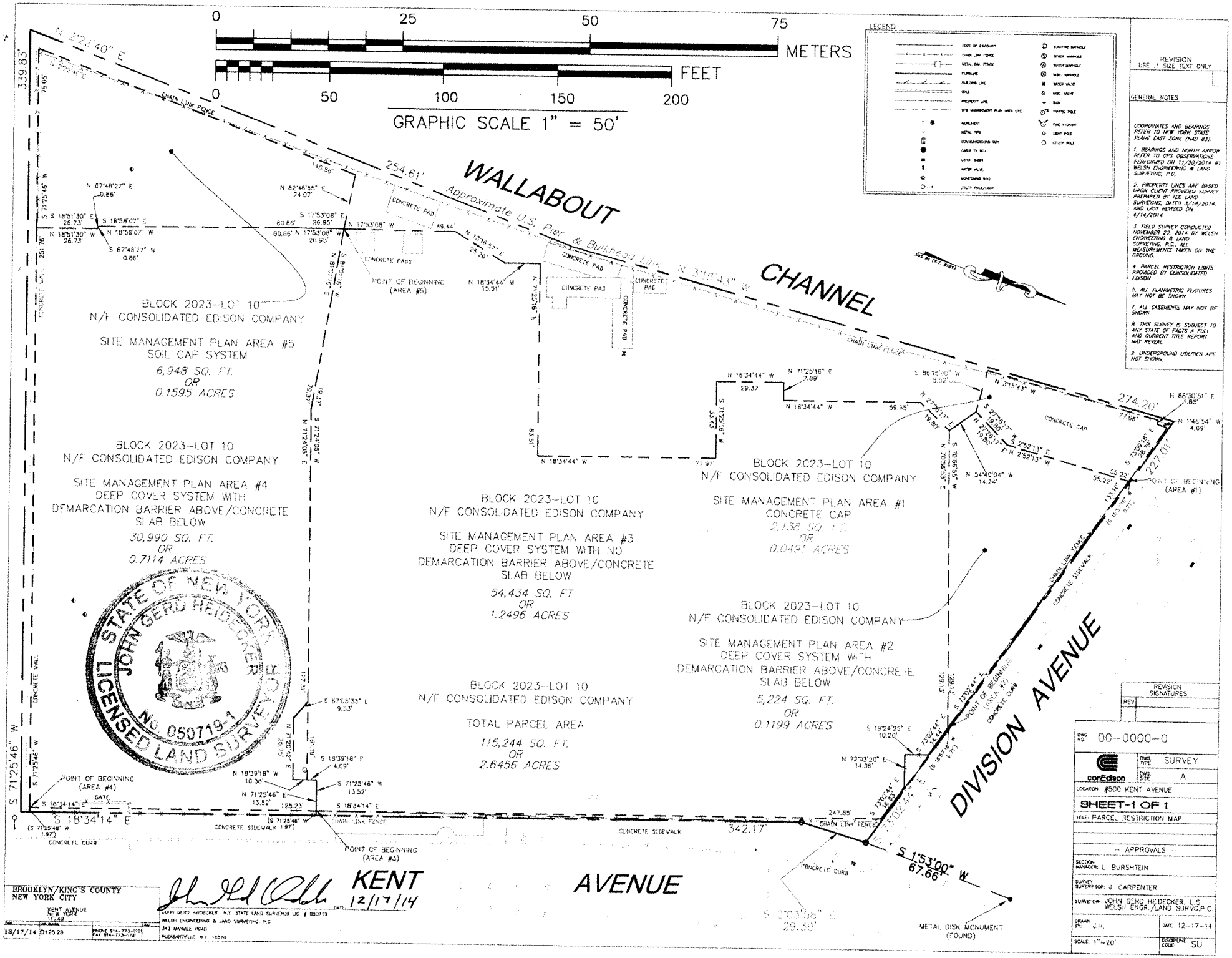
THENCE, continuing southerly along said Pierhead and Bulkhead Line 248.96 feet to the property formerly of the United States Government and now owned by the City of New York;

THENCE, easterly along a line which forms an angle of 89 degrees 47 minutes and no (00) seconds on its northerly side with the said westerly side of Kent Avenue, and along said land formerly of the United States Government and now owned by the City of New York 339.83 feet to said westerly side of Kent Avenue at the point or place of the **BEGINNING**.

Being the same plot, piece, or parcel of land conveyed to Consolidated Edison Company of New York, Inc. by the City of New York by deed dated August 1, 1962, and recorded in the Office of the City Register, Kings County on August 2, 1960, in Liber 9038 of Conveyances, Pages 265 to 272.

SCHEDULE B

MAP OF PROPERTY
WITH SITE MANAGEMENT PLAN AREAS



REVISION
USE .1 SIZE TEXT ONLY

GENERAL NOTES

COORDINATES AND BEARINGS REFER TO NEW YORK STATE PLANE EAST ZONE (NAD 83).

1. BEARINGS AND NORTH ARROW REFER TO GPS OBSERVATIONS PERFORMED ON 11/20/2014 BY WELSH ENGINEERING & LAND SURVEYING, P.C.
2. PROPERTY LINES ARE BASED UPON CLIENT PROVIDED SURVEY PREPARED BY TED LAND SURVEYING, DATED 3/18/2014, AND LAST REVISED ON 4/14/2014.
3. FIELD SURVEY CONDUCTED NOVEMBER 20, 2014 BY WELSH ENGINEERING & LAND SURVEYING, P.C., ALL MEASUREMENTS TAKEN ON THE GROUND.
4. PARCEL RESTRICTION LIMITS PROVIDED BY CONSOLIDATED EDISON.
5. ALL PLANIMETRIC FEATURES MAY NOT BE SHOWN.
7. ALL EASEMENTS MAY NOT BE SHOWN.
8. THIS SURVEY IS SUBJECT TO ANY STATE OF FACTS A FULL AND CURRENT TITLE REPORT MAY REVEAL.
9. UNDERGROUND UTILITIES ARE NOT SHOWN.

REVISION SIGNATURES

REV		

DWG NO 00-0000-0

conEdison | DWG TYPE SURVEY | DWG SIZE A

LOCATION #500 KENT AVENUE

SHEET-1 OF 1

TITLE: PARCEL RESTRICTION MAP

-- APPROVALS --

SECTION MANAGER: L. BURSHTEIN

SURVEY SUPERVISOR: J. CARPENTER

SURVEYOR: JOHN GERD HEIDECKER, L.S. WELSH ENGR./LAND SURVG.P.C.

DRAWN BY: J.H. | DATE: 12-17-14

SCALE: 1"=20' | DISCIPLINE CODE: SU

BROOKLYN/KING'S COUNTY
NEW YORK CITY
KENT AVENUE
NEW YORK
11249

12/17/14 0125.28

JOHN GERD HEIDECKER N.Y. STATE LAND SURVEYOR LIC # 050719
DATE 12/17/14

WELSH ENGINEERING & LAND SURVEYING, P.C.
343 MANVILLE ROAD
PLEASANTVILLE, N.Y. 10570
PHONE 914-773-1791
FAX 914-773-1792

SITE MANAGEMENT PLAN AREA #1

COMMENCING AT A METAL DISK MONUMENT FOUND AT THE NORTHWEST CORNER OF THE INTERSECTION OF THE NORTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE 67.66 FEET SOUTH ON A BEARING OF SOUTH 1 DEGREE 53 MINUTES 00 SECONDS WEST TO THE CORNER FORMED BY THE SOUTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE; THENCE NORTHWESTERLY ALONG THE SOUTHERLY SIDE OF DIVISION AVENUE NORTH 73 DEGREES 02 MINUTES 44 SECONDS WEST 194.37 FEET;

THENCE THROUGH LOT 10, BLOCK 2023, SOUTH 16 DEGREES 57 MINUTES 16 SECONDS WEST, 0.71 FEET TO THE POINT OF BEGINNING;

THENCE FROM SAID POINT OF BEGINNING THROUGH LOT 10, BLOCK 2023 AS SHOWN ON THE CURRENT TAX MAP OF THE CITY OF NEW YORK, THE FOLLOWING SEVEN (7) BEARINGS AND DISTANCES:

1. SOUTH 2 DEGREES 52 MINUTES 13 SECONDS EAST, 55.22 FEET;
2. SOUTH 27 DEGREES 26 MINUTES 17 SECONDS WEST, 19.80 FEET;
3. SOUTH 86 DEGREES 15 MINUTES 40 SECONDS WEST, 18.52 FEET;
4. NORTH 31 DEGREES 05 MINUTES 43 SECONDS WEST, 77.66 FEET;
5. NORTH 88 DEGREES 30 MINUTES 51 SECONDS EAST, 1.85 FEET;
6. NORTH 1 DEGREES 48 MINUTES 54 SECONDS WEST, 4.69 FEET;
7. SOUTH 73 DEGREES 09 MINUTES 18 SECONDS EAST, 28.79 FEET TO THE POINT OF BEGINNING.

CONTAINING 2,138 SQUARE FEET OR 0.0491 ACRES MORE OR LESS.

SITE MANAGEMENT PLAN AREA #2

ALL THAT CERTAIN PARCEL OF LAND SITUATE IN THE CITY OF NEW YORK, KINGS COUNTY, AND STATE OF NEW YORK, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A METAL DISK MONUMENT FOUND AT THE NORTHWEST CORNER OF THE INTERSECTION OF THE NORTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE 67.66 FEET SOUTH ON A BEARING OF SOUTH 1 DEGREE 53 MINUTES 00 SECONDS WEST TO THE CORNER FORMED BY THE SOUTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE; THENCE NORTHWESTERLY ALONG THE SOUTHERLY SIDE OF DIVISION AVENUE NORTH 73 DEGREES 02 MINUTES 44 SECONDS WEST 61.27 FEET;

THENCE THROUGH LOT 10, BLOCK 2023, SOUTH 16 DEGREES 57 MINUTES 16 SECONDS WEST, 0.71 FEET TO THE POINT OF BEGINNING;

THENCE FROM SAID POINT OF BEGINNING THROUGH LOT 10, BLOCK 2023 AS SHOWN ON THE CURRENT TAX MAP OF THE CITY OF NEW YORK, ALONG THE FOLLOWING FIVE (5) BEARINGS AND DISTANCES:

1. SOUTH 70 DEGREES 56 MINUTES 55 SECONDS WEST, 129.13 FEET;
2. NORTH 54 DEGREES 40 MINUTES 04 SECONDS WEST, 14.24 FEET;
3. NORTH 27 DEGREES 26 MINUTES 17 SECONDS EAST, 19.80 FEET;
4. NORTH 2 DEGREES 52 MINUTES 13 SECONDS WEST, 55.22 FEET;
5. SOUTH 73 DEGREES 02 MINUTES 44 SECONDS EAST, 133.10 FEET TO THE POINT OF BEGINNING.

CONTAINING 5,224 SQUARE FEET OR 0.1199 ACRES MORE OR LESS.

SITE MANAGEMENT PLAN AREA #3

ALL THAT CERTAIN PARCEL OF LAND SITUATE IN THE CITY OF NEW YORK, KINGS COUNTY, AND STATE OF NEW YORK, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A METAL DISK MONUMENT FOUND AT THE NORTHWEST CORNER OF THE INTERSECTION OF THE NORTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE 67.66 FEET SOUTH ON A BEARING OF SOUTH 1 DEGREE 53 MINUTES 0 SECONDS WEST TO THE CORNER FORMED BY THE SOUTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE SOUTHERLY ALONG SAID WESTERLY SIDE OF KENT AVENUE THE FOLLOWING TWO (2) COURSES AND DISTANCES:

1. SOUTH 2 DEGREES 03 MINUTES 58 SECONDS EAST, 29.39 FEET;
2. SOUTH 18 DEGREES 34 MINUTES 14 SECONDS EAST, 213.49 FEET;

THENCE THROUGH LOT 10, BLOCK 2023, SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 1.97 FEET TO THE POINT OF BEGINNING;

THENCE FROM SAID POINT OF BEGINNING, THROUGH LOT 10, BLOCK 2023 AS SHOWN ON THE CURRENT TAX MAP OF THE CITY OF NEW YORK, ALONG THE FOLLOWING TWENTY (20) BEARINGS AND DISTANCES:

8. SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 13.52 FEET;
9. SOUTH 18 DEGREES 39 MINUTES 18 SECONDS EAST, 4.09 FEET;
10. SOUTH 71 DEGREES 24 MINUTES 05 SECONDS WEST, 161.19 FEET;
11. SOUTH 81 DEGREES 01 MINUTES 16 SECONDS WEST, 79.37 FEET;
12. NORTH 17 DEGREES 53 MINUTES 08 SECONDS WEST, 49.44 FEET;
13. NORTH 13 DEGREES 16 MINUTES 57 SECONDS EAST, 25.26 FEET;
14. NORTH 18 DEGREES 34 MINUTES 44 SECONDS WEST, 15.51 FEET;
15. NORTH 71 DEGREES 25 MINUTES 16 SECONDS EAST, 83.51 FEET;
16. NORTH 18 DEGREES 34 MINUTES 44 SECONDS WEST, 77.97 FEET;
17. SOUTH 71 DEGREES 25 MINUTES 16 SECONDS WEST, 33.43 FEET;
18. NO RTH 18 DEGREES 34 MINUTES 44 SECONDS WEST, 29.37 FEET;
19. NORTH 71 DEGREES 25 MINUTES 16 SECONDS EAST, 7.89 FEET;
20. NORTH 18 DEGREES 34 MINUTES 44 SECONDS WEST, 59.65 FEET;
21. NORTH 27 DEGREES 26 MINUTES 17 SECONDS EAST, 19.80 FEET;
22. NORTH 70 DEGREES 56 MINUTES 55 SECONDS EAST, 129.13 FEET;
23. SOUTH 73 DEGREES 02 MINUTES 44 SECONDS EAST, 14.44 FEET;
24. SOUTH 19 DEGREES 24 MINUTES 25 SECONDS EAST, 10.20 FEET;
25. NORTH 72 DEGREES 03 MINUTES 20 SECONDS EAST, 14.36 FEET;
26. SOUTH 73 DEGREES 02 MINUTES 44 SECONDS EAST, 16.83 FEET;
27. SOUTH 18 DEGREES 34 MINUTES 14 SECONDS EAST, 247.85 FEET TO THE POINT OF BEGINNING.

CONTAINING 54,434 SQUARE FEET OR 1.2496 ACRES MORE OR LESS.

SITE MANAGEMENT PLAN AREA #4

ALL THAT CERTAIN PARCEL OF LAND SITUATE IN THE CITY OF NEW YORK, KINGS COUNTY, AND STATE OF NEW YORK, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A METAL DISK MONUMENT FOUND AT THE NORTHWEST CORNER OF THE INTERSECTION OF THE NORTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE 67.66 FEET SOUTH ON A BEARING OF SOUTH 1 DEGREE 53 MINUTES 00 SECONDS WEST TO THE CORNER FORMED BY THE SOUTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE SOUTH ALONG SAID WESTERLY SIDE OF KENT AVENUE THE FOLLOWING TWO (2) COURSES AND DISTANCES:

3. SOUTH 2 DEGREES 03 MINUTES 58 SECONDS EAST 29.39 FEET;
4. SOUTH 18 DEGREES 34 MINUTES 14 SECONDS EAST 338.61 FEET;

THENCE THROUGH LOT 10, BLOCK 2023, SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 1.97 FEET TO THE POINT OF BEGINNING;

THENCE FROM SAID POINT OF BEGINNING, AND CONTINUING THROUGH LOT 10, BLOCK 2023, PARALLEL TO THE SOUTHERLY LIMIT OF LOT 10 AND GENERALLY ALONG AN EXISTING CONCRETE WALL, SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST 251.76 FEET; THENCE STILL THROUGH LOT 10, BLOCK 2023 THE FOLLOWING ELEVEN (11) BEARINGS AND DISTANCES:

28. NORTH 18 DEGREES 51 MINUTES 30 SECONDS WEST, 26.73 FEET;
29. SOUTH 67 DEGREES 48 MINUTES 27 SECONDS WEST, 0.86 FEET;
30. NORTH 18 DEGREES 58 MINUTES 07 SECONDS WEST, 80.66 FEET;
31. NORTH 17 DEGREES 53 MINUTES 08 SECONDS WEST, 26.95 FEET;
32. NORTH 81 DEGREES 01 MINUTES 16 SECONDS EAST, 79.37 FEET;
33. NORTH 71 DEGREES 24 MINUTES 05 SECONDS EAST, 127.31 FEET;
34. SOUTH 67 DEGREES 05 MINUTES 33 SECONDS EAST, 9.53 FEET;
35. NORTH 71 DEGREES 20 MINUTES 42 SECONDS EAST, 26.75 FEET;
36. NORTH 18 DEGREES 39 MINUTES 18 SECONDS WEST, 10.38 FEET
37. NORTH 71 DEGREES 25 MINUTES 46 SECONDS EAST, 13.52 FEET;
38. SOUTH 18 DEGREES 34 MINUTES 49 SECONDS EAST, 125.23 FEET TO THE POINT OF BEGINNING.

CONTAINING 30,990 SQUARE FEET OR 0.7114 ACRES MORE OR LESS.

SITE MANAGEMENT PLAN AREA #5

ALL THAT CERTAIN PARCEL OF LAND SITUATE IN THE CITY OF NEW YORK, KINGS COUNTY, AND STATE OF NEW YORK, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A METAL DISK MONUMENT FOUND AT THE NORTHWEST CORNER OF THE INTERSECTION OF THE NORTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE 67.66 FEET SOUTH ON A BEARING OF SOUTH 1 DEGREE 53 MINUTES 00 SECONDS WEST TO THE CORNER FORMED BY THE SOUTHERLY SIDE OF DIVISION AVENUE AND THE WESTERLY SIDE OF KENT AVENUE, THENCE SOUTH ALONG SAID WESTERLY SIDE OF KENT AVENUE THE FOLLOWING TWO (2) COURSES AND DISTANCES:

5. SOUTH 2 DEGREES 03 MINUTES 58 SECONDS EAST 29.39 FEET;
6. SOUTH 18 DEGREES 34 MINUTES 14 SECONDS EAST 213.49 FEET;

THENCE THROUGH LOT 10, BLOCK 2023 THE FOLLOWING FIVE (5) COURSES AND DSITANCES:

1. SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 1.97 FEET;
2. SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 13.52 FEET;
3. SOUTH 18 DEGREES 39 MINUTES 18 SECONDS EAST, 4.09 FEET;
4. SOUTH 71 DEGREES 24 MINUTES 05 SECONDS WEST, 161.19 FEET;
5. SOUTH 81 DEGREES 01 MINUTES 16 SECONDS WEST, 79.37 FEET TO THE POINT OF BEGINNING;

THENCE FROM SAID POINT OF BEGINNING, STILL THROUGH LOT 10, BLOCK 2023 AS SHOWN ON THE CURRENT TAX MAP OF THE CITY OF NEW YORK, THE FOLLOWING BEARINGS AND DISTANCES:

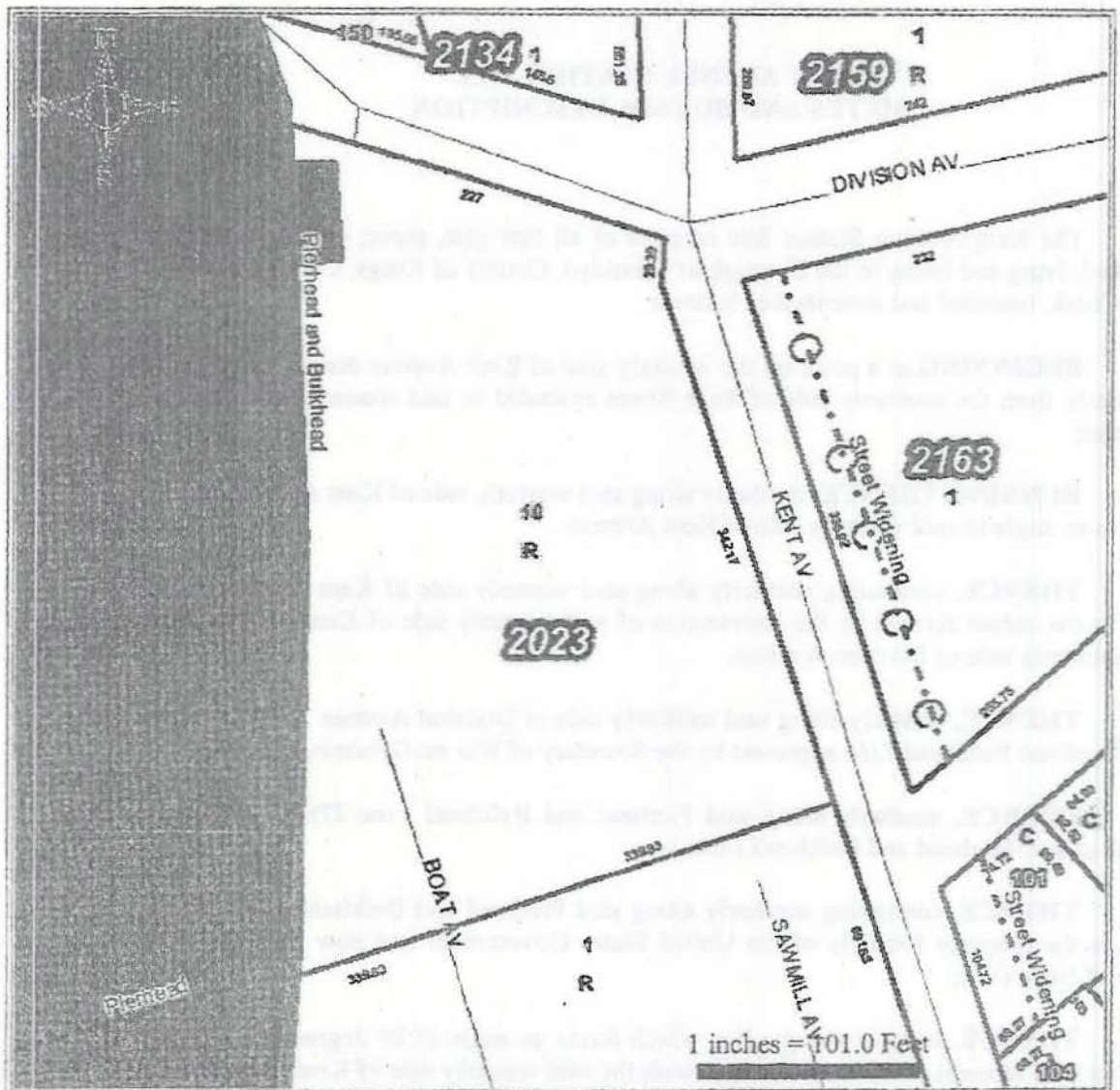
1. SOUTH 17 DEGREES 53 MINUTES 08 SECONDS EAST, 26.95 FEET;
2. SOUTH 18 DEGREES 58 MINUTES 07 SECONDS WEST, 80.66 FEET;
3. NORTH 67 DEGREES 48 MINUTES 27 SECONDS EAST, 0.86 FEET;
4. SOUTH 18 DEGREES 51 MINUTES 30 SECONDS EAST, 26.73 FEET;
5. SOUTH 71 DEGREES 25 MINUTES 46 SECONDS WEST, 78.05 FEET;
6. NORTH 02 DEGREES 22 MINUTES 40 SECONDS EAST, 148.86 FEET;
7. NORTH 82 DEGREES 46 MINUTES 55 SECONDS EAST, 24.07 FEET TO THE POINT OF BEGINNING.

CONTAINING 6,948 SQUARE FEET OR 0.1595 ACRES MORE OR LESS.

APPENDIX B

METES AND BOUNDS

SURVEY MAP



Kent Avenue Station Site - Block 2023 Lot 10

NYC Finance

6/18/2010

Boroughs

Tax Blocks

Tax Lots

Boundary Lines

Streets

Hydrography

Addendum to to Exhibit "A"

METES AND BOUNDS

KENT AVENUE STATION SITE
METES AND BOUNDS DESCRIPTION

The Kent Avenue Station Site consists of all that plot, piece, or parcel of land situated, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point on the westerly side of Kent Avenue distant 103.52 feet northerly from the southerly side of Rush Street extended to said westerly side of Kent Avenue;

RUNNING THENCE, northerly along said westerly side of Kent Avenue 342.17 feet to an angle in said westerly side of Kent Avenue;

THENCE, continuing northerly along said westerly side of Kent Avenue 29.39 feet to the corner formed by the intersection of said westerly side of Kent Avenue with the southerly side of Division Avenue;

THENCE, westerly along said southerly side of Division Avenue 227 feet to the Pierhead and Bulkhead Line approved by the Secretary of War on December 19, 1901;

THENCE, southerly along said Pierhead and Bulkhead Line 278.67 feet to an angle in said Pierhead and Bulkhead Line;

THENCE, continuing southerly along said Pierhead and Bulkhead Line 248.96 feet to the property formerly of the United States Government and now owned by the City of New York;

THENCE, easterly along a line which forms an angle of 89 degrees 47 minutes and no (00) seconds on its northerly side with the said westerly side of Kent Avenue, and along said land formerly of the United States Government and now owned by the City of New York 339.83 feet to said westerly side of Kent Avenue at the point or place of the **BEGINNING**.

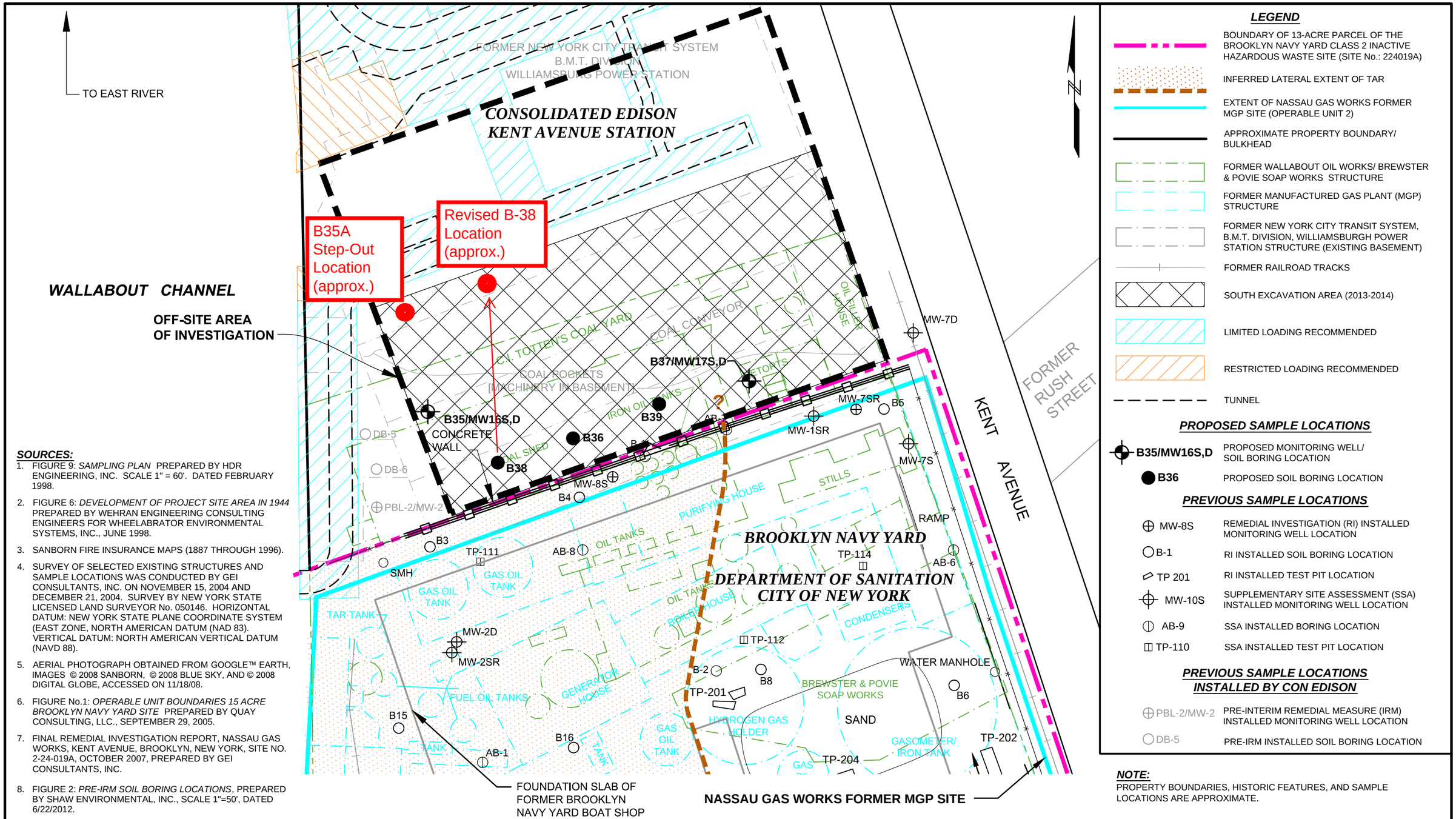
Being the same plot, piece, or parcel of land conveyed to Consolidated Edison Company of New York, Inc. by the City of New York by deed dated August 1, 1962, and recorded in the Office of the City Register, Kings County on August 2, 1960, in Liber 9038 of Conveyances, Pages 265 to 272.

APPENDIX C

NATIONAL GRID INVESTIGATION DATA

SAMPLING LOCATIONS AND

MONITORING WELL CONSTRUCTION LOGS



LEGEND

- BOUNDARY OF 13-ACRE PARCEL OF THE BROOKLYN NAVY YARD CLASS 2 INACTIVE HAZARDOUS WASTE SITE (SITE No.: 224019A)
- INFERRED LATERAL EXTENT OF TAR
- EXTENT OF NASSAU GAS WORKS FORMER MGP SITE (OPERABLE UNIT 2)
- APPROXIMATE PROPERTY BOUNDARY/ BULKHEAD
- FORMER WALLABOUT OIL WORKS/ BREWSTER & POVIE SOAP WORKS STRUCTURE
- FORMER MANUFACTURED GAS PLANT (MGP) STRUCTURE
- FORMER NEW YORK CITY TRANSIT SYSTEM, B.M.T. DIVISION, WILLIAMSBURGH POWER STATION STRUCTURE (EXISTING BASEMENT)
- FORMER RAILROAD TRACKS
- SOUTH EXCAVATION AREA (2013-2014)
- LIMITED LOADING RECOMMENDED
- RESTRICTED LOADING RECOMMENDED
- TUNNEL

PROPOSED SAMPLE LOCATIONS

- B35/MW16S,D — PROPOSED MONITORING WELL/ SOIL BORING LOCATION
- B36 — PROPOSED SOIL BORING LOCATION

PREVIOUS SAMPLE LOCATIONS

- MW-8S — REMEDIAL INVESTIGATION (RI) INSTALLED MONITORING WELL LOCATION
- B-1 — RI INSTALLED SOIL BORING LOCATION
- TP 201 — RI INSTALLED TEST PIT LOCATION
- MW-10S — SUPPLEMENTARY SITE ASSESSMENT (SSA) INSTALLED MONITORING WELL LOCATION
- AB-9 — SSA INSTALLED BORING LOCATION
- TP-110 — SSA INSTALLED TEST PIT LOCATION

PREVIOUS SAMPLE LOCATIONS INSTALLED BY CON EDISON

- PBL-2/MW-2 — PRE-INTERIM REMEDIAL MEASURE (IRM) INSTALLED MONITORING WELL LOCATION
- DB-5 — PRE-IRM INSTALLED SOIL BORING LOCATION

NOTE:
PROPERTY BOUNDARIES, HISTORIC FEATURES, AND SAMPLE LOCATIONS ARE APPROXIMATE.

SOURCES:

1. FIGURE 9: *SAMPLING PLAN* PREPARED BY HDR ENGINEERING, INC. SCALE 1" = 60'. DATED FEBRUARY 1998.
2. FIGURE 6: *DEVELOPMENT OF PROJECT SITE AREA IN 1944* PREPARED BY WEHRAN ENGINEERING CONSULTING ENGINEERS FOR WHEELABRATOR ENVIRONMENTAL SYSTEMS, INC., JUNE 1998.
3. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
4. SURVEY OF SELECTED EXISTING STRUCTURES AND SAMPLE LOCATIONS WAS CONDUCTED BY GEI CONSULTANTS, INC. ON NOVEMBER 15, 2004 AND DECEMBER 21, 2004. SURVEY BY NEW YORK STATE LICENSED LAND SURVEYOR No. 050146. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD 83). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88).
5. AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE™ EARTH, IMAGES © 2008 SANBORN, © 2008 BLUE SKY, AND © 2008 DIGITAL GLOBE, ACCESSED ON 11/18/08.
6. FIGURE No.1: *OPERABLE UNIT BOUNDARIES 15 ACRE BROOKLYN NAVY YARD SITE* PREPARED BY QUAY CONSULTING, LLC., SEPTEMBER 29, 2005.
7. FINAL REMEDIAL INVESTIGATION REPORT, NASSAU GAS WORKS, KENT AVENUE, BROOKLYN, NEW YORK, SITE NO. 2-24-019A, OCTOBER 2007, PREPARED BY GEI CONSULTANTS, INC.
8. FIGURE 2: *PRE-IRM SOIL BORING LOCATIONS*, PREPARED BY SHAW ENVIRONMENTAL, INC., SCALE 1"=50', DATED 6/22/2012.
9. *PRE-IRM INVESTIGATION SUMMARY REPORT*, FORMER KENT AVENUE, 500 KENT AVENUE BROOKLYN, PROJECT NO. 126649, PREPARED BY SHAW ENVIRONMENTAL, INC. AUG. 2012.
10. *FOUNDATION REMAINS FOUND AT 500 KENT AVENUE SURVEYED BETWEEN 12/11/13 AND 02/07/14*, PREPARED BY TEC LAND SURVEYING AT SCALED AT 1"=20', DATED 03/18/14.

REVISED SUPPLEMENTAL
REMEDIAL INVESTIGATION WORK PLAN
NASSAU GAS WORKS FORMER MGP SITE
BROOKLYN, NEW YORK

nationalgrid

GEI Consultants

Project 093040

PROPOSED SAMPLE LOCATIONS

April 2014 Figure 2

I:\Project\National Grid\Nassau\Supplemental_RI\Figures\Nassau-PSamples no alt.dwg

VALIDATED

Table 1
Subsurface Soil Analytical Results Summary
Former Kent Avenue Station-500 Kent Avenue
Supplemental Remedial Investigation
Nassau Gas Works Former MGP Site
Brooklyn, New York

Location ID	Unrestricted Use SCO	Restricted-Residential Use SCO	Industrial Use SCO	B35		B35A			B36			B37			B38		B39	MW-17S
Sample ID (Depth in feet)				B35 (23.3-23.7)	B35 (94-95)	B35A (83.3-85)	B35A (94-95)	BXX Duplicate of B35A (94-95)	B36 (29-30)	BXX Duplicate of B36 (29-30)	B36 (96-97)	B37 (13-15)	B37 (98-100)	BXX Duplicate of B37 (98-100)	B38 (85-86)	B38 (97-98)	B39 (41-41.5)	MW-17S (23-24)
Sample Date				5/8/2014	5/12/2014	5/20/2014	5/20/2014	5/20/2014	5/28/2014	5/28/2014	5/28/2014	5/13/2014	5/14/2014	5/14/2014	5/22/2014	5/22/2014	5/19/2014	5/28/2014
VOCs-BTEX Compounds (mg/kg)																		
Benzene	0.06	4.8	89	**0.2 J**	0.0012 UJ	**0.031 J**	0.0011 UJ	0.0012 UJ	**1.5 J**	**0.3 J**	**0.0011 J**	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Toluene	0.7	100	1000	**1.6 J**	0.0012 UJ	**0.15 J**	0.0011 UJ	**0.00025 J**	0.11 UJ	**0.0055 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Ethylbenzene	1	41	780	**37 J**	**0.00041 J**	**6.9 J**	**0.0043 J**	**0.0052 J**	**1.8 J**	**0.22 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
o-Xylene	0.26	100	1000	**15 J**	0.0012 UJ	**3.6 J**	**0.00065 J**	**0.00072 J**	**0.45 J**	**0.057 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
m/p-Xylene	0.26	100	1000	**29 J**	0.0012 UJ	**2.9 J**	0.0011 UJ	0.0012 UJ	**0.095 J**	**0.011 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Total BTEX	NE	NE	NE	**82.8**	**0.00041**	**13.581**	**0.00495**	**0.00617**	**3.845**	**0.2935**	**0.0011**	ND	ND	ND	ND	ND	ND	ND
Other VOCs (mg/kg)																		
Carbon disulfide	NE	NE	NE	0.12 UJ	**0.001 J**	0.11 UJ	**0.0012 J**	**0.0013 J**	0.11 UJ	0.001 UJ	0.0011 UJ	**0.0018 J**	0.00099 UJ	0.0011 UJ	**0.00016 J**	**0.00042 J**	0.001 UJ	**0.00018 J**
Chlorobenzene	1.1	100	1000	0.12 UJ	**0.0022 J**	**0.2 J**	**0.0014 J**	**0.0015 J**	0.11 UJ	0.001 UJ	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Cyclohexane	NE	NE	NE	0.12 UJ	0.0012 UJ	0.11 UJ	0.0011 UJ	0.0012 UJ	**0.039 J**	**0.0052 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Isopropyl benzene	NE	NE	NE	**4 J**	0.0012 UJ	**1 J**	**0.00072 J**	**0.00074 J**	**0.45 J**	**0.045 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Methyl ethyl ketone (2-Butanone)	0.12	100	1000	0.6 UJ	0.0058 UJ	0.54 UJ	0.0056 UJ	0.0059 UJ	0.53 UJ	0.0052 UJ	0.0053 UJ	**0.0019 J**	0.005 UJ	0.0054 UJ	0.0052 UJ	**0.003 J**	0.0051 UJ	**0.0022 J**
Methylcyclohexane	NE	NE	NE	0.12 UJ	0.0012 UJ	0.11 UJ	0.0011 UJ	0.0012 UJ	**0.033 J**	**0.0027 J**	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Methylene chloride	0.05	100	1000	0.12 UJ	**0.0012 J**	0.11 UJ	**0.00042 J**	0.0012 UJ	0.11 UJ	0.001 UJ	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 U
Styrene	NE	NE	NE	0.12 UJ	0.0012 UJ	**1.7 J**	0.0011 UJ	0.0012 UJ	0.11 UJ	0.001 UJ	0.0011 UJ	0.0011 UJ	0.00099 UJ	0.0011 UJ	0.001 UJ	0.0012 UJ	0.001 UJ	0.00098 UJ
Total VOCs	NE	NE	NE	**86.8**	**0.00481**	**16.481**	**0.00869**	**0.00971**	**4.367**	**0.3464**	**0.0011**	**0.0037**	ND	ND	**0.00016**	**0.00342**	ND	**0.00238**
SVOC-PAH Compounds (mg/kg)																		
Acenaphthene	20	100	1000	**53**	0.39 U	**0.69 J**	0.39 U	0.4 U	**16 J**	**7.8 J**	**0.0023 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Acenaphthylene	100	100	1000	**66**	0.39 U	**3.1 J**	0.39 U	0.4 U	**49 J**	**19 J**	**0.013**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Anthracene	100	100	1000	**63**	0.39 U	**13**	0.39 U	0.4 U	**36 J**	**17 J**	**0.0012 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Benzo(a)anthracene	1	1	11	**33**	0.039 U	**9.5**	0.039 U	0.04 U	**17 J**	**8 J**	0.0075 U	0.039 U	0.037 U	0.036 U	0.037 U	0.039 U	0.037 U	0.037 U
Benzo(b)fluoranthene	1	1	11	**17**	0.039 U	**4.7**	0.039 U	0.04 U	**7.1 J**	**3.6 J**	0.0075 U	**0.024 J**	0.037 U	0.036 U	0.037 U	0.039 U	0.037 U	0.037 U
Benzo(k)fluoranthene	0.8	3.9	110	**8**	0.039 U	**2.5**	0.039 U	0.04 U	**4.1 J**	**1.6 J**	0.0075 U	0.039 U	0.037 U	0.036 U	0.037 U	0.039 U	0.037 U	0.037 U
Benzo(g,h,i)perylene	100	100	1000	**4.3 J**	0.39 U	**2.3 J**	0.39 U	0.4 U	**4.1 J**	**1.8 J**	0.0075 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 UJ	0.37 U
Benzo(a)pyrene	1	1	1.1	**23**	0.039 U	**6.6**	0.039 U	0.04 U	**11 J**	**5.2 J**	0.0075 U	**0.022 J**	0.037 U	0.036 U	0.037 U	0.039 U	0.037 U	0.037 U
Chrysene	1	3.9	110	**34**	0.39 U	**10**	0.39 U	0.4 U	**16 J**	**7.4 J**	0.0075 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Dibenz(a,h)anthracene	0.33	0.33	1.1	**2.4**	0.039 U	**0.74**	0.039 U	0.04 U	**1.4 J**	**0.54 J**	0.0075 U	0.039 U	0.037 U	0.036 U	0.037 U	0.039 U	0.037 UJ	0.037 UJ
Fluoranthene	100	100	1000	**69**	0.39 U	**13**	0.39 U	0.4 U	**34 J**	**16 J**	0.0075 U	0.39 UJ	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Fluorene	30	100	1000	**86**	0.39 U	**2.4 J**	0.39 U	0.4 U	**59 J**	**31 J**	**0.0062 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Indeno(1,2,3-cd)pyrene	0.5	0.5	11	**4.6**	0.039 UJ	**2**	0.039 U	0.04 U	**3.5 J**	**1.5 J**	0.0075 U	0.039 U	0.037 U	0.036 U	0.037 U	0.039 U	0.037 UJ	0.037 U
2-Methylnaphthalene	NE	NE	NE	**96**	0.39 U	3.7 U	0.39 U	0.4 U	0.19 U	0.11 U	0.0075 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Naphthalene	12	100	1000	**32**	0.39 U	3.7 U	0.39 U	0.4 U	**1.2 J**	**0.42 J**	**0.0049 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Phenanthrene	100	100	1000	**270**	0.39 U	**39**	0.39 U	0.4 U	**160 J**	**85 J**	**0.0022 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Pyrene	100	100	1000	**90**	0.39 U	**24**	0.39 U	0.4 U	**60 J**	**33 J**	0.0075 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Total PAH	NE	NE	1000	**951.3**	ND	**133.53**	ND	ND	**479.4**	**238.86**	**0.0298**	**0.046**	ND	ND	ND	ND	ND	ND
Other SVOCs (mg/kg)																		
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**18 J**	0.39 U	3.7 U	0.39 U	0.4 U	**15 J**	**6.8 J**	0.037 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Bis(2-ethylhexyl)phthalate	NE	NE	NE	21 U	0.39 U	3.7 U	0.39 U	0.4 U	1.9 U	1.1 U	**0.0084 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Butyl benzyl phthalate	NE	NE	NE	21 U	0.39 U	3.7 U	0.39 U	0.4 U	0.92 U	0.54 U	**0.0068 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Carbazole	NE	NE	NE	21 U	0.39 U	3.7 U	0.39 U	0.4 U	**0.3 J**	**0.12 J**	0.0075 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Dibenzofuran	7	59	1000	**7.3 J**	0.39 U	3.7 U	0.39 U	0.4 U	**4.7 J**	**2.1 J**	0.037 U	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	0.37 U
Di-n-butyl phthalate	NE	NE	NE	21 U	0.39 U	3.7 U	0.39 U	0.4 U	0.92 U	0.54 U	**0.0056 J**	0.39 U	0.37 U	0.36 U	0.37 U	0.39 U	0.37 U	**0.046 J**
Total SVOCs	NE	NE	NE	**976.6**	ND	**133.53**	ND	ND	**499.4**	**247.88**	**0.0506**	**0.046**	ND	ND	ND	ND	ND	**0.046**

VALIDATED

Table 1
Subsurface Soil Analytical Results Summary
Former Kent Avenue Station-500 Kent Avenue
Supplemental Remedial Investigation
Nassau Gas Works Former MGP Site
Brooklyn, New York

Location ID	Unrestricted Use SCO	Restricted-Residential Use SCO	Industrial Use SCO	B35		B35A			B36			B37			B38		B39	MW-17S
Sample ID (Depth in feet)				B35 (23.3-23.7)	B35 (94-95)	B35A (83.3-85)	B35A (94-95)	BXX Duplicate of B35A (94-95)	B36 (29-30)	BXX Duplicate of B36 (29-30)	B36 (96-97)	B37 (13-15)	B37 (98-100)	BXX Duplicate of B37 (98-100)	B38 (85-86)	B38 (97-98)	B39 (41-41.5)	MW-17S (23-24)
Sample Date				5/8/2014	5/12/2014	5/20/2014	5/20/2014	5/20/2014	5/28/2014	5/28/2014	5/28/2014	5/13/2014	5/14/2014	5/14/2014	5/22/2014	5/22/2014	5/19/2014	5/28/2014
RCRA-8 Metals (mg/kg)																		
Arsenic	13	16	16	**5.6**	3.3 U	**1.7 J**	3.6 U	3.5 U	**1.5 J**	**1.1 J**	3.2 U	**1.4 J**	**1 J**	**0.95 J**	2.7 U	2.8 U	3.1 U	**1.1 J**
Barium	350	400	10000	**15.9 J**	43.8 U	**5 J**	**5.6 J**	**5.8 J**	**30.8 J**	**35.5 J**	**10 J**	**39.8**	**7.5 J**	**8.8 J**	**5.6 J**	**7 J**	**59.9**	**74.4**
Chromium	NE	NE	NE	**18.2**	**4.3**	**4**	**5.1**	**5.5**	**13.4**	**14.3**	**7.8**	**22**	**6.3**	**6.2**	**3.5**	**12.4**	**23**	**19.8**
Lead	63	400	3900	**9.9**	**2.5**	**2.4**	**3.3**	**3.8**	**7.7**	**9.2**	**5.1**	**10.6**	**3.1**	**2.9**	**1.7 J**	**6.4**	**10.7**	**12.5**
Cyanides (mg/kg)																		
Free Cyanide	NE	NE	NE	2.6 U	2.5 U	2.4 U	**1.4 J**	2.6 U	2.5 U	**0.44 J**	2.4 U	2.5 UJ	2.4 U	2.3 U	2.4 U	**0.49 J**	2.3 U	**0.94 J**
Total Cyanide	27	27	10000	**0.079 J**	0.12 U	0.11 UJ	0.12 UJ	0.12 UJ	0.11 U	0.11 U	0.11 U	0.12 UJ	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	**0.13**

Notes:

Only detected analytes are shown on this table.

mg/kg = milligrams/kilogram or parts per million (ppm)

NE = not established

ND = not detected

MGP = Manufactured Gas Plant

BTEX = benzene, toluene, ethylbenzene, and xylenes [analyzed via EPA Method 8260C]

VOCs = volatile organic compounds [analyzed via EPA Method 8260C]

PAHs = polycyclic aromatic hydrocarbons [analyzed via EPA Method 8270D]

SVOCs = semi-volatile organic compounds [analyzed via EPA Method 8270D]

RCRA-8 Metals = Resource Conservation Recovery Act Metals [analyzed via EPA Methods 6010C and 7471 (mercury)]

Cyanides = total cyanide via EPA 9012 B/Free Cyanide via EPA 9016

Total BTEX, Total VOCs, Total PAHs, and Total SVOCs are calculated using only detected compound concentrations.

Total PAH list of analytes: Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, 2-Methylnaphthalene, Naphthalene, Phenanthrene, and Pyrene

6 NYCRR = New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York

Comparison of detected results were performed against the following NYCRR, Chapter IV, Part 375-6 Soil Cleanup Objectives (SCO)s: Unrestricted Use, Restricted-Residential, and Industrial

Bolding indicates a detected result concentration

Gray shading and bolding indicates that the detected result value exceeds the Unrestricted Use SCO

Yellow shading and bolding indicates that the detected result value exceeds the Restricted Residential Use and Unrestricted Use SCOs

Orange shading and bolding indicates that the detected result value exceeds the Industrial, Restricted Residential, and Unrestricted Use SCOs

Validation Qualifiers:

J = estimated value

R = rejected

U = indicates not detected to the reporting limit

UJ = not detected at or above the reporting limit shown and the reporting limit is estimated

Validated

Table 2
Groundwater Analytical Results Summary
Former Kent Avenue Station-500 Kent Avenue
Supplemental Remedial Investigation
Nassau Gas Works Former MGP Site
Brooklyn, New York

Sample ID Sample Date	NYS AWQS	MW-16S 6/19/2014	MW-16D 6/19/2014	Duplicate of MW-16D 6/19/2014	MW-17S 6/19/2014	MW-17D 6/19/2014
VOCs-BTEX Compounds (µg/L)						
Benzene	1	**15**	**3.6**	**3.6**	**13**	1 U
Toluene	5	**0.15 J**	**34**	**33**	1 U	1 U
Ethylbenzene	5	**0.95 J**	**470**	**450**	**0.34 J**	1 U
o-Xylene	5	**0.52 J**	**66**	**63**	**0.14 J**	1 U
m/p-Xylene	5	1 U	**32**	**30**	1 U	1 U
Total BTEX	NE	**16.62**	**605.6**	**579.6**	**13.48**	ND
Other VOCs (µg/L)						
Chlorobenzene	5	1 U	**76**	**74**	1 U	1 U
Cyclohexane	NE	**0.39 J**	**0.32 J**	**0.24 J**	**0.38 J**	1 U
1,1-Dichloroethane	5	1 U	1 U	1 U	1 U	**0.41 J**
cis-1,2-Dichloroethene	5	**2.4**	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	5	**0.15 J**	1 U	1 U	1 U	1 U
Isopropyl benzene	5	**0.21 J**	**25**	**24**	**0.31 J**	1 U
Methyl tert-butyl ether (MTBE)	10*	**0.22 J**	**0.22 J**	**0.22 J**	1 U	1 U
Methylcyclohexane	NE	1 U	**0.49 J**	**0.5 J**	**0.36 J**	1 U
Styrene	5	1 U	**8**	**6.3**	1 U	1 U
Vinyl chloride	2	1 U	**0.44 J**	**0.52 J**	1 U	1 U
Total VOCs	NE	**19.99**	**716.07**	**685.38**	**14.53**	**0.41**
SVOC-PAH Compounds (µg/L)						
Acenaphthene	20*	**1.7 J**	**6 J**	**5.2 J**	11 U	11 U
Acenaphthylene	NE	11 U	**21**	**20**	11 U	11 U
Anthracene	50*	11 U	**1.5 J**	**1.4 J**	11 U	11 U
Fluorene	50*	11 U	**4.2 J**	**3.5 J**	11 U	11 U
2-Methylnaphthalene	NE	11 U	**2.5 J**	**2.2 J**	11 U	11 U
Naphthalene	10*	11 U	**150**	**160**	11 U	11 U
Phenanthrene	50*	11 U	**8.1 J**	**7.7 J**	11 U	11 U
Total PAH	NE	**1.7**	**193.3**	**200**	ND	ND
Other SVOCs (µg/L)						
Acetophenone	NE	11 U	**1.3 J**	**1.3 J**	11 U	11 U
Biphenyl (1,1-Biphenyl)	5	11 U	**2.9 J**	**2.9 J**	11 U	11 U
Di-n-butyl phthalate	50	11 U	11 U	**1.6 J**	11 U	11 U
Total SVOCs	NE	**1.7**	**197.5**	**205.8**	ND	ND
Total RCRA-8 Metals (µg/L)						
Arsenic	25	15 U	60 U	60 U	**4.7 J**	75 U
Barium	1000	**72.9 J**	**899**	**887**	**42.7 J**	**180 J**
Cyanide (µg/L)						
Total Cyanide	200	**45 J**	**33 J**	**30 J**	10 UJ	**35 J**

Table 2
Groundwater Analytical Results Summary
Former Kent Avenue Station-500 Kent Avenue
Supplemental Remedial Investigation
Nassau Gas Works Former MGP Site
Brooklyn, New York

Notes:

Only detected analytes are shown on this table.

ug/L = micrograms per liter or parts per billion (ppb)

NE = not established

ND = not detected

BTEX = benzene, toluene, ethylbenzene, and xylenes [analyzed via EPA Method 8260C]

VOCs = volatile organic compounds [analyzed via EPA Method 8260C]

PAHs = polycyclic aromatic hydrocarbons [analyzed via EPA Method 8270D]

SVOCs = semi-volatile organic compounds [analyzed via EPA Method 8270D]

RCRA-8 Metals = Resource Conservation Recovery Act Metals [analyzed via EPA Methods 6010C and 7471 (mercury)]

Total BTEX, Total VOCs, Total PAHs, and Total SVOCs are calculated using detects only.

Total PAH list of analytes: Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, 2-Methylnaphthalene, Naphthalene, Phenanthrene, and Pyrene

NYS AWQS - New York State Ambient Water Quality Standards and Guidance Values for GA groundwater

* indicates the value is a guidance value and not a standard

Bolding indicates a detected result concentration

Gray shading and bolding indicates that the detected result value exceeds the NYS AWQS

Validation Qualifiers:

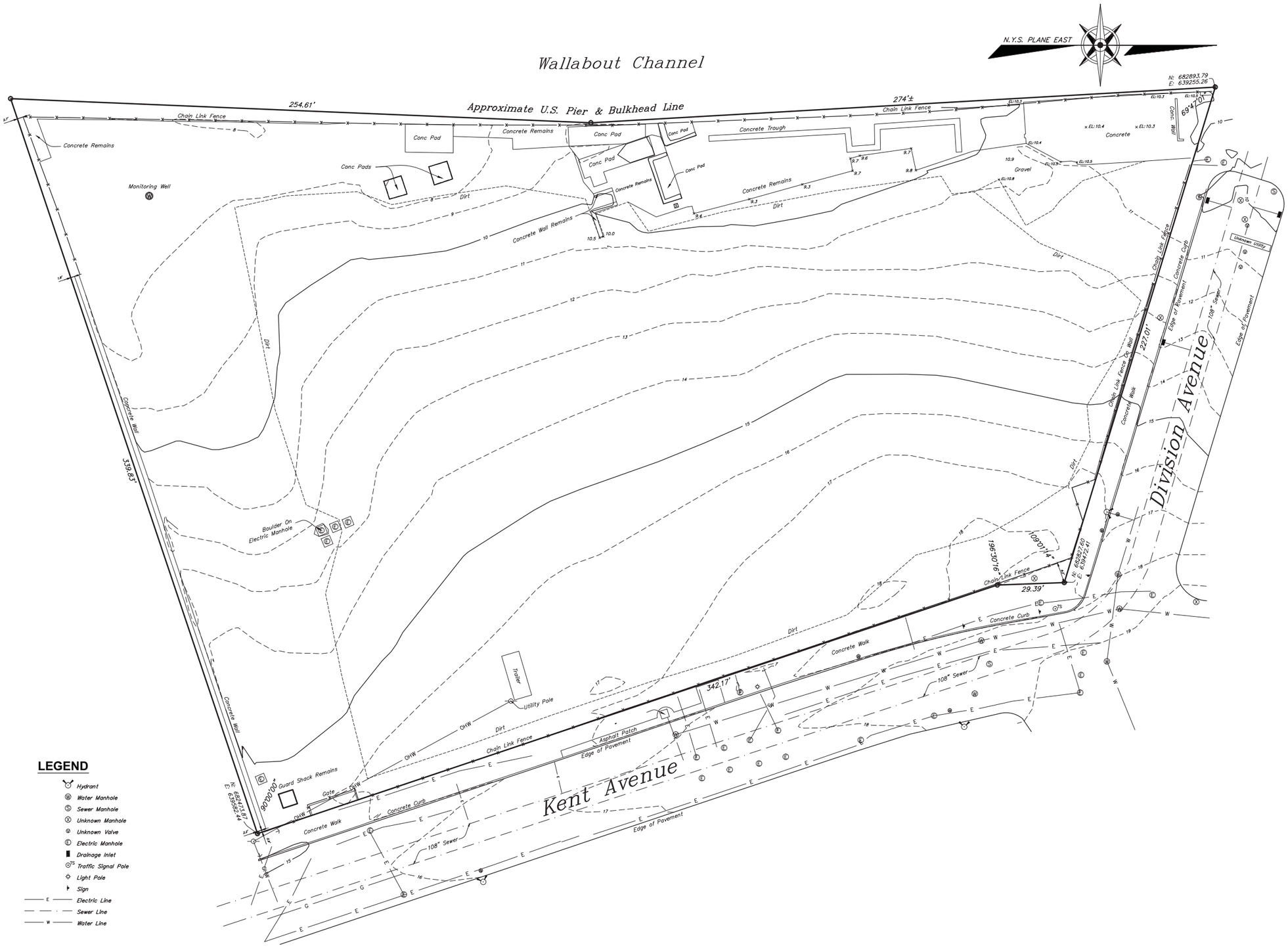
J = estimated value

U = indicates not detected to the reporting limit

UJ = not detected at or above the reporting limit shown and the reporting limit is estimated

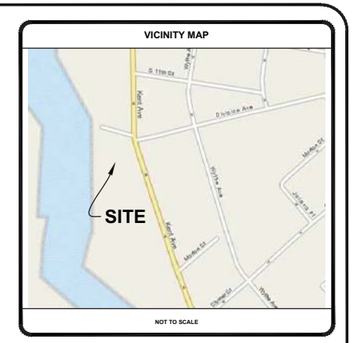
APPENDIX D

REMEDIAL PROGRAM AS-BUILT DRAWINGS



LEGEND

- Hydrant
- Water Manhole
- Sewer Manhole
- Unknown Manhole
- Unknown Valve
- Electric Manhole
- Drainage Inlet
- Traffic Signal Pole
- Light Pole
- Sign
- Electric Line
- Sewer Line
- Water Line



SURVEY NOTES

1. Copyright TEC Land Surveying. All Rights Reserved. Reproduction or copying of this document may be a violation of copyright law unless permission of the author and / or copyright holder is obtained.

2. Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209, sub-division 2, of the New York State Education Law.

3. Only boundary survey maps with the surveyor's embossed or red inked seal are genuine true and correct copies of the surveyor's original work and opinion. A copy of this document without a proper application of the surveyor's embossed or red inked seal should be assumed to be an unauthorized copy.

4. Certifications on this boundary survey map signify that the map was prepared in accordance with the current existing Code of Practice for Land Surveys adopted by the New York State Association of Professional Land Surveyors, Inc. The certification is limited to persons for whom the boundary survey map is prepared, to the title company, to the governmental agency, and to the lending institution listed on this boundary survey map.

5. The certifications herein are not transferable.

6. The location of underground improvements or encroachments are not always known and often must be estimated. If any underground improvements or encroachments exist or are shown, the improvements or encroachments are not covered by this certificate.

7. Subject to the findings of a current title search.

8. Subject to covenants, easements, restrictions, conditions and agreements of record.

9. Subject to any right, title or interest the public may have for highway use.

10. All elevations refer to NAVD88 (GEOID03), horizontal locations in New York State Plane East Zone.

11. Utilities shown hereon represent those as marked out in September 2011. Additional NYC DEP records were provided and are represented on this map. No private utility plates nor any information from the MTA was received and the location of those utilities (if any) is unknown.

FILED MAP REFERENCE

Brooklyn Final Section Map No. 11
Filed at the Brooklyn Borough Topographic Department

TAX PARCEL NUMBER

Borough of Brooklyn, Section 11, Block 2023, Lot 10

AREA

2.6± Acres

rev.	date	description
2	3/25/14	Add N.Y.S. Plane East on North arrow and utility orientation
1	12/5/13	Added Utilities To Drawing

TEC LAND SURVEYING
176 Main Street Beacon, NY 12508
PH: 845.445.6590 FX: 845.445.6591

STATE OF NEW YORK · THOMAS E. CERCHIARA · LICENSED LAND SURVEYOR · 050732

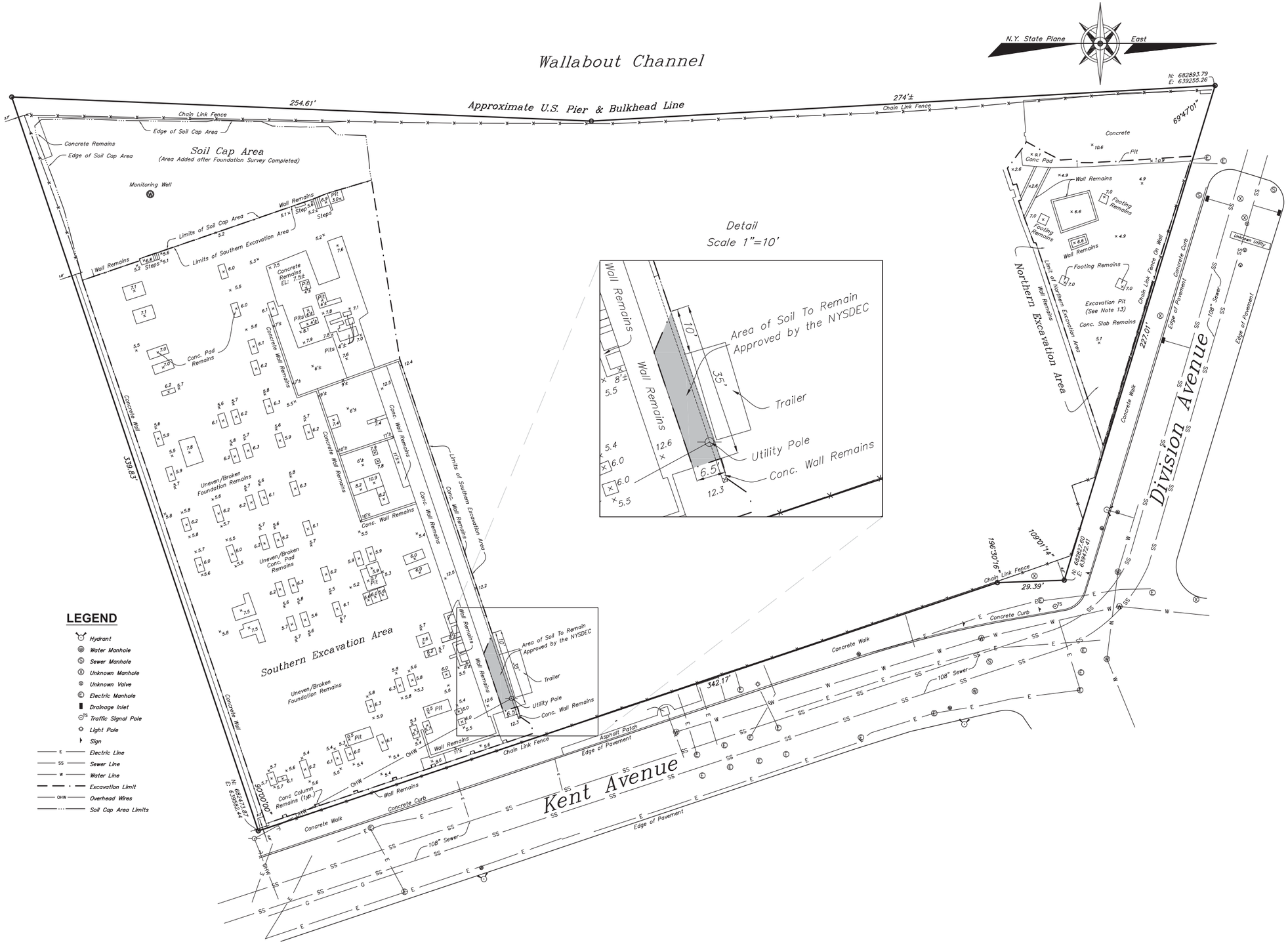
THOMAS E. CERCHIARA, P.L.S.
P.L.S. No. 50732

MAXYMILLIAN - KENT AVE - BROOKLYN

EXISTING CONDITIONS SURVEY OF
500 KENT AVENUE
PREPARED FOR MAXYMILLIAN TECHNOLOGIES

BOROUGH OF BROOKLYN, CITY OF NEW YORK, STATE OF NEW YORK

tax id	11-2023-10
address	500 KENT AVE.
date	11/26/13
drawn	KH/TEC
scale	1"=20'
checked	TEC
project no.	11-049
project name	KENT AVE.
sheet	1 OF 1



LEGEND

- Hydrant
- Water Manhole
- Sewer Manhole
- Unknown Manhole
- Unknown Valve
- Electric Manhole
- Drainage Inlet
- Traffic Signal Pole
- Light Pole
- Sign
- E — Electric Line
- SS — Sewer Line
- W — Water Line
- Excavation Limit
- OHW — Overhead Wires
- Soil Cap Area Limits

VICINITY MAP

NOT TO SCALE

SURVEY NOTES

1. Copyright TEC Land Surveying. All Rights Reserved. Reproduction or copying of this document may be a violation of copyright law unless permission of the author and / or copyright holder is obtained.

2. Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209, sub-division 2, of the New York State Education Law.

3. Only boundary survey maps with the surveyor's embossed or red inked seal are genuine true and correct copies of the surveyor's original work and opinion. A copy of this document without a proper application of the surveyor's embossed or red inked seal should be assumed to be an unauthorized copy.

4. Certifications on this boundary survey map signify that the map was prepared in accordance with the current existing Code of Practice for Land Surveys adopted by the New York State Association of Professional Land Surveyors, Inc. The certification is limited to persons for whom the boundary survey map is prepared, to the title company, to the governmental agency, and to the lending institution listed on this boundary survey map.

5. The certifications herein are not transferable.

6. The location of underground improvements or encroachments are not always known and often must be estimated. If any underground improvements or encroachments exist or are shown, the improvements or encroachments are not covered by this certificate.

7. Subject to the findings of a current title search.

8. Subject to covenants, easements, restrictions, conditions and agreements of record.

9. Subject to any right, title or interest the public may have for highway use.

10. All elevations refer to NAVD88 (GEOID03), horizontal locations in New York State Plane East Zone.

11. Utilities shown hereon represent those as marked out in September 2011. Additional NYC DEP records were provided and are represented on this map. No private utility plates nor any information from the MTA was received and the location of those utilities (if any) is unknown.

12. Spot elevations shown hereon were taken on very uneven and broken concrete with variations of ±0.5 feet. Additionally TEC was not allowed access to this area to shoot the elevations, instead a Maxymillian employee used the prism pole in the pit while we used the instrument outside of the pit. TEC did our best to supervise the person holding the prism pole but at times we were unable to observe the person directly. All elevations on the base pad should be considered ±0.15 feet and on the raised pads elevations should be considered ±0.50. The uneven/broken nature of the surfaces should also be considered.

13. Elevations in the Northern excavation pit were provided to this surveyor by field notes provided by Maxymillian Technologies, Inc. and were not surveyed by TEC.

FILED MAP REFERENCE

Brooklyn Final Section Map No. 11
Filed at the Brooklyn Borough Topographic Department

TAX PARCEL NUMBER

Borough of Brooklyn, Section 11, Block 2023, Lot 10

AREA

2.6± Acres

rev.	date	description
3	4-14-2014	Put limits of areas on map and change legend
2	3/25/14	Added more spot elevations
1	3/25/14	Add NY.S. Plane East on North arrow and added spot elevations

TEC LAND SURVEYING
176 Main Street Beacon, NY 12508
PH: 845.445.6590 Fx: 845.445.6591

STATE OF NEW YORK · THOMAS E. CERCHIARA JR. · LICENSED LAND SURVEYOR · 050732

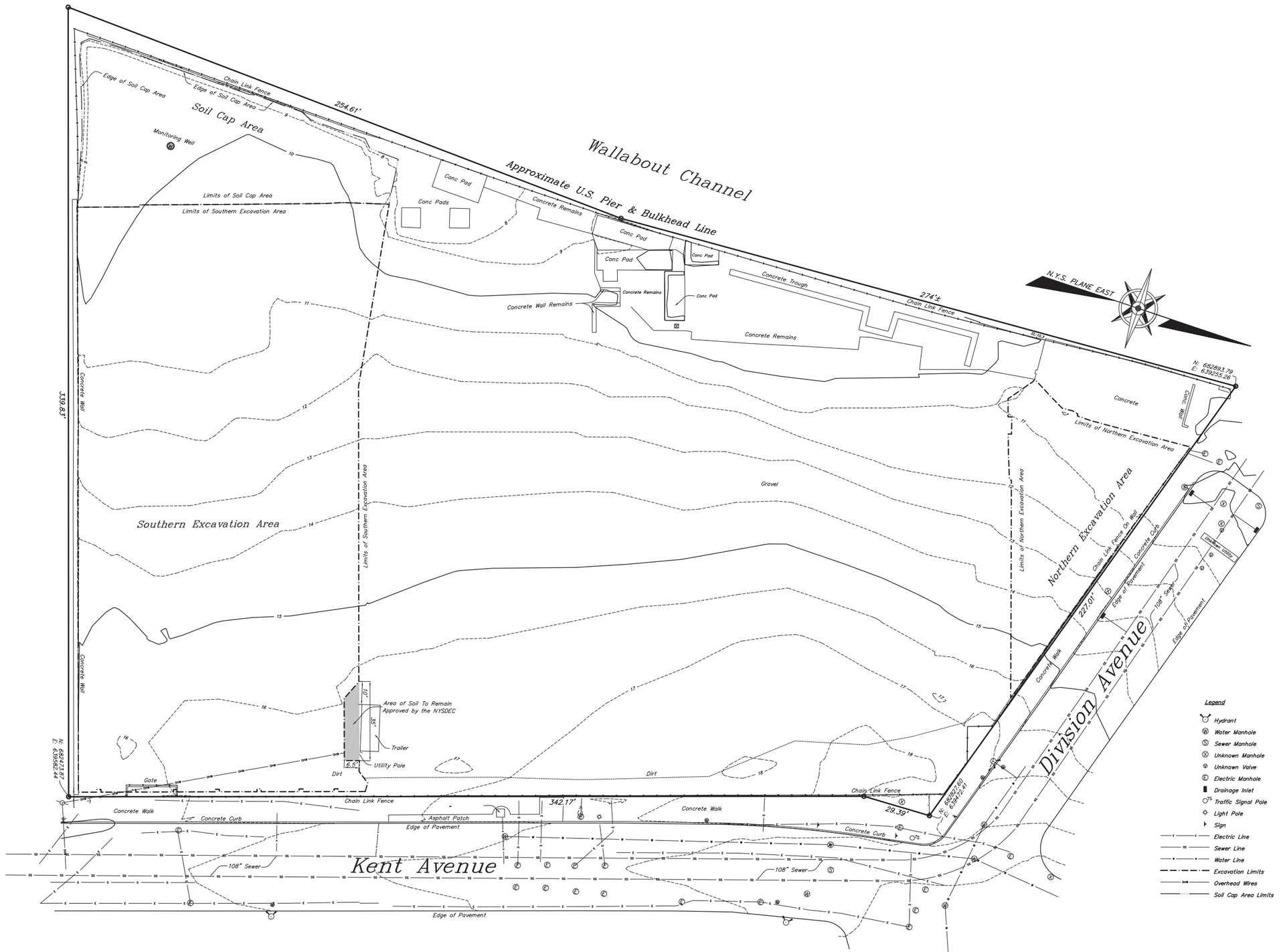
THOMAS E. CERCHIARA, P.L.S.
P.L.S. No. 50732

MAXYMILLIAN - KENT AVE - BROOKLYN

FOUNDATION REMAINS FOUND AT 500 KENT AVENUE SURVEYED BETWEEN 12/11/13 AND 02/07/14

BOROUGH OF BROOKLYN, CITY OF NEW YORK, STATE OF NEW YORK

tax lot	11-2023-10
address	500 KENT AVE.
date	03/18/14
drawn	KH
scale	1"=20'
checked	TEC
project no.	11-049
project name	KENT AVE.
sheet	1 OF 1



Legend

- Hydrant
- Water Manhole
- Sewer Manhole
- Unknown Manhole
- Unknown Valve
- Electric Manhole
- Drainage Inlet
- Traffic Signal Pole
- Light Pole
- Sign
- Electric Line
- Sewer Line
- Water Line
- Excavation Limits
- Overhead Wires
- Soil Cap Area Limits

VICINITY MAP

NOT TO SCALE

SURVEY NOTES

1. Copyright TEC Land Surveying. All Rights Reserved. Reproduction or copying of this document may be a violation of copyright law unless permission of the author and / or copyright holder is obtained.

2. Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209, sub-division 2, of the New York State Education Law.

3. Only boundary survey maps with the surveyor's embossed or red inked seal are genuine true and correct copies of the surveyor's original work and opinion. A copy of this document without a proper application of the surveyor's embossed or red inked seal should be assumed to be an unauthorized copy.

4. Certifications on this boundary survey map signify that the map was prepared in accordance with the current existing Code of Practice for Land Surveys adopted by the New York State Association of Professional Land Surveyors, Inc. The certification is limited to persons for whom the boundary survey map is prepared, to the title company, to the governmental agency, and to the lending institution listed on this boundary survey map.

5. The certifications herein are not transferable.

6. The location of underground improvements or encroachments are not always known and often must be estimated. If any underground improvements or encroachments exist or are shown, the improvements or encroachments are not covered by this certificate.

7. Subject to the findings of a current title search.

8. Subject to covenants, easements, restrictions, conditions and agreements of record.

9. Subject to any right, title or interest the public may have for highway use.

10. All elevations refer to NAVD88 (GEOID03), horizontal locations in New York State Plane East Zone.

11. Utilities shown hereon represent those as marked out in September 2011. Additional NYC DEP records were provided and are represented on this map. No private utility plates nor any information from the MTA was received and the location of those utilities (if any) is unknown.

FILED MAP REFERENCE

Brooklyn Final Section Map No. 11
Filed at the Brooklyn Borough Topographic Department

TAX PARCEL NUMBER

Borough of Brooklyn, Section 11, Block 2023, Lot 10

AREA

2.6± Acres

rev.	date	description
2	4/14/14	Put limits of areas on map and change legend
1	3/25/14	Add New York State Plane East on North arrow

TEC LAND SURVEYING
176 MAIN STREET BEACON, NY 12508
PH: 845.445.6590 FX: 845.445.6591

STATE OF NEW YORK · THOMAS E. CERCHIARA · LICENSED LAND SURVEYOR · 050732

THOMAS E. CERCHIARA, P.L.S.
P.L.S. No. 50732

MAXYMILLIAN - KENT AVE - BROOKLYN

FINAL ASBUILT
500 KENT AVENUE
PREPARED FOR MAXYMILLIAN TECHNOLOGIES

BOROUGH OF BROOKLYN, CITY OF NEW YORK, STATE OF NEW YORK

tax id	11-2023-10
address	500 KENT AVE
date	3/18/2014
drawn	KH/TEC
scale	1"=20'
checked	TEC
project no.	11-049
project name	KENT AVE.
sheet	1 OF 1

APPENDIX E

EXCAVATION WORK PLAN

EXCAVATION WORK PLAN

E-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the New York State Department of Environmental Conservation (Department). Currently, this notification will be made to:

Current Project Manager (Douglas MacNeal)

625 Broadway, 11th Floor

Albany, NY 12233-7014

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this Excavation Work Plan (EWP),
- A statement that the work will be performed in compliance with this EWP and 29 Code of Federal Regulations (CFR) 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the Health and Safety Plan (HASP) provided in Appendix F of the Site Management Plan (SMP),
- An Odor Control Plan that is capable of controlling emissions of any nuisance odors going off of the site,
- A Dust Control Plan that addresses dust management during invasive on-site excavation work,

- A description of the erosion and sediment control measures that will be employed during the excavation activities, and a Stormwater Pollution Prevention Plan if the excavation (or related construction) activities will exceed one acre in size,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

Asbestos-containing material (ACM) was identified on the site during previous site investigations, and not all ACM was removed by the previous remedial programs. There are three areas where suspect ACM remain as shown on **Figure E-1**. The Capped Southwest Portion of the Site was not excavated during the previous remedial program and the soil/fill may have ACM. A demarcation barrier (orange plastic fence) was placed over the soil/fill and capped with 20 inches of structural fill and 4 inches of ¾-inch stone. The Utility Pole Area had been covered with four feet of clean fill during the 2009 demolition of the Generating Station and the 2011 Ash Pit remedial program, but the area could not be excavated because the utility pole and conex box containing the electrical panels for the site could not be moved. The soil/fill below four feet may have ACM. Within the North Excavation Area, the soil/fill which remains at the depth of the water table and beneath the demarcation barrier, have areas which contain ACM based on sampling results.

All excavation related work in these two areas must have the proper safety programs in place for handling ACM and must meet the New York State Department of Health (NYSDOH) 12 New York Code, Rules and Regulations (NYCRR) Part 56 asbestos abatement requirements as well as the New York City Department of Environmental Protection (NYCDEP) Title 15, Chapter 1 asbestos abatement requirements.

E-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Release and Covenant Not to Sue.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

E-3 STOCKPILE METHODS

To the extent practicable, any excavated materials to be removed for off-site disposal should be directly loaded into the trucks or containers used for the removal. Soil and fill materials that are not practicable to be direct loaded will be stockpiled for as short a period of time as possible. Excavated soil shall be stockpiled on 10 mil polyethylene sheeting. Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles will be kept covered at all times with 10 mil polyethylene sheeting and appropriately anchored with sandbags. Stockpiles will be routinely inspected and damaged polyethylene covers will be promptly replaced. Wet soils shall be stockpiled in a manner that favors free drainage of the soil. Free drainage water shall be channeled away from the soil stockpile and into suitable depository.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the Department.

E-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under the supervision of a qualified environmental professional will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

If soil/fill materials contained within the North Excavation Area, the Capped Southwest Portion of the Site or the Utility Pole Area are excavated as part of the site activities, the materials excavation and load out must also conform to the NYSDOH 12 NYCRR Part 56 asbestos abatement requirements as well as the NYCDEP Title 15, Chapter 1 asbestos abatement requirements.

E-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

A site-specific visitor's orientation will be given to all truck drivers expected to frequent the Site. These drivers will be given an orientation to familiarize them with site activities, restrictions, and traffic procedures.

Public safety is a high priority of all projects at this site. Delivery and disposal trucks will access the Site via designated New York City (NYC) commercial truck routes. All regular truck drivers and delivery personnel will be given a safety briefing regarding the traffic safety plan. Trained traffic control personnel (flaggers) will be used to assist the truckers when entering and exiting the Site. They will stop traffic (bicycles,

pedestrians, or vehicles) in a controlled manner to ensure the trucks can enter or exit in a safe manner.

As the truckers exit the Site, due to their height in their cabs – they should be able to see along Kent Avenue and not have obstructed views. This, along with a flagger, will ensure a safe entry and exit from the Site.

Trucks scheduled to pick up or deliver soil will be spaced out as not to have multiple vehicles at any one time on the Site or in the surrounding areas. Trucks will stage in a non-congested area and await word from the Site as when to proceed to the Site. Typically trucks will have radios where they can communicate with each other.

The truck transport exit route for off-site transportation of material such as soil, debris, and wastewater is as follows:

Local Route From Project Site:

Left on Kent Avenue (heading north)

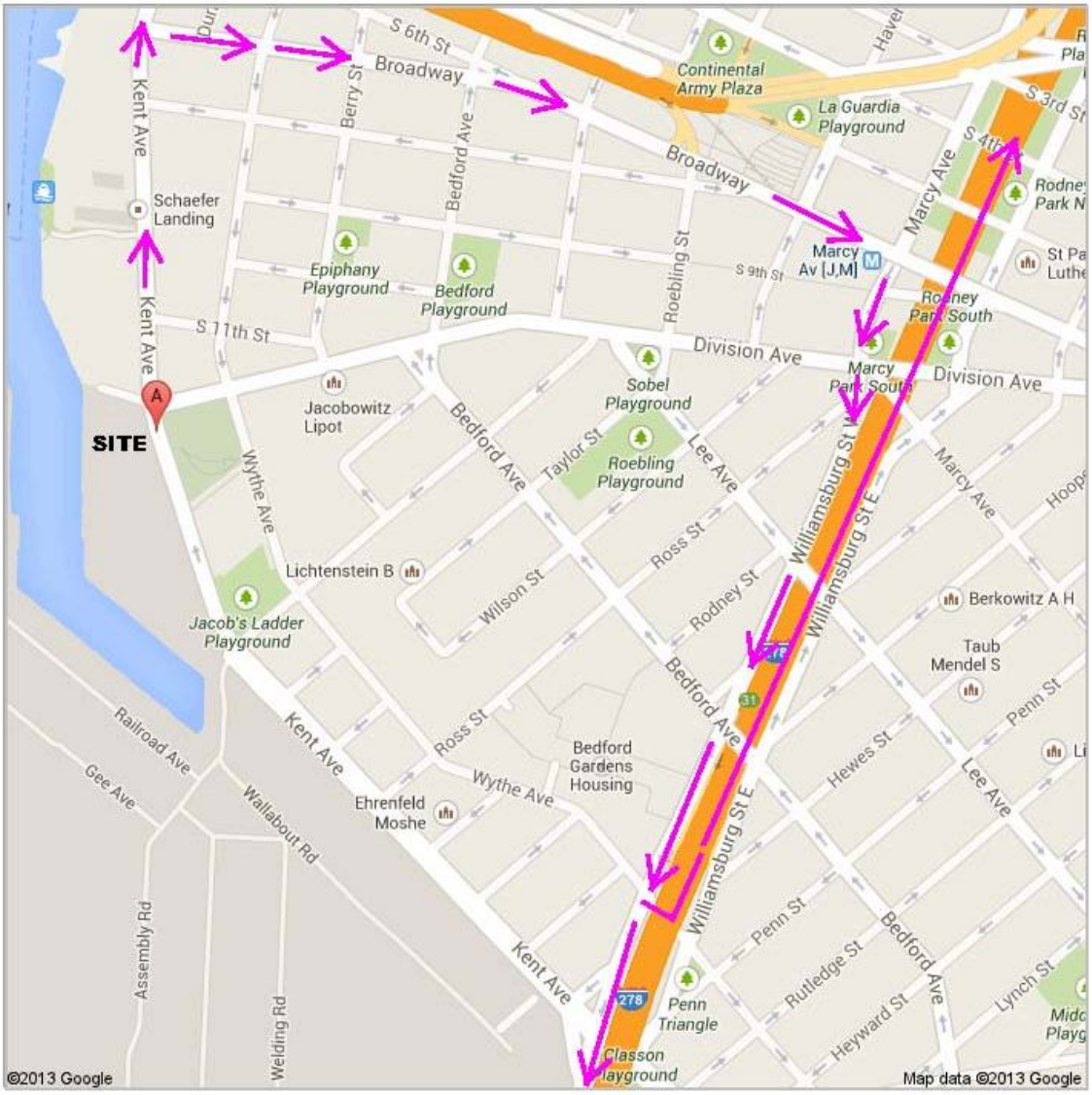
Right on Broadway (heading East)

Right on Marcy Avenue (heading South)

Marcy turns into Williamsburg St. W

Williamsburg St. W becomes Williamsburg Place

Merge onto I-278.



All trucks loaded with site materials will exit the Site using only this approved truck route. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; (f) overall safety in transport; and (g) community input.

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed off-site in a non-congested area and await word from the Site as to when to proceed to the Site.

E-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. If disposal of soil/fill from the Site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the Department. Unregulated off-site management of materials from the Site will not occur without formal Department approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the Department in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2. Material that does not meet 6 NYCRR Part 375-6.8(a) Track 1 unrestricted Soil Cleanup Objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility).

E-7 MATERIALS REUSE ON-SITE

Backfill material placed during the remedial program may be reused on the Site. Specifically, all backfill material, including the structural fill and ¾-inch stone placed above the demarcation barrier and within the limits of the North and South Excavation Areas and the Capped Southwest Portion of the Site (as shown on Figure E-1) may be reused onsite without testing of the material. Since the two feet of structural fill and ¾-inch stone is the minimum required cap over the remaining contaminated soil, this fill material will not be disturbed unless it is part of further remediation of the Site prior to further development of the Site, which will require Department approval. As mentioned above in Section E-6, if this clean backfill material is proposed for unregulated off-site disposal (i.e. removed for development purposes), a formal request with an associated plan will be made to the Department.

The clean fill that was placed above the Generating Station concrete basement slab floor and within the basement walls during the 2009 demolition activities may be reused on site without any testing. However, this clean fill must be tested for all of the 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs parameters prior to removal from the Site. If the tested clean fill meets the Unrestricted SCOs and is proposed for unregulated off-site disposal (i.e. removed for development purposes), a formal request with an associated plan will be made to the Department.

The qualified environmental professional will ensure that procedures defined for materials reuse in this EWP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that has been tested and meets the 6 NYCRR Part 375 6.8(b) Restricted Residential SCOs will be acceptable for re-use on-site and can be placed below the demarcation layer or impervious surface, but cannot be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any contaminated material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the Department for acceptance. Concrete crushing or processing on-site will not be performed without prior Department approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site.

E-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a State Pollution Discharge Elimination System (SPDES) permit.

E-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Remedial Action Work Plan (RAWP), the Area of Concern (AOC) Letter and the Decision Document. The demarcation layer, consisting of orange snow fencing material or equivalent material will

be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

E-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and as detailed in Section 5.4(e) and Appendix 5 of DER-10. All imported materials will be tested as specified in Section 5.4(e) of DER-10 to ensure the quality of the material. Information regarding the proposed imported material, including all test results and details regarding the fill material source, must be submitted to the Department for approval prior to transporting to the Site. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for the Site, will not be imported onto the Site without prior approval by the Department. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

E-11 STORMWATER POLLUTION PREVENTION

For excavation or construction projects exceeding one acre, a Stormwater Pollution Prevention Plan (SWPPP) will be required. The SWPPP should conform to the requirements of the Department's Division of Water guidelines and the NYS Stormwater Management Design Manual, dated August 2010. For excavation or construction projects less than an acre, an Erosion and Sediment Control Plan (ESCP) will be developed and submitted as part of the notification (see Section E-1) to the Department.

Key requirements of either a SWPPP or ESCP should include, but not be limited to, the following:

- Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.
- Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.
- All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.
- Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters
- Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

E-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (Target Analyte List [TAL] metals; Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides and polychlorinated biphenyls [PCBs]), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the Department for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to Department's Project Manager. Reportable quantities of petroleum product will also be reported to the Department spills hotline. These findings will be also included in the Periodic Review Reports prepared pursuant to Section 5 of the SMP.

E-13 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) will be implemented during all ground intrusive activities. The purpose of the CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of excavation activities.

A basic CAMP for excavation activities at the site has been prepared and is presented in Appendix G of the SMP. The CAMP includes:

- A figure showing the location of air sampling stations based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.
- Specific action levels that require increased monitoring, corrective actions to abate emissions, and/or work shutdown.

The CAMP will monitor for both volatile organic compounds (VOCs) and aerosol particulates (dust). Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

As mentioned in Section E-1, the contaminated soil/fill below the demarcation barrier within the North Excavation Area, in the Capped Southwest Portion of the Site and the Utility Pole Area is considered to have ACM. Any excavation work penetrating the soil/fill in either of these two areas must have an asbestos air monitoring plan as well as a CAMP. The asbestos air monitoring plan must meet the requirements set forth in the NYSDOH 12 NYCRR Part 56 asbestos abatement requirements as well as the NYCDEP Title 15, Chapter 1 asbestos abatement requirements.

E-14 ODOR CONTROL PLAN

An Odor Control Plan will be developed and submitted as part of the notification (see Section E-1) to the Department. This odor control plan will be capable of

controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. The Department and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

E-15 DUST CONTROL PLAN

A Dust Control Plan will be developed and submitted as part of the notification (see Section E-1) to the Department. The dust suppression plan will address dust management during invasive on-site work and will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

E-16 OTHER NUISANCES

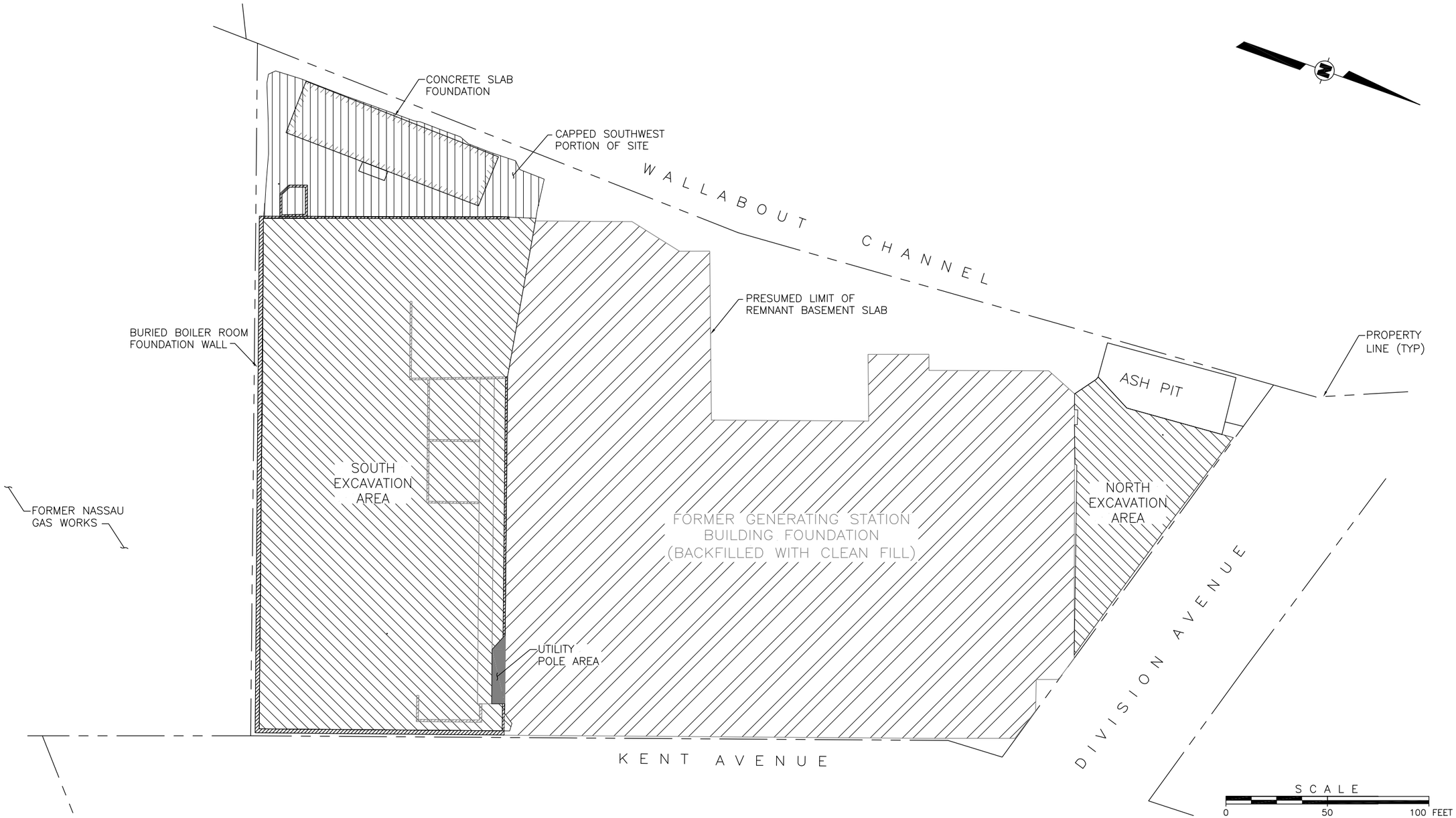
A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A Noise Mitigation Plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

EXCAVATION WORK PLAN

FIGURE

OFFICE NEW YORK, NY | DRAWING NUMBER FIGURE E-1



LEGEND

- AREA WITH CONTAMINATED SOIL BELOW DEMARCATION BARRIER
- AREA BACKFILLED WITH CLEAN FILL; NO DEMARCATION BARRIER; CONTAMINATED SOIL BELOW CONCRETE SLAB FLOOR
- ACM CONTAMINATED SOIL CAPPED WITH DEMARCATION BARRIER, 20" STRUCTURAL FILL, AND 4" ¾" STONE
- AREA NOT REMEDIATED BELOW FOUR FEET (ACM CONTAMINATED SOIL BELOW 4 FEET)

SOURCE: "PHASE II INVESTIGATION REPORT:KENT AVENUE SITE", LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP, DATE: FEBRUARY 2000

Shaw Environmental & Infrastructure Engineering of NY, PC

DESIGNED BY: C. KRAEMER	CON EDISON LONG ISLAND CITY, NEW YORK			
DRAWN BY: S. SHATZ	EXISTING COVER SYSTEMS AND CONTAMINATED SOIL/FILL REMAINING ON SITE FORMER KENT AVENUE GENERATING STATION 500 KENT AVENUE, BROOKLYN, NEW YORK			
CHECKED BY: C. KRAEMER				
APPROVED BY: D. CHEN	DATE: 5/6/14	SCALE: AS SHOWN	DRAWING NO. FIGURE E-1	REV NO. -

File: V:\ - CLIENT\Con Edison\146740 Kent Ave\Working\VRM\CADD\VRM\FER & SMP\SMP Figure E-1.dwg
Plot Date/Time: May 06, 2014 - 12:10pm
Plotted By: sara.shatz

APPENDIX F

HEALTH AND SAFETY PLAN

Health and Safety Plan
for
Site Management Plan

500 Kent Ave
Brooklyn, New York

Reviewed and Accepted by: Thomas F. O'Connell,
Con Edison EH&S Construction

Date HASP Accepted: June 27, 2014

JUNE 2014

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
ACM	Asbestos-Containing Material
AHA	Activity Hazard Analysis
CGI	Combustible Gas Indicator
CIH	Certified Industrial Hygienist
CFR	Code of Federal Regulations
CRZ	Contamination Reduction Zone
dBA	decibel
DEET	*N*,*N*-Diethyl-*meta*-toluamide
EPA	U.S. Environmental Protection Agency
EZ	Exclusion Zone
f/b	flash/bang
f/cc	fibers per cubic centimeter
FDNY	Fire Department of New York
ft	feet
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDLH	Immediately Dangerous to Life or Health
lb.	pound
LEL	Lower Explosive Limit
LHCP	Licensed Health Care Professional
m	meter
NYCDEP	New York City Department of Environment Protection
NYCDOB	New York City Department of Buildings
NYSDEC	New York State Dept. of Environmental Conservation
NYSDOL	New York State Department of Labor
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
ppm	parts per million
PEL	Permissible Exposure Limit
PM	Site Project Manager
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
SPDES	State Pollution Discharge Elimination System
SS	Site Supervisor
SSHO	Site Safety and Health Officer
SVOC	Semi-Volatile Organic Compound
SZ	Support Zone
TBD	To Be Determined
TLV	Threshold Limit Value
TWA	Time Weighted Average
ug/m^3	microgram per cubic meter
VOC	Volatile Organic Compound

1.0 PROJECT IDENTIFICATION

Site Name: Kent Avenue
Site Location: 500 Kent Ave
Brooklyn, NY

2.0 INTRODUCTION

2.1 Scope and Application of HASP

The purpose of this Health and Safety Plan (HASP) is to define the requirements and designate protocols to be followed to protect workers and the public from potential hazards posed during work activities at the Site. The site has been remediated, however, contaminated soil/fill remains below the site as identified in the Site Management Plan. This HASP covers both standard construction and environmental safety issues. Applicability extends to contractors, subcontractors, governmental officials, and visitors that enter the site. For the purposes of this HASP, the term "Site" shall be used to identify the property.

During development of this HASP, consideration was given to current standards as defined by the United States Occupational Safety and Health Administration (OSHA), the New York State Department of Labor (NYSDOL), the New York City Department of Environmental Protection (NYCDEP) as well as potential health effects and standards for known contaminants, and procedures designated to account for the potential for exposure to these identified substances. Specific reference documents include, but are not limited to:

- 29 Code of Federal Regulations (CFR) Part 1910;
- 29 CFR Part 1926;
- 12 New York Codes, Rules and Regulations (NYCRR) Part 56;
- Title 15, Chapter 1 of the Rules of the City of New York

This HASP shall be implemented at a multi-employer work site. Information and references within this plan shall in no way imply or alleviate any party from their responsibility to comply with any and all applicable State or Federal statutes or regulations regarding work activities at the Site. It is the responsibility of each employer to communicate and coordinate work planning so as to prevent their work activities from becoming a potential hazard to other workers at the Site. Failure to communicate will not alter an employer's responsibilities or obligations for any resulting injuries to their employees. All parties involved in work activities at the Site shall adhere to this Plan, and to all revisions thereof. This Plan does not supersede any contractor safety and health policies, protocols, or requirements that may be more stringent.

This plan must be verbally given by the Contractor to all project personnel, and an agreement to comply with the requirements contained herein, must be signed by all project personnel and visitors who may enter areas of possible exposure on the site, prior to their commencement of work (HASP Acknowledgement, Attachment 1).

In addition to compliance with this plan, contractors and visitors at this site are expected to comply with all applicable government safety and environmental health regulations. Applicable standards include, but are not limited to:

- U.S. Environmental Protection Agency (USEPA) Asbestos Worker Protection (40 CFR 763.120);
- 12 NYCRR Part 56 (NYSDOL Asbestos);
- Title 15, Chapter 1 of the Rules of the City of New York (NYCDEP Asbestos);
- Title 15, Chapter 28 of the Rules of the City of New York (NYCDEP Noise);
- 2008 New York City Constructions Codes, Chapter 33 (New York City Department of Buildings [NYCDOB] Construction Safety);
- 6 NYCRR Part 750 (New York State Department of Environmental Conservation [NYSDEC] SPDES Permit);
- 6 NYCRR Part 613 (NYSDEC Spill Reporting);
- OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) (29 CFR 1926.65);
- OSHA Asbestos for Construction (29 CFR 1926.1101);
- OSHA Hazard Communication (29 CFR 1910.1200);
- OSHA Lockout-Tagout (29 CFR 1910.147);
- OSHA Construction standards (29 CFR 1926), such as:
    - Fall Protection;
    - Trenching, Shoring and Excavation;
    - Cranes and Derricks.

The removal of any asbestos-in-soil within a full containment will not be practical. Therefore, it is presumed that the removal of asbestos-in-soil will be by an open-air wet method abatement using mechanical means under a variance in accordance with NYCDEP Title 15, Chapter 1, Subchapter A, §1-03. All discussions related to asbestos abatement in this HASP presume that the work will be completed under a variance.

2.1.1 Changes to the HASP

Site conditions may change and unforeseen situations may arise that require modifications from the original plan. Therefore, the contractor only makes representations or warranties as to the adequacy of the HASP for currently anticipated activities and conditions. This flexibility allows for modification of the HASP by the Project Manager and Certified Industrial Hygienist, with final approval by the Owner.

All changes to procedures in this plan shall be documented in writing using the HASP Addendum form provided in Attachment 9. Each Addendum to the HASP shall be submitted to the Owner for review. Work cannot proceed on the changed condition/added task until the

Owner considers the Addendum acceptable. All HASP Addenda shall be communicated to the workforce.

2.1.2 Non-Compliance With HASP

Disregard for the provisions of the HASP will be deemed just and sufficient cause for immediate stoppage of work and/or termination of activities without compromise or prejudice.

In the event that any project personnel, visitor, or inspector does not adhere to the provisions of the HASP, he/she shall be requested to report immediately to the Site Safety and Health Officer (SSHO). All non-conformance incidents shall be recorded in the site log by the SSHO, and must be reported to the owner at the time of incident.

2.2 Applicability to Visitors & Inspectors

All visitors and inspectors entering the site shall be required to attend a documented verbal full HASP review (or Sections thereof as applicable) briefing given by the contractor or their designee and sign a written compliance statement (Attachment 1) stating that they are knowledgeable and will comply with all provisions of this HASP. In addition, visitors will be expected to comply with all OSHA requirements, such as medical surveillance, training, and respiratory protection. The contractor shall provide and care for all personnel protective equipment used by the contractor and any subcontractors. All visitors and inspectors shall provide and care for their own protective equipment or arrange to acquire personal protective equipment (PPE) from the contractor.

All other visitors entering the site, but not performing work will be required to receive an abbreviated HASP briefing covering site specific operational hazards and emergency procedures.

2.3 No Smoking Policy

There will be no smoking allowed anywhere within the fence-line on the project site, including within construction trailers. Signs shall be posted throughout the site to notify site personnel of this requirement.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

3.1 Contractor Personnel

The contractor has primary responsibility for supplying personnel and equipment for operations.

Project Manager.....To Be Determined (TBD)
Site Supervisor.....TBD
Certified Industrial Hygienist .....TBD
Site Safety & Health Officer.....TBD

3.1.1 Project Manager

The Project Manager (PM) shall be responsible for the management of all aspects related to the performance of field work. He shall coordinate all activities pertaining to the implementation of the project.

This individual shall monitor work progress to assure schedule milestones are achieved. Coordinates preparation of pre-construction submittals, execution of vendor and material purchase orders and subcontract agreements. Assures construction quality control/quality assurance requirements are being performed on-site; attends weekly progress meetings, and all additional meetings requested by the client, or necessary for project success.

3.1.2 Site Supervisor

The Site Supervisor (SS) shall work closely with the Project Manager. He shall be responsible for managing all onsite activities during the implementation of the project. In addition, his responsibilities will include the supervision of all project field work including site preparations and site operations. The Site Supervisor has the responsibility and authority to direct all hazardous waste operations. This individual will be known as the "Qualified Competent Person" for all non-asbestos work and will also be responsible for all subcontractor work. The SS shall be required to have at a minimum the OSHA 40 hour HAZWOPER training with 8-hour Supervisor Training, up to date 8 Hour Refresher, and the OSHA 2 hour Asbestos Awareness Training.

3.1.3 Certified Industrial Hygienist

The Certified Industrial Hygienist (CIH) shall assist in development and implementation of the HASP. The CIH has signed the cover of this plan and his credentials are to be found in Attachment 8.

3.1.4 Site Safety and Health Officer

The SSHO shall establish and oversee environmental and safety issues for all aspects of the field work. This includes providing training protocols, implementing programs, and documenting

programs. He shall ensure that all health and safety monitoring is performed in accordance with 29 CFR 1910.120 and that health and safety documents are maintained onsite as required. The SSHO shall ensure compliance with all safety requirements of OSHA, U. S. Environmental Protection Agency (EPA), and other governing agencies.

The SSHO shall be responsible for conducting safety inspections and meetings. He shall also conduct daily documented Toolbox Meetings (safety meetings). He shall ensure that all health and safety documents are maintained onsite as required. All contractor personnel shall be required to attend any safety meetings conducted by the SSHO or his appointed delegate.

The SSHO shall at a minimum carry the following responsibility/authority:

- Be present at all times during site operations (or qualified alternate);
- Has authority to stop operations for health and safety issues;
- Determine the merits of health and safety issues identified by operating supervisors and resolving "Time Out's" if possible;
- Evacuate the site, if necessary;
- Monitoring workers for signs of stress and fatigue;
- Reevaluating site conditions on an on-going basis. Coordinating protective measures/ corrective measures with the SS: including engineering controls, work practices and personal protective equipment;
- Initiating revisions of the HASP as necessary for new tasks or modifications of existing operations and submitting to the Project Safety Manager and CIH for approval;
- Performing air monitoring as required by the Site Specific Health and Safety Plan;
- Assisting the PM and SS in incident investigations;
- Preparing permits for special operations, e.g. hot work, lockout-tagout, etc.;
- Conduct site-specific health and safety training to verbally review the HASP and any HASP Amendments with all site personnel.

3.1.5 General Equipment Operators

Equipment Operators shall be trained and experienced in the safe operation of construction equipment and shall hold valid operating licenses for the piece(s) of equipment they are assigned to operate. They will also be required to have at a minimum, the OSHA 2-hour Asbestos Awareness Training per OSHA 29 CFR 1910.1001(j)(7)(iv) within the last year, as well as the OSHA 40-Hour HAZWOPER Training with an up-to-date 8 Hour Refresher. If needed/required, they will also be required to participate in site training to ensure compliance with safe practices for working with hazardous materials (if working with them). The Contractor shall also require equipment operators be experienced with backfilling tasks. Equipment operators shall work under the direction of the Site Supervisor and they will be required to perform any necessary emergency operations as directed by the Site Supervisor.

3.1.6 Asbestos Heavy Equipment Operators (when applicable)

Only experienced operators, which are New York City Department of Environmental Protection (NYCDEP)/New York State Department of Labor (NYSDOL) Certified Asbestos Handlers; and/or NYCDEP/NYSDOL licensed asbestos abatement Supervisors, will be allowed to excavate and load asbestos-containing material (ACM) contaminated soils with machinery. Additionally, they will be required to have at a minimum, the OSHA 40-Hour HAZWOPER Training with an up-to-date 8 Hour Refresher. They must hold valid operating licenses for the piece(s) of equipment they are assigned to operate.

Equipment operators must be experienced with digging in areas where underground utilities may be present and use the utmost care when performing the excavation tasks. The Asbestos Heavy Equipment Operators shall work under the direction of the NYCDEP/NYSDOL Certified Asbestos Supervisor.

3.1.7 General Site Workers & Personnel

All workers at the project site shall have, at a minimum, OSHA 2-hour Asbestos Awareness Training per OSHA 29 CFR 1910.1001(j)(7)(iv) within the last year, as well as the OSHA 40-Hour HAZWOPER Training with an up-to-date 8 Hour Refresher. NYCDEP/NYSDOL Certified Asbestos Handlers, Asbestos Supervisors, Asbestos Inspectors, Asbestos Air Sampling Technicians, and Asbestos Project Monitors will not be required to have the OSHA 2-hr Asbestos Awareness Training, since their training levels exceed the 2 hour Asbestos Awareness Training.

Site personnel shall be comprised of ALL site personnel inclusive of the contractor, its subcontractors, the client, and/or client representatives. Site personnel shall safely complete all on-site tasks while maintaining compliance with all safety and health procedures, have an awareness of emergency procedures and evacuation routes, adheres to the requirements of the HASP and reports all injuries or unusual events to their supervisor and the SSHO.

It is possible that at some point during the intrusive activities, the Owner's Representatives and/or other Engineers may be required to enter the Asbestos Regulated Area to perform a general inspection. These individuals must be trained in OSHA 40-Hour HAZWOPER Training and will also require the completions of an OSHA 2-hour Asbestos Awareness Training as defined in OSHA 1910.1001 and 1926.1101. All non-asbestos licensed engineers, supervisors and other site visitors will not be allowed to enter an Asbestos Regulated Area during any active removal activities or if the prior workday's "durings" or clearance test exceed a level of 0.01 f/cc or the background level, whichever is greater .

3.2 Asbestos Abatement Subcontractor (when applicable)

Prior to commencement of work activities, the Contractor and its Asbestos Abatement Subcontractor shall carefully examine the site where work is proposed, as well as its adjacent areas and seek other usual sources of information about the site. The Abatement Subcontractor shall have full knowledge of any and all conditions on the site relating to, or affecting in any way, the performance of the work.

3.2.1 Certified Asbestos Supervisor

The NYCDEP/NYSDOL licensed asbestos abatement Supervisor shall work under the direction of the Site Supervisor. The Asbestos Supervisor will be in charge of supervising all the Asbestos Handlers and Asbestos Heavy Equipment Operators during any asbestos-related project work. The Asbestos Supervisor shall ensure that proper asbestos abatement procedures are being followed, as well as making sure individual safety procedures are being adhered to. This individual shall be designated as the OSHA "Competent Person" for the entire asbestos abatement project and all activities within the exclusion zone. *(Please refer to Section 4.3.1.1 - ACM Hazards and Safety Requirements for further specific duties of the Asbestos Supervisor.)*

3.2.2 Certified Asbestos Handlers

The Certified Asbestos Handlers include laborers certified by NYCDEP/NYSDOL as Asbestos Handlers. The Certified Asbestos Handlers will be under the direction of the Certified Asbestos Supervisor. The handlers will disturb (excavate) or remove (containerize) asbestos material found on the jobsite.

The Certified Asbestos Handlers, Asbestos Heavy Equipment Operators, and Certified Asbestos Supervisor will be the individuals that solely handle asbestos material in any manner.

4.0 SITE HISTORY, DESCRIPTION & HAZARD ANALYSIS

This section of the HASP provides an overview of the scope of project activity, as well as a historical analysis of the project areas. The purpose of this section is to review the potential project chemical, physical, and biological hazards to which workers may be exposed during site operations.

4.1 Site Description and History

The Site is located at 500 Kent Avenue, Brooklyn, NY, is approximately 2.6 acres, and is bounded by Division Ave to the north, Brooklyn Navy Yard to the south, Kent Avenue to the east and Wallabout Channel to the west. The site was the location of a former generating station that was demolished in 2009, and the site is currently a vacant lot.

Previous environmental remedial actions were performed in September 2011 to February 2012 and in November 2013 to February 2014. The contractor's duties in the earlier remediation included the removal and dewatering of sludge from the former Ash Pit, which was located in the northwestern portion of the site, between the former generating station building and Wallabout Channel (an inlet to the East River). The 2011/2012 project included the disposal of dewatered sludge to off-site disposal facilities, treatment and permitted discharge of filtrate into Wallabout Channel, closure of the pit with lightweight concrete, and placement of a reinforced concrete cap.

For the 2013/2014 project, two remediation areas were identified as the South Excavation Area consisting of approximately 30,000 square feet and the North Excavation Area consisting of approximately 5,250 square feet. Excavated material was treated as ACM. The bottom of each excavation area was lined with an orange demarcation layer to indicate the extent of the remediation. The area was then backfilled with structural fill and topped with ¾" stone. In areas below the demarcation barrier, and in areas indicated where no demarcation barrier is present, the soil is assumed to be contaminated with asbestos, volatile organic compounds (VOCs), Semivolatile Organic Compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs), as described in Section 4.3.1, below.

FIGURE 4-1
SITE LOCATION MAP
500 Kent Avenue, Brooklyn, NY 11211

4.2 Scope of Work

The anticipated scope of work for the project is as follows:

- Waste Characterization/In-Situ Sampling (when applicable)
- Mobilize to Site
- Utility Mark-Out
- Setup Temporary Utilities and Facilities
- Preconstruction Survey
- Installation of Erosion Controls
- Excavate soil/fill, debris, perched water and remnant structures (as necessary);
- As applicable, perform Open-Air Asbestos Abatement; Excavation, and Removal of all ACM in soil/debris;
- As-needed, de-watering of materials to be excavated;
- Management of construction water by either treatment and discharging into Wallabout Channel in accordance with a State pollution Elimination Discharge System (SPDES) Permit Equivalent or by pumping water into an on-site storage tank for later off-site disposal;
- Performing proper removal of all excavated soils and demolished materials onto trucks for transport & disposal off site.

- Backfilling of all excavated areas with certified clean fill in compliance with a New York City Department of Buildings (NYCDOB) Permit.
- De-Mobilize from Site

4.3 Chemical, Physical, and Biological Hazards

4.3.1 Chemical Hazards

Based on Site history and previous site investigations, the chemical hazards and control measures shall be followed for the following contaminants of concerns: ACM, SVOCs, VOCs, Metals, and PCBs. The primary routes of exposure for the site workers on this job would be though skin contact and inhalation.

Additionally, as with any construction site, hazardous materials can be expected to be present in various everyday forms. Some common types may include:

- Fuel and Lubricants (e.g., gasoline, diesel fuel, hydraulic oil);
- Cleaning agents (e.g., detergents, respirator sanitizes, hand cleaners);
- Miscellaneous chemicals (e.g., marking paint, bulk office supplies)

A Safety Data Sheet (SDS) is required for all hazardous materials brought on site pursuant to 29 CFR 1910.1200. The SSHO will maintain a central file, accessible to all workers, which contains all Safety Data Sheet for any hazardous materials on the site.

SDSs will accompany all chemicals to be brought on site.

4.3.1.1 ACM Hazards and Safety Requirements

If the intrusive activities extend into contaminated soil/fill, ACM is the most anticipated hazardous substance to be encountered during site activities. Asbestos is a naturally occurring fibrous mineral found around the world. Many residential and commercial buildings still contain ACM today. Workers may be exposed to asbestos during disturbance and handling of asbestos contaminated soils during site operations. Potential routes of exposure, exposure limits, and the toxic characteristics of asbestos are listed in the table below. The primary route of exposure is inhalation; however, secondary potential routes of exposure include dermal (skin) contact and ingestion.

If ACM will be encountered, the intrusive activities will require an Asbestos Abatement Variance from the NYCDEP in accordance with Section 1-03 of Title 15, Chapter 1. The variance application will specify which specific rules will require a variance, why they require a variance, and describe alternative procedures that will satisfy each requirement as modified. This will include an asbestos air monitoring program to protect the surrounding community, as well as the on-site workers, from exposure to asbestos.

The Asbestos Abatement Subcontractor will have a designated certified NYCDEP/NYSDOL Asbestos Supervisor onsite who will be working under the direction of the contractor's Site

Supervisor. This designated individual will be in charge of supervising all the Asbestos Handlers during the asbestos project work. They will ensure that proper asbestos abatement procedures are being followed, as well as making sure individual safety procedures are being adhered to. This individual will be designated as the OSHA "Competent Person" for the entire asbestos abatement portion of the project.

The specific duties of the Asbestos Supervisor, include but are not limited to:

- Establishing regulated areas and assuring that access to and from these areas is limited to authorized personnel;
- Assuring the adequacy of worker exposure monitoring;
- Assuring that all workers exposed to asbestos and other chemical constituents of concern wear appropriate personal protective equipment and are trained in the use and limitations of appropriate methods of exposure control;
- Assuring that proper hygiene facilities are provided and that workers are trained NYCDEP/NYSDOL certified Asbestos Handlers and certified NYCDEP/NYSDOL Restricted Asbestos Handers to use these facilities;
- Assuring that feasible engineering controls, as established in the Asbestos Abatement Variance, are implemented and maintained in proper operating condition and functioning properly;
- Assuring that all required medical surveillance, including pre- and post-job physical examinations, is performed and documented as required;
- Assuring that all asbestos training and certification/licensing requirements are met;
- Ensuring that Asbestos Abatement Project notification requirements are met.

To prevent unwanted exposure, the following control practices shall be implemented:

- Only authorized personnel may enter regulated areas;
- All personnel entering a regulated area must be supplied with and wear appropriate PPE;
- Amended water shall be used during excavation activities (water without the additions of surfactants may be petitioned for in the Variance referenced in Section 2.1);
- The construction of a barrier, if required, in accordance with the Asbestos Project Variance conditions;
- Do not use compressed air to remove asbestos or materials containing asbestos;
- All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible;
- Surfaces contaminated with asbestos may not be cleaned with the use of compressed air or dry methods;
- Used disposable PPE will be properly disposed as, minimally, asbestos contaminated waste.

The Permissible Exposure Limit (PEL) for asbestos is 0.1 fiber per cubic centimeter (0.1 f/cc) of air as an 8-hour time weighted average (TWA). The Excursion Limit for asbestos is 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes as sampled during the expected worst case exposure. (Refer below to Table 4-1: *Asbestos Exposure Limits, Routes and Characteristics*)

Final clearance assessments shall become part of the work plan. Final exposure assessments shall be completed by the Asbestos Abatement Subcontractor before additional activities begin.

TABLE 4-1
ASBESTOS EXPOSURE LIMITS, ROUTES AND CHARACTERISTICS

CHEMICAL	EXPOSURE LIMTS & IDLH LEVEL	EXPOSURE ROUTES	TOXIC CHARACTERISTICS
ASBESTOS	**OSHA PEL:** 0.1 fiber/cm³ (8 hour TWA) **OSHA Excursion Limit:** 1 fiber/cm³ (30 min. exposure) **ACGIH TLV:** 0.1 fiber/cm³ **IDLH:** Not Established	Inhalation (primary), ingestion, skin and/or eye contact	Lung cancer, mesothelioma, Asbestosis (chronic exposure): dyspnea (breaking difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing, irritation eyes.

ACGIH – American Conference of Governmental Industrial Hygienists
TLV – Threshold Limit Value
IDLH – Immediately Dangerous to Life and Health

4.3.2 Physical Hazards

Construction sites may present numerous safety hazards. As such, workers must be aware of these hazards and exercise caution at all times. All unsafe conditions must be reported immediately to the SSHO.

4.3.2.1 Noise

Noise is a potential hazard associated with the operation of the heavy equipment, power tools, pumps and generators. Excessive noise presents two potential problems for workers at the site. First, it hinders communication between workers. Second, excessive noise exposures (to both continuous and impact noise) can have adverse effects on a person's hearing. These adverse effects include both temporary and permanent hearing damage. Noise can also become a nuisance for the nearby community. A Construction Noise Mitigation Plan Form will be submitted to the Owner under separate cover, and made accessible to inspections in conformance with New York City requirements.

4.3.2.2 Temperature Extremes

If the work activities are scheduled to take place during the winter months, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, poor judgment and unauthorized procedural changes.

Heat stress, which may be a concern during the intrusive activities, is a significant potential hazard, greatly exacerbated with the use of PPE, in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke.

4.3.2.3 Slips, Trips, and Falls

Working in and around the site will pose slip, trip, and fall hazards due to uneven terrain, slippery surfaces from rain, open edges/areas in and or around open excavations. Potential adverse health effects include falling to the ground and becoming injured or twisting an ankle or falling into the open excavation.

4.3.2.4 Fire and Explosion

When excavating, operating heavy equipment & generators, performing hot work (cutting, welding or brazing), during fueling, the opportunity of encountering fire and explosion hazards exists. During excavation underground utilities could be encountered that could cause an explosion or facilitate an explosion. In addition combustible and flammable liquids are used for equipment and generators; mishandling of these fuels can also present a fire and explosion hazard

4.3.2.5 Manual Lifting

Failure to follow proper lifting technique can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

4.3.2.6 Heavy Equipment Operations/Materials Handling

Heavy equipment and motor vehicle incidents are the number one cause of occupational fatalities, accounting for one in three deaths. Fifty percent or more of vehicle safety incidents occur while backing up. Hazards include being struck by equipment/falling loads or caught in/between; and can result in serious injury or death. Inspections of Heavy Equipment will be performed on a daily basis. Operators will be in charge of this insure to check all deficiencies and correct issues if found, before use.

4.3.2.7 Falls from Elevation

Falls can occur when working from heights, specifically when performing work in and or around excavations. They can also occur when getting in or out of heavy equipment, especially during wet

or icy weather conditions. Falls are the leading cause of serious injuries and fatalities in construction.

4.3.2.8 Underground Utilities & Electrical Hazards

Encountering underground utilities during intrusive operations, electrical storms, the use of power tools and welders, and use/misuse of extension cords may pose electrical hazards to workers. Additionally, electrical hazards can exist in project trailers, especially if circuits are overloaded. Potential adverse effects of electrical hazards include fires, burns and electrocution, which could result in death.

4.3.2.9 Hand and Power Tools

The use of hand tools and equipment can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Daily inspections and review of the procedures for control of these hand and power tools will be performed to insure proper usage on the job site.

4.3.2.10 Excavation and Trenching Activities

The intrusive activities may range from two to 20 feet below ground surface.

- Any excavation 5 feet deep or greater into which persons can enter and perform work must be shored, sloped, or otherwise made safe for entry. Excavations less than 5 feet in depth and which a competent person examines and determines there to be no potential for cave-in do not require protective systems. Excavations shall be done in compliance with OSHA regulation 29CFR 1926.650 and NYCDOB Chapter 33, section BC 3304.

- All excavations shall be performed from a stable ground position. Daily inspections of the excavation shall be made by the Excavation Competent Person (a competent person who has received training in excavation safety). The Excavation Competent Person shall determine the likelihood of a cave-in, and remedial action such as sloping or shoring shall be taken if the walls appear to be unstable. The Excavation Competent Person shall verify that adequate means of egress are in place.

- All spoils/equipment shall be located at least 2 feet from the edge of the excavation to prevent it from falling back into the excavation and surcharging the excavation face. Perimeter protection shall be used for all open excavations at the site (excluding the active work zones requiring excavation equipment), consisting of barricades or fencing placed at a distance not closer than 6 feet from the edge of the excavation, and displays adequate warning at an elevation of 3 feet to 4 feet above ground. The Site, at the time of SMP development, is completely ringed with an eight-foot high fence.

4.3.2.11 In-Situ Sampling Operations

In addition to the other traditional construction site hazards already mentioned, hazards associated with in-situ sampling activities include noise levels exceeding the OSHA PEL of 90 decibels (dBA), carbon monoxide released in the exhaust from the Earth Probe engine, pinch points caused from objects/equipment in motion, moving parts that may catch clothing and free or falling parts from the cut head may cause head injury, exposure to vapors of volatile organics during sampling, contact with contaminates during sampling, back strain due to lifting, slipping on wet surfaces created by spilled water, electrical hazards with the use of electrical equipment around water or wet surfaces, and eye injuries,

4.3.2.12 Working on or Near Water

Potential hazards include hypothermia and drowning. The entire Site, at the time of SMP development, is separated from Wallabout Channel by an existing 8' high fence.

4.3.3 Biological Hazards

Potential biological hazards on the site are relatively minor yet not insignificant and may include the following: ticks, bees, mosquitoes and other insects which may carry disease; rats/rodents, dogs, or other wildlife may be present posing the potential for bites and disease, such as rabies; poison ivy, oak, or sumac may be found in overgrown areas posing skin hazards.

Bloodborne Pathogens:
Infectious wastes include human waste, animal waste and objects and materials contaminated with blood and body fluids containing disease-causing micro-organisms. Often these biological wastes are contaminated with germs, which can make you ill. Major concerns are the spread of hepatitis B and acquired immunodeficiency syndrome.

Tetanus (Clostridium tetani)
Clostridium tetani is one of the most poisonous biological substances known. Clostridium tetani is a disease-causing bacterium primarily found in soil and in animal intestinal tracts, and thus in animal feces.

Clostridium tetani infection causes spastic paralysis, or painful tightening of the muscles. It is commonly called "lockjaw" because it leads to the patient being unable to open his mouth or swallow. Initial symptoms are mild muscle contractions at the location of the wound. Without treatment, spasms become worse and spread throughout the body, including the spine and brain. Tetanus results in death when the respiratory system becomes paralyzed.

People can become infected with Clostridium tetani through a puncture wound, such as a wound that occurs from stepping on a nail, being bitten by a dog or being stabbed with a sharp object. People also can become infected with Clostridium tetani by spores entering the body through a cut, burn or other sore.

Several vaccines are available to prevent tetanus and are typically provided in early childhood in combination with the vaccines for diphtheria and pertussis, in an injection called DTP. A booster

shot is recommended every seven to ten years, to prevent this disease from developing. Treatment for tetanus includes antibiotics and an antitoxin.

Mosquito- Borne Disease - West Nile Virus

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain tissue. However, most infections are mild and symptoms include fever, headache and body aches. More severe infections may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

To avoid being bitten by the mosquitoes that cause the disease, use the following control measures: If possible, stay inside between dusk and dark. This is when mosquitoes are most active. When outside between dusk and dark, wear long pants and long-sleeved shirts. Spray exposed skin with an insect repellent, preferably containing DEET (*N*,*N*-Diethyl-*meta*-toluamide).

Sun Exposure

Employees are encouraged to liberally apply sunscreen, with a minimum sun protection factor of 15, when working outdoors to avoid sunburn and potential skin cancer, which is associated with excessive sun exposure to unprotected skin. Additionally, employees should wear safety glasses that offer protection from ultraviolet A (longwave)/ultraviolet B (shortwave) rays.

4.4 Task-Specific Hazard Analysis

The evaluation of potential health and safety hazards related to this Site is based upon the knowledge of the Site background.

This section of the HASP provides a breakdown of the hazards and control measures for specific tasks employed during work at the Site. Table 4-1 is the Activity Hazard Analyses (AHA) matrix that identifies hazards associated with each task in the Scope of Work and control measures to be taken to reduce hazards and protect workers. The AHAs shall be field checked by the PM, SS and SSHO on an ongoing basis and revised as necessary. All revisions shall be communicated to the work crew.

Table 4-2
Activity Hazard Analysis Matrix

Tasks	Hazards (Task # Where Hazards are Present)	Control Measures
1. Site-wide Inspections 2. Monitoring Well Sampling 3. Soil Vapor Monitoring 4. Waste Characterization Sampling 5. Mobilize and Demobilize 6. Utility Mark-Out 7. Setup Temporary Utilities and Facilities 8. Pre-Construction Survey 9. Installation of Erosion Controls 10. Excavation Work 11. Demolition Work 12. Open-Air Abatement 13. De-watering 14. Management of Construction Water (treatment and discharging into channel or by pumping water into an on-site storage tank for later off-site disposal) 15. Transportation & Disposal 16. Backfilling Excavated Areas	Chemical Hazards (2, 3, 4,9,10,11,12,13,14,15,16)	• Wear appropriate PPE per Table 6-1; • Practice contamination avoidance; • Conduct real-time air monitoring per Section 8; • Follow proper decontamination procedures; • Wash hands/face before eating, drinking, smoking.
	Noise (ALL, excluding Task 1)	• Hearing protection mandatory at or above 90 dBA (monitoring may be required to determine noise levels); • Instruct personnel how to properly wear hearing protective devices; • Disposable ear plugs or other hearing protection required while around noisy equipment. • Follow Noise Mitigation Plan.
	Temperature Extremes (ALL)	• Drink plenty of fluids; • Train personnel of signs/symptoms of cold/heat stress; • Monitor air temperatures when extreme weather conditions are present; • Stay in visual and verbal contact with your buddy. • Protective clothing, such as insulated coveralls or other winter-weight coveralls, may be used to shield employees from the wind and cold.
	Slips, Trips, Falls (ALL)	• Use footings and grips when getting in and out of equipment; • Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris; • Mark, identify, or barricade other obstructions; • Stay at least 2 feet (ft) back from the edge of an excavation or hole, appropriate fall protection controls/PPE when required; • Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft; • Use heavy duty industrial (type IA) ladders;

Tasks	Hazards (Task # Where Hazards are Present)	Control Measures
		• Tie-off all straight/extension ladders or manually hold by co-worker at base; • Anchorage points for fall arrest systems must support at least 5,400 pounds for each worker.
	Fire and Explosion (ALL, excluding Task 1)	• Find and mark existing utilities prior to intrusive operations; • Use metal detector to screen ground intrusive sampling locations; • No smoking; • Properly store fuels; Follow Fire Department of New York (FDNY) requirements. Obtain any required permits & certificates of fitness. • Do not fuel equipment while it is running; • All personnel have received fire extinguisher training; • A 10 lb. ABC fire extinguisher located in work area for hot work and in equipment/trailers. • Fire extinguishers shall be serviced annually and shall have a tag indicating this. They shall also be inspected monthly by the SSHO while onsite and a date and signature or initial will be written on the tag. • Refer to Section 10.8 for details on Fire Protection and Prevention. • Refer to Section 10.9 for Hot Work procedures. Follow FDNY requirements. Obtain any required permits and certificates of fitness. • Construction trailers shall have EXIT doors labeled with either illuminated or fluorescent EXIT signs. Doors within trailers that do not lead directly outside the trailer will be labeled with either illuminated or fluorescent NOT AN EXIT sign.
	Manual Lifting (ALL)	• Observe proper lifting techniques (lift with your legs, not your back); • Ensure no tripping hazards are present along your route;

Tasks	Hazards (Task # Where Hazards are Present)	Control Measures
		• Size up the load before making a manual lift, be alert to loads that are unbalanced; Make sure you have a good grip on the load; Obey sensible lifting limits (50pound (lb.) max. per person manual lifting); • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads.
	Excavation/Trenching Activities (10,11,12,13,16)	• Construct diversion ditches or dikes to prevent surface water from entering excavation; • Provide good drainage of area adjacent to excavation; • Collect ground water/rain water from excavation and dispose of properly; • Store excavated material at least 2 ft from the edge of the excavation; prevent excessive loading of the excavation face; • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency; • Slope, bench, shore, or sheet excavations over 5 ft deep if worker entry is required; • If worker entry is required into excavations over 5 ft deep, appropriately slope, bench, shore, or sheet all faces of the excavation; and provide means of worker egress. Lateral travel to means of egress shall be no greater than 25 ft. Means of egress may include ramps and/or ladders extending 3 ft above the edge of the excavation. • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting, and worker egress. • Assign competent person to continuously evaluate and take precautions not to undermine stability of adjacent structures, including implementation of Temporary Excavation Support Plan (provided under separate cover) and counsel of a Professional Engineer, as necessary.

Tasks	Hazards (Task # Where Hazards are Present)	Control Measures
		• Shoring or sheeting, if required, will be in accordance with the Temporary Excavation Support Plan. A copy of the Temporary Excavation Support Plan shall be maintained on site at all times the excavation remains open.
	Heavy Equipment/Materials Handling (ALL, excluding Task 1)	• Wear reflective warning vests when exposed to vehicular/equipment traffic; • Isolate potential equipment swing areas by setting up designated work areas with cones and barriers; • Make eye contact with vehicle operators before approaching/crossing high traffic areas; • Understand and review hand signals; • Use a spotter to direct equipment movement in high traffic areas; • Audible back-up alarms on equipment; • Operator inspects equipment daily for safety defects, including the braking system.
	Electrical Hazards (ALL, excluding Task 1)	• Inspect power tools and cords daily for damage; • Use Ground Circuit Fault Interrupter with all cords; • Do not overload circuits. Extension cords shall not rest or be supported directly on or by electrically-conductive materials; • Extension cords shall not lay in standing water; • All electric panel boxes must have panels attached isolating the electric conductors from contact with persons, and each circuit must be labeled with the load it serves (i.e., lights, outlets, air conditioner/heater, etc.).
	Hand/Power Tools (ALL, excluding Task 1)	• Daily inspections to be performed; • Remove broken or damaged tools from service; • Use the tool for its intended purpose and in the manner it is designed to be used (e.g. no hand-held cutting of wood blocks with a circular saw, etc.); • Concrete saws shall have their blades checked for being secure

Tasks	Hazards (Task # Where Hazards are Present)	Control Measures
		to their arbor periodically throughout a workday when used. Additionally, the blade will be allowed to come to a complete stop within a cut before removing the blade from the cut; • Use in accordance with manufacturer instructions.
	Biological Hazards (ALL)	• Be alert to the presence of biological hazards (especially blood borne pathogens); • Wear insect repellent; • Inspect for tick bites; • SSHO should be aware of on-site personnel with allergic reactions in insect bites and stings.
	Severe Weather or Electrical Storms (ALL)	• Ensure project trailers are grounded/anchored per manufacturer's instructions (for Category 1 Hurricane 10 anchors can withstand 90 mph wind speeds); • For electrical storms, follow procedures in Section 12.10. • All walkways and working surfaces shall be cleared of ice and snow prior to performing any work and on an as needed basis throughout the workday. • Contractor shall use sand and/or approved ice melts (or salts) to prevent further icing onsite. • No ice or snow will be placed in the East River
	Working On or Near Water (1, 6)	• Stay at least 6 ft from edge of water unless tied off, within manlift, or using fall protection system; • Don US Coast Guard Type III Personal Floatation Device where drowning hazard exists. • Ring buoy must have 90' of line attached to it. The entire water's edge is separated from the work site by 8' high fence.

5.0 PERSONNEL TRAINING REQUIREMENTS

5.1 Construction Operations

5.1.1 Initial / Pre-assignment and Refresher Training

All workers who may come into contact with the contaminated material associated with this Site are required at a minimum to be trained in accordance with the appropriate safety procedures set forth in OSHA hazardous 40-hour training requirements with current 8-hour refreshers. Also OSHA 2-hour Asbestos Awareness Training per OSHA 29 CFR 1926.1101(k)(9)(vi) within the last year will be required, unless workers are already certified as asbestos handlers, asbestos supervisors, or asbestos inspectors. Training for supervisory personnel (i.e., foremen/superintendents) and the site SSHO will also include 8-hour supervisory training. Prior to arrival on site, each employee must meet the requirements of pre-assignment training, which include Supervisor Training, OSHA 10, and Hazard Communication Training. *(Please reference Section 3.1.7 – General Site Workers & Personnel for further information required of site workers, personnel and/or visitors).*

5.1.2 Work Activities Prior To and Following Construction

Workers and subcontractors performing non-intrusive site activities prior to and following intrusive activities, such as surveying of "clean" areas, will be exempted from OSHA hazardous 40-hour training requirements. Instead, all such workers will be provided with a documented site orientation and safety overview by the SSHO. Topics covered in this safety briefing will include, but are not limited to, hazard communication (chemical hazards), organizational responsibilities and contacts, emergency preparedness onsite, and general safety hazard prevention for the site. Additionally, they will receive a documented daily pre-job safety briefing.

5.2 Initial Health & Safety Briefing

The SSHO shall conduct a documented site specific Health and Safety briefing for all employees of Contractor, Subcontractor(s), visitors (e.g., inspectors), or any others who will work on site. This documented initial verbal full HASP review will also be given to any new workers to the site after the initial review was given by the contractor. The HASP shall be verbally reviewed with the workforce on site on a monthly basis by the contractor, with documentation.

Outlines of the orientation for site workers and visitors are presented below:

SITE WORKERS	VISITORS
• HASP sign off; • Sign in/out procedures; • Site background; • Project Team and Responsibilities; • Rules and regulations; • Personal Protective Equipment/respirator fit test (if applicable); • Emergency Information: – Emergency signal; – Gathering point; – Responsibilities/roles; – Emergency phone numbers. • Site Control/Work Zones; • SDS [Hazard Communication Program]; symptoms of overexposure; • Fire extinguisher use; • Hazards/AHAs; • Monitoring Program; • Incident Reporting;	• Sign in/out procedures; • Site Background/ Characterization; • Review of Site map; • Work Zones in progress; • Hazard Communication; • Emergency plan/signals; • Training/medical requirements; • Zones/areas open to visitors.

5.3 Tailgate Safety Meetings

Site pre-entry Field Safety Meetings, also called Tailgate Safety Meetings or Toolbox Safety Meetings, will be presented to all site personnel each morning just prior to the onset of work activities. It will be the responsibility of the SSHO to conduct these meetings. All Tailgate Safety Meetings are mandatory for all project personnel. At the conclusion of the meeting, each individual will be required to sign the Safety Meeting Sheet (Attachment 2). Daily sign-in sheets shall include the specific topics discussed each day. Late arrivals will see the SSHO for a brief, documented, meeting about hazards associated with the day's remaining activities.

The SSHO will determine the topics each morning based on activities to be conducted that day and any incidents or items identified during previous days. These topics shall include, but are not limited to, the day's planned activities, heat/cold stress, Engineering and Administrative Controls for hazard mitigation as well as PPE requirements, chemical hazards, physical hazards, emergency procedures, and injury or incident analysis, near misses, and any other special considerations.

The contractor will keep on file, at the job site, records of safety meetings that have occurred, including topics covered; safety related concerns, and action follow-up items coming out of those meetings.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The PPE specified in Table 6-1 represents the hazard analysis and PPE selection required by 29 CFR 1910.132. The signatures on the approval page of the HASP constitute certification of the hazard assessment.

PERSONAL PROTECTIVE EQUIPMENT ABBREVIATIONS

HEAD PROTECTION
HH = Hard Hat

HEARING PROTECTION
EP = ear plugs
EM = ear muffs

EYE/FACE PROTECTION
PFS =Plastic Face shield
SG = American National Standards Institute approved safety glasses with side shields or goggles

FOOT PROTECTION
RSTB = Rubberized steel-toed boot
STB = Leather work boots with steel toe
META = metatarsal protection

HAND PROTECTION
LWG = Leather Work Gloves
Neo = Neoprene
Nit = Nitrile
Sur = Surgical

BODY PROTECTION
WC = work clothes
Tyvek® = Uncoated Tyvek® coveralls
Poly Tyvek® = Coated Tyvek® coveralls
Vest = Reflective Traffic Safety Vest
FP – Fall Protection (Harness/Lanyard- Full Body)
Chaps for chain saw use

RESPIRATORY PROTECTION
APR = ½-face air purifying respirator with OV/P-100 cartridges
DM = Dust mask

6.1 Standard Operating Procedures for Personal Protective Equipment

6.1.1 Inspection

Proper inspection of PPE features several sequences of inspection depending upon specific articles of PPE and its frequency of use. The different levels of inspection are as follows:

- Inspection and operational testing of equipment received from the factory or distributor;
- Inspection of equipment as it is issued to workers;
- Inspection before each use;

- Inspection after use, training and prior to maintenance;
- Periodic inspection of stored equipment;
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

TABLE 6-1

PERSONAL PROTECTIVE EQUIPMENT SELECTION

TASK	HEAD	EYE/ FACE	FEET	HANDS	BODY	HEARING	RESPIRATOR
Site Wide Inspection	HH	SG	STB	LWG as needed	WC + Safety Vest	EP or EM as needed	N/A.
Monitoring Well Sampling	HH	SG	STB or RSTB with direct contact	Sur + LWG as needed	WC + Tyvek or Poly with direct contact as needed per SSHO	EP or EM as needed	APR as needed.
Soil Vapor Monitoring	HH	SG	STB or RSTB with direct contact	Sur + LWG as needed	WC + Tyvek	EP or EM as needed	APR as needed.
In-Situ Pre-characterization Sampling	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly with direct contact as needed per SSHO	EP or EM as needed	N/A.
Mobilize & Demobilize	HH	SG	STB	LWG as needed	WC/Vest	EP or EM as needed	DM as needed
Utility Mark Out	HH	SG	STB	LWG as needed	WC/Vest	EP or EM as needed	DM as needed
Setup Temp. Utilities/Facilities	HH	SG	STB	LWG as needed	WC/Vest	EP or EM as needed	DM as needed
Pre-Construction Survey	HH	SG	STB	LWG as needed	WC/Vest	EP or EM as needed	DM as needed
Installation of Erosion Controls	HH	SG	STB	LWG as needed	WC/Vest	EP or EM as needed	DM as needed
Excavation Work	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly + FP with direct contact	EP or EM as needed	½-face APR with OV/ P-100 cartridges as needed per SSHO

					per SSHO		
Demolition Work	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly with direct contact per SSHO	EP or EM as needed	½-face APR with OV/ P-100 cartridges as needed per SSHO
Waste Transport Truck Drivers	HH	SG	STB	LWG as Needed	WC	N/A	N/A
	Transport drivers shall remain in the truck cab with windows & vents closed while in the exclusion zone and contamination reduction zone. Above PPE shall be used if they exit the vehicle in the support zone.						
TASK	**HEAD**	**EYE/ FACE**	**FEET**	**HANDS**	**BODY**	**HEARING**	**RESPIRATOR**
Open- Air Abatement & Loading of Impacted Soil & Debris	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly with direct contact per SSHO	EP or EM as needed	½-face APR with OV/ P-100 cartridges
De-watering	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly with direct contact per SSHO	EP or EM as needed	DM as needed
Management of Construction Water	HH	SG	STB or RSTB with direct contact	Sur + Nit or Neo	WC + Tyvek or Poly + FP with direct contact per SSHO	EP or EM as needed	½-face APR with OV/ P-100 cartridges as needed per SSHO
Backfilling Areas	HH	SG	STB or RSTB with direct contact	LWG as needed	WC/Vest	EP or EM as needed	DM as needed

The following inspection list for PPE shall be in use and should be implemented prior to immediate use and shall be conducted by the user. This ensures that the user has checked out the specific device or article and that the user is familiar with its use.

Before use:

1. Determine that the clothing material is correct for the specified task at hand.
2. Visually inspect for:

    - Imperfect seams;
    - Non-uniform coatings;
    - Tears;
    - Malfunctioning closures;
    - Defects.
3. During the work task, periodically inspect for:

    - Evidence of chemical attack such as discoloration, swelling, stiffening, and softening; Keep in mind, however, that chemical permeation can occur without visible effects.
    - Closure failure;
    - Tears;
    - Punctures;
    - Seam discontinuities.

6.2 Respiratory Protection

The following defines standard operating procedures for air purifying.

6.2.1 Air-Purifying Respirators

A National Institute for Occupational Safety and Health (NIOSH) approved ½-face air-purifying respirator with organic vapor/P-100 cartridges will be used for personnel requiring respiratory protection from chemical contaminants.

6.2.2 Inspection and Cleaning

Respirators shall be checked periodically by a qualified individual and inspected before each use by the wearer. All respirators and associated equipment will be decontaminated and hygienically cleaned after each use.

6.2.3 Fit Testing

Annual respirator fit tests are required of all personnel wearing negative-pressure respirators. Qualitative fit-testing shall be performed using an approved OSHA protocol. The fit test must be for the manufacturer/model and size of the respirator to be used. Quantitative fit-testing is

required for potential exposure to air-borne particulate levels that exceed 10 times the established PEL or TLV, whichever is the more stringent.

6.2.4 Facial Hair

No personnel who have facial hair which interferes with the respirator's sealing surface will be permitted to wear a tight fitting respirator.

6.2.5 Medical Certification

Only workers who have been certified by a physician or other Licensed Health Care Professional, as being physically capable of respirator usage will be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas on site that require respiratory protection. Employees will receive a written physicians opinion that they medically capable of wearing respiratory protection as required by 29 CFR 1910.134.

6.2.6 Cartridge Change-Out Schedule

All cartridges shall be changed a minimum of once daily or more frequently if personnel begin to experience increased inhalation resistance or immediately if breakthrough of a chemical warning property (e.g. eye, nose, throat irritation or odor) occurs. The SSHO shall review this requirement after monitoring the employee's breathing zone for site contaminants and shall revise this schedule as may be necessary to avoid over-exposure. Use of cartridge respirators in environments with actual exposure over an OSHA PEL for a particular substance will require consultation with the CIH to determine specific cartridge change-out schedules.

6.3 Fall Protection Equipment

- Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 ft (1.8 meter [m]) or more above a lower level or water shall be protected from falling by use of at least one of the following means: Guardrail systems – Guardrail systems consist of a Top-Rail (42"), Mid-Rail (21"), and Toe-Boards (5"). Toe-Boards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toe-board.

Each employee less than 6 ft (1.8 m) above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge whenever five feet or more above a lower level, including water.

Lifelines, any safety harness, and lanyards shall be used only for employee safeguarding. Any lifeline, safety belt, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be immediately removed from service and shall not be used again for employee safeguarding.

Safety belt lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

All safety belt and lanyard hardware shall be drop forged or pressed steel, cadmium plated in accordance with type 1, Class B plating specified in Federal Specification QQ-P-416. Surface shall be smooth and free of sharp edges.

All safety belt and lanyard hardware, except rivets, shall be capable of withstanding a tensile loading of 4,000 pounds without cracking, breaking, or taking a permanent deformation.

7.0 MEDICAL SURVEILLANCE REQUIREMENTS

Workers are to be examined initially upon start of employment, annually thereafter, and may be examined upon termination of employment. Medical monitoring programs are designed to track the physical condition of workers as well as survey pre-employment or baseline conditions prior to potential exposures. All personnel that will wear a respirator on this project will provide proof that they are fit for duty and able to wear respiratory protection prior to reporting to the job site. The Owner's Construction Inspector on site will receive copies of this "respiratory documentation" prior to any worker wearing a tight-fitting respirator.

7.1 Medical Monitoring

Any site personnel required to work with contaminated material and wear respirators shall participate in a medical surveillance program, as per OSHA regulation 29 CFR 1910.120. The objectives of this program are to ensure site personnel are medically fit to perform their job.

As suggested by NIOSH, OSHA, EPA's Occupational Safety and Health Guidance Manual:

The minimum medical monitoring requirements for work at the site are as follows:

- Complete medical and work history;
- Review of medical history and general exam by a Licensed Health Care Professional (LHCP);
- Determination of fitness for duty.

Additionally, if using respiratory protection:

- Completion of OSHA Respiratory Protection Questionnaire and review by a LHCP. If deemed necessary by the LHCP then the following will apply:

    - Pulmonary function tests;
    - Medical qualification to use a respirator;
    - Respiratory fit test (yearly).

Additionally, if handling or removing hazardous material or wastes:

- Chest X-Ray (every 2 years or as recommended by LHCP);
- Eye examination and visual acuity;
- Audiometry;
- Blood chemistry, including hematology, and serum analyses;
- Tetanus booster.

7.2 Medical Data Sheets

Emergency contact information and notification of allergies and/or previous medical conditions will be given to the SSHO prior to work at the site.

Along with the medical data sheets, documentation of medical surveillance and respirator clearance be maintained on site and available for review.

7.3 Heat Stress

Temperatures inside protective equipment can be as much as 25% over external ambient temperatures with humidity near 100%. Excessive temperatures and loss of body fluids can result in a range of health conditions ranging from heat rash, cramps, exhaustion, heat stroke and possibly death.

Heat stress can be caused by a number of factors including workload, weather conditions, personal protective equipment, and physical condition of the individual. Work activities related to materials handling will require the use of personal protective equipment, increasing the risk of worker heat stress. Heat stress includes several types of heat related illnesses, each with specific symptoms, listed below:

- Heat rash caused by continuous exposure to heat and humid air. Decreases the body's ability to tolerate heat.

- Heat cramps, caused by excessive perspiring without proper and adequate electrolyte replacement. Symptoms include:
  - pain in the hands, feet, and abdomen;
  - muscle spasms.

- Heat exhaustion, caused from inadequate blood circulation due to cardiovascular dehydration. Symptoms include:
  - pale, cool skin;
  - excessive perspiring;
  - fainting;
  - nausea;
  - dizziness.

- Heat stroke, most serious form of heat stress, body temperature regulation fails and body temperature rises rapidly. Immediate action must be taken to cool the body. Medical attention is required. Symptoms include:
  - red, hot, dry skin;
  - lack of perspiration;
  - nausea / dizziness;
  - rapid pulse;
  - coma.

7.3.1 Heat Stress Management

When necessary, these general controls shall be used to control heat stress:

- Workers shall be given verbal instructions and reminders during tailgate safety meetings;
- The drinking of water in small volumes (about 1 cup) throughout the day shall be encouraged;
- Worker shall be allowed to self-limit their exposures if they detect signs and symptoms of heat strain in themselves or others;
- Individuals taking medications which may put them at greater risk, such as for blood pressure, cardiovascular medication, body temperature regulation, renal or sweat gland functions, and those who abuse or are recovering from alcoholism, shall be counseled on the dangers. A healthy lifestyle will be encouraged;
- Personnel must be able to recognize signs and symptoms of heat stress and administer immediate attention;
- Work/rest schedules planned according to weather conditions, workload, and level of personal protective equipment;
- Provide shaded rest area on sunny or hot days;
- Allow personnel to become acclimated to site conditions, personal protective equipment, and workload. Rotate teams of personnel in hot weather;
- Utilize cooling devices to assist body cool down (i.e., showers, cooling jackets, etc.);
- Encourage personnel to maintain their physical fitness.

7.4 Cold Stress

Personnel working in extreme cold, even for a short time, may experience severe injury to the surface of the body (frostbite), or profound generalized cooling (hypothermia). Frostbite usually occurs to parts of the body having high surface to volume ratios, such as fingers, toes, ears, and nose. Incipient frostbite is characterized by a blanching or whitening of the skin. Superficial frostbite is characterized by skin with a waxy or white appearance that is firm to the touch, but the skin underneath is resilient. Deep frostbite is characterized by cold pale skin that is solid to the touch.

Systematic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms include shivering, apathy, listlessness, sleepiness, unconsciousness, freezing of the extremities, and even death.

The extent of frostbite and hypothermia are influenced greatly by wind speed, wind chill and wetness of the skin. Thus the body can cool rapidly when chemical protective equipment is removed and the clothing underneath is soaked with perspiration. Workers experiencing signs of hypothermia shall be immediately removed from the environment, placed in a warm location, covered with dry blankets and provided with warm liquids. Wet clothing shall be removed and replaced with dry clothing and outerwear. Protective clothing, such as insulated coveralls or other winter-weight coveralls, may be used to shield employees from the wind.

8.0 AIR MONITORING PROGRAM

This section explains the general concepts of air monitoring as they pertain to personal protection and related surveillance activities taking place at the site. The purposes of air monitoring is to:

- Identify the presence (if any) of chemical contaminants;
- Warn of hazardous atmospheres before confined space entry;
- Quantify worker exposures to airborne contaminants;
- Assess whether current levels of personal protection are sufficient;
- Assist in the determination of proper and /or additional levels of protection, when needed.

Low flow personal air monitoring pumps to collect samples worn by 20% of the regulated area workforce, shall be analyzed for asbestos exposure, as described in section 8.1.3. Direct reading instruments or instantaneous measurement techniques shall be used for the assessment of worker exposures to other compounds. The types of measurements to be conducted on this project are based upon analysis of the contaminants believed to exist at the site, along with their potentials for exposure.

8.1 Air Monitoring Plan

8.1.1 Direct Reading/ Instantaneous Monitoring

Prior to the start of the work each day, at the discretion of the SSHO, all operational work areas shall be surveyed with the following instruments. If strong odors are present or if site conditions warrant, more frequent monitoring shall be conducted.

- Multi-gas Oxygen/Combustible Gas Indicator (CGI) / Toxic Gas Indicator shall measure the following minimum substances. Results will be compared to the exposure limits listed in Table 8-1 and manufacturer's set alarm standards.

  - % Oxygen;
  - Combustible gases/vapors as % of the Lower Explosive Limit (LEL);
  - Carbon Monoxide (parts per million [ppm]);
  - Hydrogen Sulfide (ppm).

- Total dust will be monitored by a miniRae with PM-10 in order to determine worker exposure to dust, metal compounds, and other contaminants. This result will be compared to the calculated exposure limit for site contaminants.

- Measurements of total volatile organics will be taken using a Photoionization Detector (PID) with a 10.2 or 10.6eV (electon-volt) lamp. These measurements also will be compared to exposure limit values listed in the Table 8-1.

Surveys shall be repeated at the frequency designated by the SSHO and results recorded. Results shall be 15-minute average readings. High priority areas of monitoring include open excavations, excavator cabs, and spoils piles.

If real time air monitoring in any work area exceeds any action levels found in Table 8-1, the level of protection shall be upgraded or actions taken as necessary to ensure that personnel are protected for the worst case contaminant of concern until the presence of that compound can be negated.

Community Air Monitoring shall be conducted. The SSHO shall be immediately notified if perimeter air action levels are exceeded at any location. Actions shall be taken to ensure that personnel in the Exclusion Zone are protected for the worst case contaminant of concern.

8.1.2 Action Levels

TABLE 8-1
AIR MONITORING WORK ZONE ACTION LEVELS

Contaminant	Action Level	Actions Required
Oxygen (O_2)	< 19.6 %	• IDLH atmosphere! Evacuate personnel from the Exclusion Zone (EZ). Re-evaluate situation. Notify the Site Supervisor and the Project Manager.
	> 22 % >23.5%	• Investigate cause of elevated O_2 level. • IDLH atmosphere! Notify SSHO, SS & PM. Evacuate personnel from the EZ. Notify the Site Supervisor and the Project Manager. Do not re-enter until cause of high O_2 is found and eliminated.
LEL	5 to ≤ 10%	• Continuous monitoring required.
	10%	• Evacuate personnel from area immediately and re-evaluate. Notify the Site Supervisor and the Project Manager.
Hydrogen Sulfide	≤ 5 ppm	• No respirator needed.
	5 ppm or greater	• Stop work. Evacuate personnel from the EZ and re-evaluate. Notify the Site Supervisor and the Project Manager.

Contaminant	Action Level	Actions Required
Carbon Monoxide	< 35 ppm 35 ppm or greater	• No action required. • Stop work. Evacuate personnel from the EZ , ventilate area, and re-evaluate. Notify the Site Supervisor and the Project Manager.
Total Dust	< 100 microgram per cubic meter (ug/m^3) average over 15 min. Dust visible in work zones $\geq$ 100 ug/m^3 average over 15 min. $\geq$ 150 ug/m^3 average over 15 min	• No action required. • Implement dust suppression methods. • Continue dust suppression methods. Check downwind levels. • Stop Work, until issue is resolved.
Volatile Organic Compounds (VOCs)	< 1 ppm 1 to 10 ppm average over 15 min. > 10 ppm average over 15 min.	• No respirator needed. • ½-face APR with OV/ P-100 cartridges Use vapor control methods. • Stop work. Evacuate personnel from the EZ and re-evaluate.

Breathing zone instrument readings for at least 15 minute averages shall be required to determine the need for upgrading/downgrading of PPE and corresponding action level.

PPE requirements shall be adjusted based on the above action levels except for airborne fiber (asbestos) concentrations.

8.1.3 Asbestos Monitoring

Asbestos exposure shall be monitored within the exclusion zone (regulated area) by the Asbestos Subcontractor utilizing low flow personal air monitor pumps to collect samples worn by 20% of the regulated area workforce. Air sample cassettes shall be analyzed by Phased Contrast Microscopy NIOSH 7400 methodology. Eight (8) hour time weighted average and 30 minute excursion samples shall be collected. Asbestos Subcontractor shall record the results of the asbestos exposure monitoring on the Report of Air Monitoring log (Attachment 10) and share results of asbestos exposure monitoring with the Contractor. If action levels in Table 8-2 are exceeded, the Asbestos Abatement Subcontractor shall immediately implement actions required and shall also immediately notify the Contractor's Site Supervisor.

TABLE 8-2
ASBESTOS MONITORING WORK ZONE ACTION LEVELS

Contaminant	Action Level	Actions Required
Asbestos Contaminated Materials (Air Sampling pump with 25 mm 0.8 um MCE filter)	0.0 f/cc – 1 f/cc 1 f/cc – 5 f/cc 5 f/cc – 100 f/cc ≥ 100 f/cc ***NOTE: Action Levels may be lower in accordance with Asbestos Abatement Variance***	• ½-face APR with OV/ P-100 cartridges. Use elevated level of dust control methods. • Full face APR with OV/ P-100 cartridges. Use dust control methods. • Powered Air Purifying Respirator • Stop work; Evacuate personnel from Abatement Area. **Evaluate the asbestos work practices.**

PPE requirements will be adjusted based on the above action levels.

8.2 Equipment Calibration

All instrument calibration shall be checked in accordance with manufacturer instructions and acceptable industrial hygiene protocol. Monitoring equipment shall be calibrated at the start and end of each day and the calibration shall be checked prior to work start. In addition, the instrument shall be calibrated in the temperature with which it will be used, or the calibration shall be corrected mathematically for differences in temperature, humidity and barometric pressure, where appropriate. Asbestos air samples, collected as a condition of the asbestos variance, that have post-calibration flow rates that are greater than ±5% of the pre-calibration flow rates will be discarded.

The PID shall be calibrated per manufacturer's recommendations. The appropriate photosensitivity shall be set on the instrument to read benzene throughout this project.

The multi-gas/CGI calibration shall also be per manufacturer's specifications.

No calibrations are necessary for the dust meter. However, the dust meter shall be "zeroed" in accordance with manufacturer instructions on a daily basis before use, and before start of work.

All calibrations required by this HASP shall be recorded in writing and shall be maintained on site for the duration of the project. Calibration certification of rotometers (secondary calibration equipment) shall be available on site.

8.3 Dust and Emission (Odor) Suppression Methods

Visible dust may be present in the work area as long as work area dust levels do not exceed work area action levels based on breathing zone monitoring. Visible dust that leaves the exclusion zone (i.e., fugitive dust) is not acceptable and must be controlled. Some methods to reduce these emissions are listed below:

- Limiting the amount of exposed areas, as much as possible;
- Applying water on haul roads;
- Wetting equipment and excavation faces;
- Spraying water on buckets during excavation and dumping;
- Hauling materials in properly tarped or watertight containers;
- Restricting vehicle speeds to 10 mph;
- Covering excavated areas and material after excavation activity ceases. Use of low permeability tarpaulin or suitable means to cover exposed areas and materials as required;
- If directed, Furnish and apply Rusmar Odor Controlling Foam.

9.0 CONTROLS AND PROCEDURES FOR LIFTING AND RIGGING

9.1 General Requirements

The employer shall comply with OSHA requirements (29 CFR 1926.1400 Subchapter CC) the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used for lifting shall not exceed the capacity, rating, or scope recommended by the manufacturer.

Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he is at his control station.

The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The owner of the crane shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or other moving parts or equipment shall be guarded if such parts are exposed to contact by employees, or otherwise create a hazard.

No modifications or additions which affect the capacity or safe operation of the equipment shall be made by the employer without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced. The manufacturer will define the weight of the object to be lifted or rigged. Manufacturer information will also be used to identify the capacity of the devices (shackles, sling, lifting beams, etc.) that will be used to lift the material require rigging.

If critical rigging is required on the job, contractor shall provide rigging plans and calculations of the proposed methods.

9.2 Electrical Safety

Any overhead or subsurface wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded or disconnected at both ends. When working in the vicinity of overhead energized lines, the Contractor will keep a minimum 10 ft clearance (in all directions)

plus an additional clearance of 4 inches for every additional 10 thousand volts (kV) increase for voltages over 50 kV. Prior to any subsurface excavation/penetration activities, the areas of excavation/penetration must be marked out and the local ONE CALL (dial 811) must be contacted. If the ONE CALL layout does not cover all of the proposed areas of excavation/penetration, utilize a private utility locator company to locate any buried utilities within the areas. All excavation/penetration activities must remain a minimum of three feet from the located buried utilities. Any excavation/penetration work closer than three feet by be completed by hand.

All electrical equipment must have a GFCI as part of the circuit. All equipment must be suitable and approved for the class of hazard. All electrical extension cords must be have three prongs and be inspected at least daily to verify that the outer casing of the cord is not damaged and that the prongs are not damaged. All extension cords must be rated to carry the anticipated load to run through the cord. Temporary wiring conductors installed for operation of construction tools and equipment will be either Type TW or THW contained in metal raceways, or will be hard usage or extra hard usage multiconductor cord. Temporary wiring will be secured above the ground or floor in a workmanlike manner and will not present an obstacle to persons or equipment. Applicable OSHA standards for electrical power, 29 CFR 1926 Subpart K, shall apply.

Lockout/tagout procedures (Appendix D) will be implemented to assure the safety of personnel during servicing or maintenance of machines and equipment where the unexpected release of stored energy or the energization of these machines or equipment could cause employee injury. The contractor must submit a detailed procedure that complies with the requirements established in 29 CFR 1926.417.

10.0 SITE CONTROL MEASURES

The following section defines measures and procedures for maintaining site control. Site control is an essential component in the implementation of the site health and safety program. In addition to the following, all visitors are required to sign in and out of the job site. A Construction Site Logistics Plan showing work zones will be submitted under separate cover.

10.1 Work Zone Definition

The three general work zones established at each work area are the EZ – which is also called the Regulated Work Area for asbestos abatement activities, Contamination Reduction Zone (CRZ), and Support Zone (SZ). The EZ will be located only in those specific areas where potential for over exposure to the identified contaminants exists. Plans in the field office shall be current and personnel shall be briefed on the locations and limits of each zone.

The EZ is defined as the area where contamination is either known or likely to be present, or because of activity, could provide a potential to cause harm to personnel. This area shall be denoted with signage and orange construction fencing and/or asbestos caution tape.

Entry into the EZ requires the use of PPE and proper training. The EZ shall be established by the SSHO. No eating, drinking, or smoking will be permitted in this area. Smoking is prohibited on the entire site, including within the construction trailers.

The CRZ is the area where personnel conduct personal and equipment decontamination. It is essentially a buffer zone between contaminated areas and clean areas. This area shall be denoted with proper signage and shall have a decontamination area set up to dispose of used PPE, and an area to perform any necessary personal hygiene and personal decontamination. Activities to be conducted in this zone require PPE and training. No eating drinking or smoking will be permitted in this area.

The SZ is situated outside the EZ and the CRZ in a clean area in which the chance to encounter hazardous materials or conditions is minimal. All external roadways leading to the site, other than those identified as possibly contaminated, are considered to be in the clean zone. The SZ will generally be positioned upwind of the EZ when possible.

10.2 Buddy System

During intrusive activities, the implementation of a buddy system is mandatory. A buddy system requires at least two people who work as a team, each looking out for each other, via voice or visual contact.

10.3 Site Communications

Successful communications between field teams and personnel in the work areas is essential. The following communications systems should be available during activities on the site:

- Two way radios;
- Hand signals;
- Cellular phones.

Table 10-1
Hand Signals

Signal	Definition
Hands clutching throat	Out of air – cannot breathe
Hands on top of head	Need assistance
Thumbs up	OK / I am OK / I understand
Thumbs down	No / Negative
Arms waiving upright	Trouble / Send backup support
Grip partner's wrist	Exit area immediately

10.4 Site Security

All work areas shall be secured during off-hours with locked fencing. A Site Security Company Shall monitor the site during the Contractor's offsite hours.

10.5 Site Illumination

If work schedules require work outside of hours of daylight, then portable lights, sufficient to provide adequate lighting, shall be provided. "Light Pollution" must not affect any of the neighbors. If necessary, temporary lighting shall be supplied with the use of a generator. This will require a NYCDEP After-Hours Noise Permit to be filled out and filed with the appropriate agency.

10.6 Site Sanitation

Portable restrooms sufficient to meet the requirements of 29 CFR 1910.120(n) will be provided. Potable water shall be provided for workers at each work area. Hand and face wash as well as respirator sanitizing supplies (if respirators are utilized on site) shall be available on site in sufficient quantities for all employees.

10.7 Housekeeping

To minimize potential accidents and cross contamination, the site shall be maintained in a generally clean condition. Personal waste materials, such as PPE, paper towels, and respirator cartridges, etc. shall be disposed of in waste containers. Disposable PPE used within the exclusion zone (regulated area) shall be disposed of as asbestos contaminated waste.

This site shall be set up so as to be reasonably free from significant safety hazards. Wires and hoses shall be positioned so they do not obstruct or present a safety hazard in walkways and evacuation routes. All walkways and working surfaces shall be cleared of ice and snow prior to performing any work and on an as needed basis throughout the workday.

10.8 Fire Protection and Prevention

Fire Protection: Access to all available firefighting equipment must be maintained at all times. Firefighting equipment must be maintained in operating condition. Fire extinguishers shall be serviced annually and shall have a tag indicating this. They will also be inspected monthly by the SSHO while onsite and a date and signature or initial will be written on the tag. Defective or exhausted equipment must be replaced immediately. All firefighting equipment shall be conspicuously located and positioned off the ground/floor. Travel distance from any point of the protected area to the nearest fire extinguisher must not exceed 100 ft. Extinguisher exposed to freezing conditions will be protected from freezing. Employees shall not remove or tamper with fire extinguishers installed on equipment or vehicles or in other locations unless authorized to do so or in case of fire. After using a fire extinguisher, it must be recharged or replaced with another fully charged extinguisher. Extinguishers must be selected based on the anticipated fire hazards. To aid in the proper selection of fire extinguishers, the classes of fires are as follows:

- Class A (wood, paper, trash) - use water, dry chemical, or foam extinguisher.
- Class B (flammable liquids, gas, oil, paints, grease) - use foam, carbon dioxide, or dry chemical extinguisher.
- Class C (electrical) - use carbon dioxide or dry chemical extinguisher.
- Class D (combustible metals) - use dry powder extinguisher only.

Fire Prevention: Internal combustion engine-powered equipment shall be located so that exhausts are away from combustible materials. Areas containing Flammable or Combustible material will be conspicuously posted: "No Smoking or Open Flame." Portable battery-powered lighting equipment must be approved for the type of hazardous locations encountered. Combustible materials must be piled no higher than 20 ft (6.1 m). Depending on the stability of the material being piled, this height may be reduced.

Portable fire extinguishing equipment, suitable for anticipated fire hazards on the jobsite, must be provided at convenient, conspicuously accessible locations. Firefighting equipment must be kept free from obstacles, equipment, materials, and debris that could delay emergency use of such equipment. Employees shall familiarize themselves with the location and use of the project's firefighting equipment. All oily rags, waste, and similar combustible materials must be placed in metal containers. Storage of flammable substances on equipment or vehicles shall be prohibited unless such unit has adequate storage area designed for such use.

Flammable and Combustible Liquids: Explosive liquids, such as gasoline, must not be used as cleaning agents. Gasoline and similar combustible liquids must be stored, transported, and handled in approved and labeled containers in well-ventilated areas free from heat sources. Approved wooden or metal storage cabinets must be labeled in conspicuous lettering: "Flammable-Keep Fire Away." Storage in an approved storage cabinet shall not exceed 2.5 gallons.

Fire Extinguishers: Portable fire extinguishers shall be provided in adequate number and type (10 lb. or 20 lb. ABC) and will be located throughout the site. Fire extinguishers shall be located in readily accessible locations. All extinguishers must be fully charged and in their designated places unless in use. All employees are periodically instructed in the use of extinguishers and fire protection procedures.

10.9 Hot Work

All personnel performing hot work are required to have a Certificate of Fitness issued by the FDNY. Additionally, hot work performed in/on certain locations (e.g. within buildings, in outdoor alcoves, on roofs, etc.) will require a Hot Work Permit from the FDNY.

Compressed gas cylinders shall be regularly examined for obvious signs of defects, deep rusting, or leakage. Use care in handling and storing cylinders, safety valves, relief valves and the like, to prevent damage. Precautions must be taken to prevent mixture of air or oxygen with flammable gases, except at a burner or in a standard torch. Only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) may be used. Cylinders must be kept away from sources of heat. It is prohibited to use cylinders as rollers or supports. Cylinders, cylinder valves, couplings, regulators, hoses and apparatus must be kept free of oily or greasy substances. Care must be taken not to drop or strike cylinders. Unless secured on special trucks, all regulators must be removed and valve-protection caps put in place before moving cylinders. Before a regulator is removed, the valve must be closed and gas released from the regulator.

The open circuit (No Load) voltage of arc welding and cutting machines must be as low as possible and not in excess of the recommended limits. Under wet conditions, automatic controls for reducing no-load voltage must be used. Grounding of the machine frame and safety ground connections of portable machines must be checked periodically. Electrodes must be removed from the holders when not in use. All electric power to the welder must be shut off when no one is in attendance. Suitable fire extinguishing equipment must be available for immediate use before starting to ignite the welding torch. All connecting cable lengths must have adequate insulation. When the object to be welded cannot be moved and fire hazards cannot be removed, shields must be used to confine heat, sparks and slag.

The Hot Work Permit Procedures shall be followed, as required. Firewatchers shall be assigned when any hot work is performed. All combustible floors must be kept wet, or protected by fire-resistant shields. When floors are wet down, personnel shall be protected from possible electrical shock. When welding is done on metal walls, precautions must be taken to protect combustibles on the other side. Before hot work is begun, used drums, barrels, tanks and other

containers must be so thoroughly cleaned that no substances remain that could explode, ignite or produce toxic vapors. Employees exposed to the hazards created by welding, cutting or brazing operations must be protected with personal protective equipment and clothing. This includes the dedicated Firewatch person(s). Check for Engineering Controls (e.g. adequate ventilation) where welding or cutting is performed. These controls should be considered before or in conjunction with the use of PPE. When performing hot work, environmental monitoring tests shall be taken and means provided for quick removal of welders in case of emergency.

11.0 DECONTAMINATION PLAN

Decontamination involves the orderly, controlled removal of contaminants. Standard decontamination sequences are presented in the examples below. All site personnel should minimize contact with contaminants, when conceivable, in order to minimize the need for extensive decontamination.

Personnel decontamination shall consist of safe work practice, use of disposable PPE, personal hygiene, and personal decontamination before breaks and at the completion of each day. Decontamination for workers handling ACM or using chemical protective clothing is described below. In the case respirators or self-contained breathing apparatus are utilized on the site, specific decontamination procedures shall be thoroughly discussed on site prior to donning.

An asbestos worker decontamination unit shall be used in accordance with Federal, State, and local regulations. The decontamination unit shall provide asbestos abatement workers with hot and cold running water, a clean room for changing, separate storage facilities, and adequate soap and towel. Water from showers will be pumped into an on-site storage tank for later off-site disposal at an approved facility or filtered down to 5 microns and either discharged into the Wallabout Channel in accordance with a SPDES Permit Equivalent, or contained on the Site for future transport to an off-site disposal/treatment facility.

11.1 Routine Personal Decontamination

- All liquid resistant suits shall be scrubbed with water and industrial soap solution, if needed, in a total body wash pool with a long handle brush, followed by a fresh water rinse. The boots shall be included in this step of the decontamination;
- Disposable coveralls shall be removed and placed in a plastic trash bag;
- Disposable gloves shall be removed and placed in a plastic trash bag;
- Respirators, hands, face and any other potentially contaminated area shall be thoroughly soaked and washed in a shower with a water/mild soap solution. Respirators will then be washed in a respirator sanitizing solution, rinsed and then air-dried;
- Hands, face and any other potentially contaminated area shall be thoroughly dried with freshly washed towels after the shower;
- Hard hats shall be thoroughly washed with a water/industrial soap solution, rinsed and dried;
- If leather/cotton work gloves are used, they shall be removed and stored in the work area.

11.1.1 Chemical Protective Clothing Decontamination

Station 1: Equipment Drop
Deposit equipment used on site (tools, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.

Station 2: Outer Garment, Boots, and Gloves, Wash Rinse
Wash outer boots, outer gloves and splash suit (if being used) with water and detergent solution. Rinse off using large amount of water.

Station 3: Outer Boot and Glove Removal
Remove outer boots and gloves. Place in storage area.

Station 4: Boot, Gloves and Outer Garment Removal
Boots, chemical resistant splash suit (if being used), inner gloves removed and deposited in storage area.

Station 5: Field Wash
Hands and face are thoroughly washed.

11.2 Emergency Decontamination

Should workers be splashed with hazardous chemical contaminants, the worker will immediately be escorted to the field decontamination station and be decontaminated as follows:

- Wash off under pressurized shower or sprayer;
- Remove all contaminated clothing;
- Remove all wet clothing;
- Cover with blanket or dress in clean, dry clothing;
- Transport to hospital, if necessary;
- Sprayer will not be a pressure washer.

11.3 Disposition of Contaminated Wastes

All wash water from the decontamination procedures shall be collected and properly disposed of per the Excavation and Materials Management Plan.

Disposable PPE and decontaminated solids shall be disposed of as other project wastes in a manner acceptable to treatment facility needs.

11.4 Equipment Decontamination

The contractor shall establish a Contamination Reduction Zone to perform controlled decontamination of equipment and personnel as they leave the Exclusion Zone. The contractor shall provide a fresh water supply and a temporary decontamination pad. The decontamination pad shall consist of a 6 mil polyethylene liner, a layer of stone, and earthen berms around the perimeter. The contractor shall setup a sump system to pump out and containerize wash water for treatment or offsite disposal. The decontamination pad shall be inspected once per day, and maintained as necessary. If the polyethylene layer has been breached, repairs shall be made immediately and any necessary remediation performed. All equipment shall be decontaminated prior to leaving the site. The contractor shall prevent cross contamination between areas in the Exclusion Zone by cleaning heavy equipment as necessary.

12.0 EMERGENCY RESPONSE PLAN

This section describes contingencies and emergency procedures to be implemented at the site. This plan should be coordinated with the local authorities' disaster and emergency management plans as appropriate. In addition, meetings or other communication with the local hospital, rescue squad, hazardous materials unit and fire department will occur so as to advise the emergency response representatives of the nature and type of contaminants victims may have been exposed to while on site. Directions to the hospital shall be posted on site when this HASP is in effect. Emergency procedures shall be posted and covered in daily site briefings.

12.1 Pre-emergency Planning

The PM shall ensure that lines of communications have been established with local hospitals, government agencies and other emergency response organization prior to site activities. During the Tailgate Safety Meetings or Toolbox Safety Meetings, information shall be presented to all site personnel each morning just prior to the onset of work activities. All personnel shall be trained in provisions of the emergency response plan, communications systems, and evacuation routes.

12.2 Emergency Equipment & Facilities

The following emergency equipment shall be available at the site:

- First Aid Kit/Bloodborn Pathogen response kit;
- Fire Extinguisher, appropriate to potential fire hazards;
- Potable Eye Wash station, near any areas of chemical use or splashing;
- Emergency Shower, potable water garden hose,;
- Mobile Phone and/or Two-way Radio;
- Chemical/oil Spill Kits and/or absorbents.

Generally emergency equipment shall be stored near the work zones. If during operations, in the opinion of the SSHO, it is not feasible to store the emergency equipment in a container close enough to the work, a mobile unit, such as a pickup truck shall be employed as the temporary location.

12.3 Personnel Roles and Lines of Authority

The PM / SSHO has primary responsibility for responding to and correcting emergency situations. This includes taking appropriate measure to ensure the safety of site personnel and the public. Possible actions may involve evacuation of adjacent personnel. Additionally, they shall be responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow up reports completed.

12.4 Incident Reports

Notes:

1. Should any unforeseen safety-related factor, hazard, or condition become evident during the performance of the work, The contractor must immediately take prudent action to establish, maintain, and secure the site the site and working conditions.
2. If injury, close calls, vehicle/equipment accidents, fires, explosions, injuries to a person or damage to property, environment, or natural resources results from an incident the Contractor shall immediately report the incident to the Owner's Construction Inspector on site. It is imperative that close calls be reported and investigated in order to prevent injuries and accidents as the conditions for them exist and must be addressed. Additionally, for all incidents (OSHA Recordable and Non-Recordable Injuries)/Accidents/Close calls to anyone on site (including Members of the Public)/Fires/Explosions, the Contractor shall be required to perform a Root Cause investigation and prepare a Root Cause Investigation Report/Preventative Action Plan to be considered acceptable by the Owner before work on that same activity can continue. The Contractor may, however, perform work on all other tasks/activities on the project while awaiting the Owner's acceptance of the aforementioned documents. Prior to work beginning on site, a full list of the Owner's contacts shall be provided to the Contractor for emergency contact purposes.
3. If the Owner's Construction Inspector is not reachable, the pre-designated alternate shall be contacted and notified of the situation.

The notification shall be made as soon as possible and both verbally and in writing when related to unforeseen safety hazard or condition. Written confirmation of verbal reports are to be submitted. The OSHA First Report of Injury Form (Attachment 4) is to be used for this purpose. This report shall be submitted within one business day of the injury, electronically. Both forms may be found in Attachment 4 of this Plan.

For reporting purposes, the term accident/incident refers to fatalities, injuries of any type, close calls, spill or exposure to hazardous materials, fire, explosion, property damage, or potential occurrence of the above.

Any information released from the health care provider, which is not deemed confidential patient information, is to be attached to the appropriate form. Any medical information, which is released by patient consent, is to be filed in the individual's medical record and treated as confidential. The Owner must be continuously updated with the status of any injured site worker, such as the number of days with a Restricted Duty or Lost Work day injury, and by any status changes from an injury going from First Aid to Medical Treatment (or beyond), Medical Treatment to Restricted Duty (and beyond), and Restricted Duty to Lost Work Day - and downward in classification as well.

12.5 Evacuation Procedures

If anyone discovers a fire, chemical spill or release, or other process upset necessitating emergency action, he or she will immediately notify the PM or SSHO. An immediate decision

must be made as to whether to evacuate the site or other actions to be taken. The SSHO is primarily responsible for this decision. Details regarding response to a spill is presented below in Section 12.8.

The primary response to any emergency shall be to protect the health and safety of employees, contractors and visitors on site, as well as the community and environment. Steps shall be taken to identify, contain, treat, and properly dispose of the materials involved as a secondary response.

In the event of an emergency that necessitates an evacuation of the site, the following alarm procedures must be implemented.

12.5.1 Alerting System

Onsite – Utilize air horns or radios as appropriate. Contact 911, alert office personnel to wait at site entrance to direct emergency response units to the emergency.

Outside of the construction areas – Contact 911.

When notified to evacuate, all personnel shall be expected to proceed to the closest site exit with their buddy, and mobilize to the predetermined safe distance area associated with the evacuation route. Personnel shall remain at that area until the re-entry alarm is sounded or an authorized individual provides further instructions. Air horns must be located in the work area near the supervisor's office.

In general, employees should proceed to a designated meeting location that is upwind and uphill from the site or location of the incident, unless otherwise instructed by supervisory personnel. A wind socks and /or flagging shall be employed on site to indicate the upwind direction to which evacuation should proceed.

12.5.2 Emergency Contacts & Notification Systems

The following pages provide names and telephone numbers for emergency contact personnel and key project contacts for work activities. It shall be kept on site for the duration of the project. In the event of a medical emergency, personnel shall take direction for the PM/SSHO and notify the appropriate emergency organization. In the event of a fire, the site supervisor shall ensure that the appropriate local, state, and federal agencies are notified. Prior to posting, the PM/SSHO shall confirm the appropriate contact names and phone numbers are listed.

12.6 Emergency Medical Treatment

Any person who becomes ill or injured in the work zones must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport to the hospital (see Figure 12-1). If the patient's condition is life threatening, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket. First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must be immediately reported to the SSHO.

Any person being transported to a hospital for treatment must take with them information on the chemical(s) they have been exposed to at the site, along with a copy of the individual's Medical Data Sheet (Attachment 3).

Prior to the start of work, the PM or SSHO shall confirm the nearest hospital's location and phone number. This information along with directions from the site to the facility shall be posted in the office trailer. A map to the closest hospital is displayed on the previous page.

EMERGENCY NUMBERS

POLICE, AMBULANCE, FIRE, HOSPITAL..... 911

- Woodhull Medical Center .....(718) 963-8000
  760 Broadway
  Brooklyn, NY 11206
- EPA National Response Center .....(800) 424-8802
- American Association of Poison Control Centers .....(800) 222-1222
- NY State Dept. of Environmental Conservation..... (718) 482-4900
  Region 2
- NYDEC 24 hour Spill Hotline.....{within NY State} (800) 457-7362
  ..... {outside NY State} (518) 457-7362

PERSONNEL PHONE NUMBERS

(All contact information for Contractor and Owner Personnel to be provided prior to the start of work.)

Contractor Personnel:

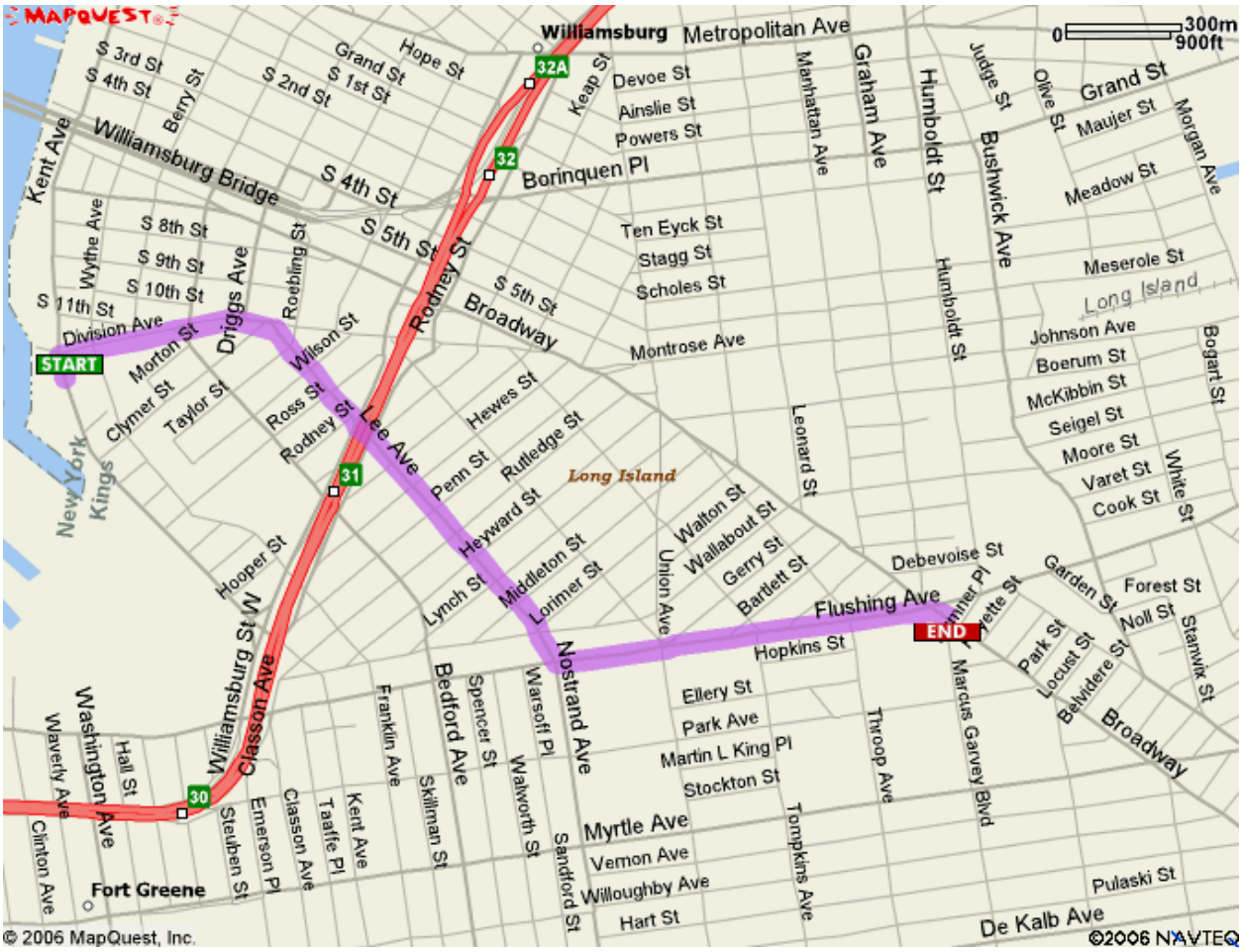
- Contractor's Headquarters ..... Office: (XXX) XXX-XXXX
- TBD, Project Manager .....Cell:(XXX) XXX-XXXX
- TBD, Site Supervisor (SS):.....Cell:(XXX) XXX-XXXX
- TBD, Site Safety & Health Officer (SSHO):.....Cell: (XXX) XXX-XXXX
- TBD, Quality Control Engineer.....Cell:(XXX) XXX-XXXX
- TBD, (CIH).....Cell:(XXX) XXX-XXXX
- Contractor's Site Trailer ..... Office: (XXX) XXX-XXXX

Owner's Personnel:

- TBD, Project Manager..... Office:(XXX) XXX-XXXX
- TBD, EH&S..... Office:(XXX) XXX-XXXX

- TBD, Construction Manager..... Office:(XXX) XXX-XXXX
- TBD, Construction Inspector..... Office:(XXX) XXX-XXXX

Figure 12-1
Hospital Location Map



Starting Location: 500 Kent Avenue
Brooklyn , NY

Ending Location: Woodhull Medical Center
760 Broadway
Brooklyn, NY
718-963-8000

Route: **2.3 miles, 8 minutes**

1. Depart Kent Ave toward Division Ave
2. Turn right onto Division Ave
3. Turn right onto Lee Ave
4. Turn left onto Flushing Ave
5. Turn right onto Broadway
6. Arrive at 760 Broadway, Brooklyn, NY 11206

12.7 Fire & Explosion Procedures

In the event of a fire or explosion, the local Fire Department shall be summoned immediately. Upon their arrival, the Project Manager or designated alternate shall advise the fire commander of the location, nature, and identification of the hazardous materials on site.

If it is safe to do so, site personnel may:

1. Use firefighting equipment available on site to control or extinguish the fire; and
2. Remove or isolate flammable or other hazardous materials which may contribute to the fire.

12.8 Spill & Leak Control

In the event of a spill or leak site personnel must:

1. Inform SS immediately.
2. Terminate work activities (at the discretion of the SSHO).
3. Prevent entry of spill materials into any waterways.
4. Follow site emergency notification and evacuation procedures, when necessary.
5. Locate the source of spillage and stop the flow if it can be done safely.
6. Begin containment and recovery of the spilled materials if it can be done safely.

If the spill or release is expected to pose significant hazards or is beyond the capabilities of the immediate personnel, the SS will implement the necessary remedial action. The SS will be responsible for the following:

- Identify the problem;
- All on-site Owner personnel will be notified of spill/release detection;
- Take all reasonable measures to stabilize the situation;
- Oversee follow-up activities such as treating, storing and disposing of spill residues.

If the accident is beyond the capabilities of the operating crew, the SS will have all personnel not involved with emergency response activity evacuated from the immediate area. The spill or release area will then be roped or otherwise blocked off to establish an exclusion zone and contamination reduction zone. The configuration of these zones will be based upon the nature and size of the release. The configuration of the zones will be modified based on the rate of release and/or mitigation measures employed. The SS will then evaluate what further actions are necessary and will review with the Owner. There the following will be discussed and a properly trained contractor will be called to the site for remediation to:

- Assess the health and environmental hazards;
- Obtain the services of emergency responders, as needed;
- Conduct an investigation and preparing and distributing resulting reports.

The Owner will make the necessary notifications to the appropriate regulatory agencies.

12.9 Spill Containment and Clean Up Equipment

In the chance a spill does occur, the contractor shall be equipped with the following spill or containment equipment:

- Loose dry absorbent (i.e., sawdust, multipurpose sorbent);
- Oil containment booms;
- Shovels - wooden handle, steel type;
- Brooms - wooden handle, push type;
- Wrenches and tools for tightening fittings and valves;
- Drums or other acceptable waste containers.

12.10 Electrical Storms and Lightning

The procedures provided below shall be used to protect site personnel from lightning related injuries due to electrical storms.

12.10.1 Detection of Lightning

The Site Supervisor shall be proactive in monitoring conditions that may produce thunderstorms and lightning. The weather forecast shall be tracked and communicated to site personnel as often as necessary. When signs of impending storms, i.e., increasing wind, darkening skies, or lightening appear, local weather monitoring shall be increased. The National Weather Service (www.nws.noaa.gov/) should be consulted frequently. Personnel shall be notified when thunderstorms may impact the site.

The "flash/bang" (f/b) technique of measuring the distance to lightning shall be reviewed with all personnel. The f/b technique is defined as: for each five seconds from the time of observing the lightning flash to hearing the associated thunder, the lightning is approximately one mile away.

12.10.2 Suspension/Resumption of Activities

All outside activities must be suspended when a lightning flash is immediately in the area or a f/b of 20 seconds (4 miles away) is noted. Personnel may continue indoor work activities. Outdoor activities may resume when 30 minutes have passed since the last observable f/b is 20 seconds or greater.

12.10.3 Lightning Protection

When notification is given, all outside work activities must stop and personnel shall gather in the support zone for a head count and further instructions. Indoor work may continue. When a safe location is not present and personnel are caught by a sudden lightning event, employees should seek the lowest possible area, away from large objects which might attract lightning or fall over, e.g., trees, utility poles. The employee should assume a crouching position with their head lowered and hands over their ears. AVOID: WATER, HIGH GROUNDS, HEAVY EQUIPMENT AND TALL, ISOLATED OBJECTS.

12.10.4 First Aid

An employee that is struck by lightning needs immediate medical assistance (call 911). The body will not carry an electrical charge, but receives a severe electrical shock and may be burned. Personnel certified in first aid/CPR should inspect for shock and burns around fingers, toes, buckles and jewelry. Stay with the injured employee until medical help arrives. The Site Safety Officer shall identify the individuals certified (Site Specific) in First Aid and CPR in order to ensure that emergency medical treatment is available during field activities.

12.11 Incident Follow-up and Critique

Following all emergency response actions and activation of this plan, the PM shall conduct a debriefing session of all key personnel involved. The response shall be critiqued, documented, and response plans revised, if necessary. Corrective actions shall be listed where procedures were inadequate or need improvement. Responsible persons shall be listed and held accountable for follow-up.

13.0 INSPECTION PROGRAM

13.1 Inspections Reporting and Recordkeeping

The Project Manager shall coordinate inspections of site operations. Inspections shall be conducted according to the schedule outlined in the following sections.

General Facility & All Heavy Equipment: Personnel shall be observed to ensure compliance with health and safety requirements, in particular the use of personal protective equipment. The availability of usable safety and emergency equipment shall be verified.

13.1.1 Safety Inspections

Periodic site safety inspections shall be performed by the SSHO during the operational phase of the site. The purpose of these safety inspections is to ensure personnel are performing their duties in the safest manner possible and provide continuing analysis and modification to the safety program.

13.1.2 General Facility & All Heavy Equipment Inspections

Inspections of the general facility shall be focused on consistent compliance with safety requirements and availability of safety and emergency gear. Inspections of Heavy Equipment shall be performed on a daily/weekly basis (depending on usage of the equipment). Operators shall be in charge of this insure to check all deficiencies and correct issues if found, before use. The focus of these inspections is listed in Table 13-1, General Facility Inspection Schedule. The frequency of these inspections may be altered/amended as deemed necessary by the SSHO.

Table 13-1
General Facility Inspection Schedule

SPECIFIC ITEMS	TYPES OF PROBLEMS	FREQUENCY
Electrical lines	Frays, splices, trip hazards	Weekly
Non-emergency lighting	Bulbs burned out or missing	Weekly
All personnel trained	New workers may not know emergency procedures	Once per work shift
All personnel using appropriate PPE	May not be complying with PPE requirements	Once per work shift
Fire extinguishers	Broken seal, inadequate pressure, access blocked	Weekly/After use and Monthly Signatures/Annual by vendor

SPECIFIC ITEMS	TYPES OF PROBLEMS	FREQUENCY
Heavy Equipment	Structural, Mechanical, Defective Issues	Daily
Emergency alarms	Power or battery failure	Weekly/After use
Cartridges, respirators	Inadequate supply of new cartridges, damaged seals or straps	Daily/Before & After use and Weekly if not in use
Face shields, safety glasses	Inadequate supply, damaged or scratched lenses	Daily/As Used Basis
Hard hats, boot covers, construction boots	Inadequate supply, damaged	Daily/As Used Basis
Gloves, glove liners	Inadequate supply, damaged	Daily/As Used Basis
Chemical-resistant suits	Inadequate supply, damaged	As Used Basis
Moisture-proof chemical-resistant suits	Inadequate supply, damaged	As Used Basis
Eyewashes	Low liquid level/non-hygienic condition/freezing	Weekly/After use
First-aid supplies	Low stock/expired items	Weekly/After use
Emergency lights	Battery or bulb failure	Weekly
Lanyards and Harnesses	Damaged	As directed by usage

ATTACHMENT 1

HASP Amendment

<u>On Site Personnel Health and Safety Plan Compliance Agreement</u>

I have been given a full verbal HASP review Health and Safety Plan for activities at the site. My signature indicates that I have been notified of the on-site location of the above stated Plan, have been provided the opportunity to review the contents of the Plan and have been provided with on-site training. I will comply with the requirements and protocols outlined in the HASP when working at or visiting the site.

Employee Name (print)	**Employee Signature**	**Date**

On Site Personnel Health and Safety Plan Compliance Agreement (cont.)

I have been given a full verbal HASP review Health and Safety Plan for activities at the site. My signature indicates that I have been notified of the on-site location of the above stated Plan, have been provided the opportunity to review the contents of the Plan and have been provided with on-site training. I will comply with the requirements and protocols outlined in the HASP when working at or visiting the site.

Employee Name (print)	Employee Signature	Date

ATTACHMENT 2

Safety Meeting Report

SAFETY MEETING REPORT

Location: 500 Kent Avenue Brooklyn, New York	
Safety Topic:	**Reported By:**
Meeting Date:	**Time:**
PERSONNEL ATTENDING	
1.	**11.**
2.	**12.**
3.	**13.**
4.	**14.**
5.	**15.**
6.	**16.**
7.	**17.**
8.	**18.**
9.	**19.**
10.	**20**
TOPICS COVERED: **Shift Scope of Work:** **Hazards Associated with Shift Scope of Work:** **Control Measures to Mitigate Hazard Associated with Shift Scope of Work:**	**COMMENTS:**

SAFETY MEETING REPORT

Location: 500 Kent Avenue Brooklyn, New York	
Safety Topic:	**Reported By:**
Meeting Date:	**Time:**
PERSONNEL ATTENDING	
1.	**11.**
2.	**12.**
3.	**13.**
4.	**14.**
5.	**15.**
6.	**16.**
7.	**17.**
8.	**18.**
9.	**19.**
10.	**20**
TOPICS COVERED: **Shift Scope of Work:** **Hazards Associated with Shift Scope of Work:** **Control Measures to Mitigate Hazard Associated with Shift Scope of Work:**	**COMMENTS:**

ATTACHMENT 3

Medical Data Sheets

Medical Data Sheet

A Medical Data Sheet, such as that provided below, shall be completed by all onsite personnel and shall be kept in the Support Zone during site operations. It is in no way a substitute for the Medical Surveillance Program requirements consistent with the Health and Safety Program for Hazardous Waste Sites. This data sheet will accompany any personnel when medical assistance or transport to hospital facilities is required. If more information is required, the back of this sheet may be used.

Project:_____

Name:_____

Address:_____

Home Phone: Area Code:_____

Date of Birth:_____ Height:_____ Weight:_____

In case of emergency contact:_____
NAME

Address:_____

Telephone: Area Code:_____

Do you wear contact lenses? Yes:_____ No:_____

Allergies:_____

List Medications taken regularly:_____

_____

Particular sensitivities:_____

Previous/recent illnesses or exposures to hazardous chemicals:_____

_____

Name of Personal Physician:_____

Telephone: Area Code:_____

ATTACHMENT 4

OSHA First Report of Incident Form

OSHA's Form 301
Injury and Illness Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary,* these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____

Title _____

Phone (_____)_____–_____ **Date** ___/___/___

Information about the employee

1) **Full name** _____

2) **Street** _____

City _____ **State** _____ **ZIP** _____

3) **Date of birth** ___/___/___

4) **Date hired** ___/___/___

5) ☐ Male
☐ Female

Information about the physician or other health care professional

6) **Name of physician or other health care professional** _____

_____

7) **If treatment was given away from the worksite, where was it given?**

Facility _____

Street _____

City _____ **State** _____ **ZIP** _____

8) **Was employee treated in an emergency room?**
☐ Yes
☐ No

9) **Was employee hospitalized overnight as an in-patient?**
☐ Yes
☐ No

Information about the case

10) **Case number from the *Log*** _____ *(Transfer the case number from the Log after you record the case.)*

11) **Date of injury or illness** ___/___/___

12) **Time employee began work** _____ AM / PM

13) **Time of event** _____ AM / PM ☐ Check if time cannot be determined

14) ***What was the employee doing just before the incident occurred?*** **Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific.** *Examples:* **"climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."**

15) ***What happened?*** **Tell us how the injury occurred.** *Examples:* **"When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."**

16) ***What was the injury or illness?*** **Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or sore."** *Examples:* **"strained back"; "chemical burn, hand"; "carpal tunnel syndrome."**

17) ***What object or substance directly harmed the employee?*** *Examples:* **"concrete floor"; "chlorine"; "radial arm saw."** *If this question does not apply to the incident, leave it blank.*

18) ***If the employee died, when did death occur?*** **Date of death** ___/___/___

ATTACHMENT 5

Site Visitor Log

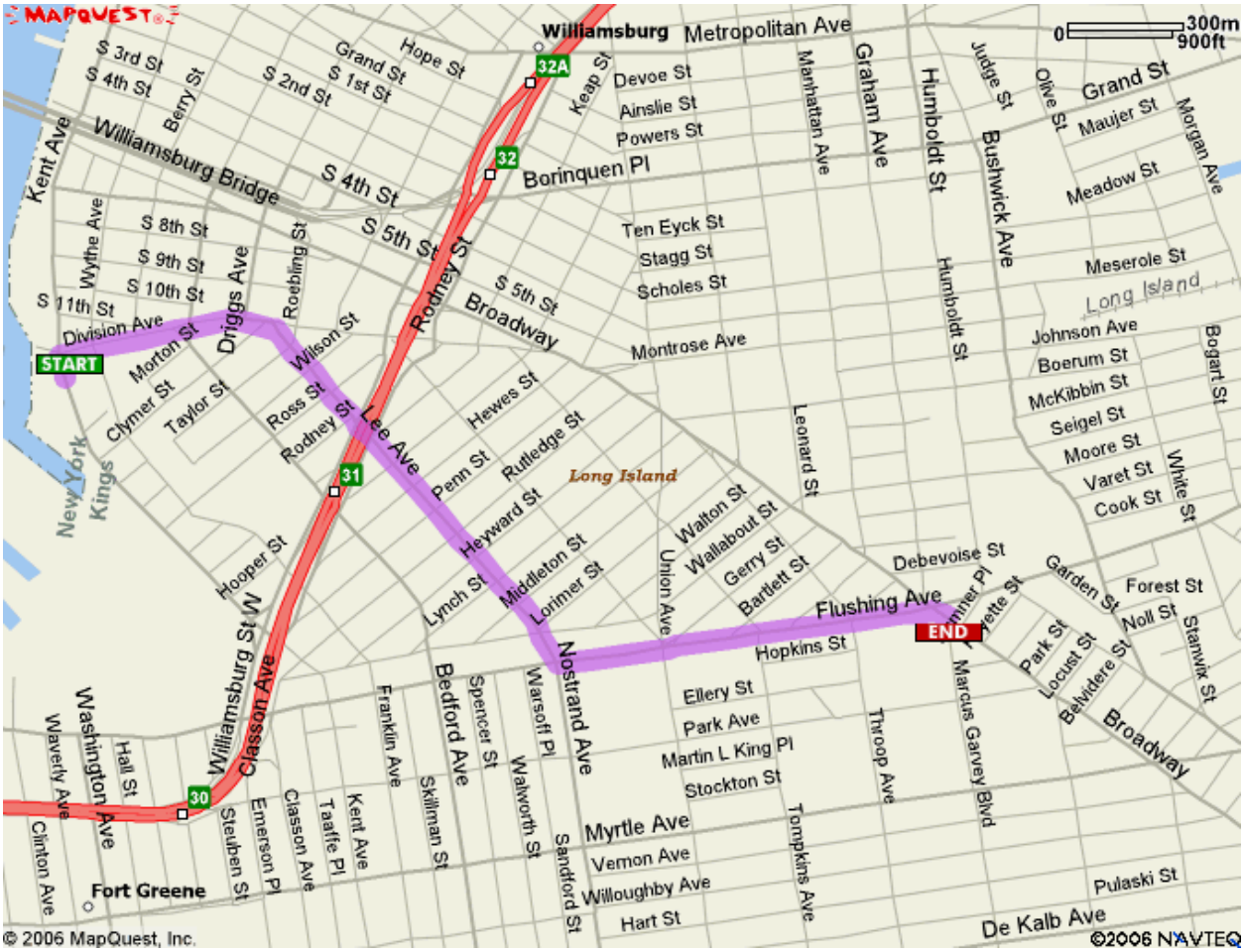
VISITOR SIGN IN SHEET

Date	Name	Company	Time In	Time Out

ATTACHMENT 6

Hospital Route
&
Emergency Phone List

HOSPITAL LOCATION MAP



Starting Location: 500 Kent Avenue
Brooklyn , NY

Ending Location: Woodhull Medical Center
760 Broadway
Brooklyn, NY
718-963-8000

Route: **2.3 miles, 8 minutes**

1. Depart Kent Ave toward Division Ave
2. Turn right onto Division Ave
3. Turn right onto Lee Ave
4. Turn left onto Flushing Ave
5. Turn right onto Broadway
6. Arrive at 760 Broadway, Brooklyn, NY 11206

EMERGENCY NUMBERS

POLICE, FIRE, AMBULANCE, HOSPITAL ……..911

Woodhull Medical Center.....718 963-8000

EPA National Response Center.....800 424-8802

American Association of Poison Control Centers 800 222-1222

New York State Department of Environmental Conservation (NYSDEC) Region 2 .....718 482-4900

NYSDEC 24 Hour Spill Hotline.....718 457-7362

CONTRACTOR PHONE NUMBERS

TBD, Project Manager.....(cell) XXX XXX-XXXX

TBD, Site Supervisor.....(cell) XXX XXX-XXXX

TBD, Site Health & Safety Officer.....9cell) XXX XXX-XXXX

TBD, Certified Industrial Hygienist .....(cell) XXX XXX-XXXX

OWNER PHONE NUMBERS

TBD, Project Manager .....(cell) XXX XXX-XXXX

TBD, EH&S.....(cell) XXX XXX-XXXX

TBD, Construction Manager .....(cell) XXX XXX-XXXX

TBD, Construction Inspector.....(cell) XXX XXX-XXXX

ATTACHMENT 7

Air Monitoring Log

AIR MONITORING LOG

Site: 500 Kent Avenue
Brooklyn, New York

Date: ________________ Weather:______________________
Particulate Meter S/N: ________________ Temperature:__________________
VOC Meter S/N: ________________
O_2 Meter S/N: ________________

Location	TYPE OF AIR					Wind Direction	Time	Comments
	O_2	VOC	Dust					

ATTACHMENT 8

Health & Safety Personnel Qualifications

Insert Resume Here

ATTACHMENT 9

Health and Safety Plan Amendment Form

Health and Safety Plan Addendum

Addendum No.:_____ **Date:_____**

Reason for Addendum:_____

_____

_____

_____

Note: If Addendum is due to a new task, then an Activity Hazard Analysis is required to be included in the Addendum.

Text of Addendum (attach separate sheets as necessary):_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Prepared by: _____ _____

Name **Signature**

APPROVALS:

Project Manager

_____ _____

Name **Signature**

Certified Industrial Hygienist

_____ _____

Name **Signature**

ATTACHMENT 10

Asbestos Report of Air Monitoring

REPORT OF AIR MONITORING

Project Name & Address:_____

Work Area:_____

Date Collected:_____

Sampled by:_____

Sample ID	Name/SS#	Location/ Type of Work	Respirator	Time		Total Time	Flow		Flow Avrg.	Volume	Fibers per field	Fibers per cc	TWA
				In	Out		Initial	Final					

Sample Custody Record	Date	Time
Released By: _____		
Received BY:		
Analyzed By: _____		
Date Analyzed:		

APPENDIX A

CHECKLISTS AND INSPECTION FORMS

Crane Work – Lift Plan Diagram and Worksheet
Equipment Inspection Checklist
Hot Work Permit
Jobsite Safety Inspection Checklist
Ladder Inspection Form
OSHA 301 Forms
Safety Meeting Report
Qualitative Respirator Fit Test
Welding Leads Checklist

APPENDIX B

SAFETY DATA SHEETS

APPENDIX C

HAZARD COMMUNICATION PROGRAM

APPENDIX D

CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT) PROGRAM

APPENDIX E

RESPIRATORY PROTECTION PROGRAM

APPENDIX G

COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN

500 KENT AVENUE
BROOKLYN, NEW YORK

MAY 2014

1.0 INTRODUCTION

1.1 Background

During any subsurface intrusive activities (soil excavation and removal) in the contaminated soil/fill identified in the Site Management Plan, air and dust emissions shall be monitored and controlled to protect the surrounding environment from exposure to potential airborne contaminants. A Community Air Monitoring Plan (CAMP) is intended to provide a measure of protection for the downwind community (*i.e.*, off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of the intrusive work activities.

This CAMP has been developed to address particulates (dust) and potential subsurface organic vapors that may be released to the air during intrusive activities that may penetrate into contaminated soils, as identified in the Site Management Plan. The CAMP was prepared in accordance with New York State Department of Health (NYSDOH) requirements presented in Appendix 1A of the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 3, 2010). The CAMP requires real-time monitoring for dust and organic vapors at the downwind perimeter of each designated work area for the benefit of downwind adjoining properties that contain sensitive receptors (*e.g.*, Division Avenue, Kent Avenue, the public park east of Kent Avenue, and the high-rise residential building on Kent Avenue north of Clymer Street). The measures included in the CAMP shall provide a level of protection for the occupants of the neighborhood schools and residences, as well as the downwind community, from potential airborne releases. The CAMP sets forth specific action levels for determining monitoring frequency and the appropriate corrective actions, including work shutdown.

1.2 Purpose and Objectives

The principal purpose of the CAMP is to monitor air quality at the Site and areas where contaminated soil is being disturbed or loaded during intrusive activities. The CAMP for these type of activities describes monitoring of dust and vapors on a real-time, continuous basis. Air monitoring shall involve standard monitoring functions for environmental projects including real-time air monitoring for particulate matter less than 10 micrometers in size (PM-10) and volatile organic compounds (VOCs); observations for visible dust emissions and odors; inspection and monitoring of the contractor's work practices; and reporting to the NYSDEC and NYSDOH.

Continuous monitoring shall be performed during all ground intrusive activities that may penetrate contaminated soil as identified by the Site Management Plan. Ground intrusive activities include, but are not limited to, soil excavation and handling.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Principal objectives of the CAMP are as follows:

- Monitor dust as PM-10 on a real-time, continuous basis such that dust associated with any subsurface intrusive activities that may penetrate the contaminated soil/fill are maintained below action levels.
- Monitor organic vapors as VOCs on a real-time, continuous basis such that potential vapors associated with any subsurface intrusive activities that may penetrate the contaminated soil/fill are maintained below action levels.
- Monitor odors and dust emissions (based on olfactory and visible evidence) so that vapors and dust from work areas do not leave the Site.
- In the event that PM-10 or VOC concentrations exceed action levels, Site personnel shall be immediately notified so that all necessary corrective actions can be taken.

1.3 Operations to be Monitored

The ground intrusive activities to be performed at the Site may consist of:

- Excavation of soils below the demarcation barrier or concrete slab floor of the former generating station, as shown on Figure 9 in the Site Management Plan, using an excavator and loading the soil onto trucks for off-site disposal.

2.0 AIR MONITORING PROCEDURES

Air monitoring stations for measuring dust as PM-10 shall be established at four stationary locations (two along Kent Avenue, one along Division Avenue and one along the western side of the Site (along Wallabout Channel). Depending on the wind direction, one location shall be established as the upwind Site perimeter monitoring location and the other three shall be downwind Site perimeter monitoring locations. In addition, a roving air monitor using a hand-held instrument for measuring VOCs shall walk the northern and eastern perimeters of the Site, and shall also collect organic vapor data at the four stationary dust monitor locations. The upwind monitoring station shall be located in the predominantly upwind direction of the Site and its location shall vary depending on daily conditions (*e.g.*, wind direction). A windsock shall be used to determine and monitor wind direction throughout the work day. The prevailing wind direction is from the west, i.e., coming across Wallabout Channel onto the Site.

These air-monitoring activities include real-time monitoring for particulates and VOCs based on the New York State CAMP requirements. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. **CAMP-Table 1** summarizes dust and VOC action levels and appropriate actions. A flow chart summarizing action levels/appropriate actions is provided on **CAMP-Figure 1**.

2.1 VOC Direct-Reading Monitoring

Organic vapor monitoring equipment shall consist of a real-time photoionization detector (PID) equipped with the appropriate lamp capable of detecting total VOCs that could potentially be released from Site remedial activities. In addition to instantaneous readings, the instrument shall be capable of calculating 15-minute running average VOC concentrations, which shall be compared to the prescribed total organic vapor action levels. The PID shall be equipped with an audible alarm to indicate exceedance of the action level. The instrument shall be calibrated in accordance with the manufacturer's operating instructions on a daily basis and documented in a dedicated field logbook.

Upwind 15-minute average background VOC levels shall be subtracted from the downwind 15-minute average VOC levels to establish ambient organic vapor concentrations reflective of work activities at a particular point in time. Therefore, the "background" level is the most recent upwind 15-minute average reading.

The 15-minute running average PID concentrations shall be compared to the following:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the Site or work area exceeds **5 parts per million** (**ppm**) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the Site or work area persist at levels in excess of **5 ppm** over background but less than **25 ppm**, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the Site or half the distance to the

nearest potential receptor or residential structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above **25 ppm** at the downwind perimeter of the Site or work area, activities must be shutdown and the engineering controls and site work plan re-evaluated.

As an extra precautionary measure, when the downwind perimeter of the Site is within 20 feet of the nearest potential receptor (Division Avenue), then the perimeter organic vapor level must not exceed VOC background concentrations. This guideline is proposed in order to avoid vapor migration into nearby residential buildings. If VOC background concentrations are exceeded at any time at any perimeter location within 20 feet of the nearest receptor, then activities must be shutdown and the engineering controls and site work plan re-evaluated.

2.2 Particulate (Dust) Direct-Reading Monitoring

Particulate (dust) monitoring equipment set up in the four stationary monitoring locations shall consist of real-time aerosol or particulate dust monitors capable of measuring particulate matter less than 10 micrometers in size (PM-10) that could be released from Site intrusive activities. The instruments shall be capable of providing instantaneous readings as well as integrating measurements over a period of 15 minutes (or less) for comparison to the prescribed airborne particulate action levels. The equipment shall be equipped with an audible alarm to indicate exceedance of the action level, and shall be calibrated in accordance with the manufacturer's operating instructions and documented in a dedicated logbook.

Dust concentrations shall be monitored continuously at the four stationary monitoring locations. In addition, fugitive dust migration shall be visually assessed during all work activities. As with VOC levels, upwind 15-minute average background particulate levels shall be subtracted from the downwind 15-minute average particulate levels to establish dust concentrations reflective of work activities at a particular point in time. The "background" particulate level, therefore, is the most recent upwind 15-minute average reading.

The 15-minute running average particulate readings shall be compared to the following:

- If the downwind PM-10 particulate level is **100 micrograms per cubic meter** (**µg/m^3**) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust control/suppression measures must be implemented. Work can continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed **150 µg/m^3** above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than **150 µg/m^3** above the upwind level or is dust is observed leaving the Site, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

3.0 AIR MONITORING RECORDKEEPING AND OBSERVATIONS

A qualified Safety Officer or Technician on site shall ensure that all air monitoring data is logged in a dedicated logbook. Documentation shall be made clear, concise, and provide the monitoring data, time of entry, location, personnel, weather conditions, and background concentrations for each monitoring station. Documentation shall also include all observational data that has the potential for impacting results, such as damage to instruments, site equipment problems, off-site interferences, on-site public interferences, or weather-related interferences.

All pages must be numbered, no lines shall be left blank (or if necessary they should be lined through), and all pages must be initialed in ink. The last entry page for the shift or day that has blank space left at the bottom shall have a line drawn diagonally across it and signed at the bottom of the page. All corrections must be made with a single line, initialed, and dated.

A windsock shall be temporarily installed at the Site to monitor and determine wind direction throughout the day. Meteorological "wind rose" or graphic data shall be available for use at the Site as a reference for assessing how wind speed and direction are typically distributed (*i.e.*, the frequency of possible wind directions) in the general vicinity of the Site. Area weather data such as wind speed and relative humidity shall be obtained on a daily basis while work is progressing and documented in the dedicated field logbook.

Real-time data (*e.g.*, PM-10 and VOCs) shall be downloaded from the equipment's respective dataloggers at the end of each day. Fifteen-minute averages from each station and instantaneous readings, if any, used for decision purposes shall be recorded.

The NYSDEC and NYSDOH shall be notified promptly via phone and/or electronic mail of any exceedance of an action level and of the corrective actions taken in connection with the exceedance. All recorded dust and organic vapor readings shall be available for State (NYSDEC and NYSDOH) personnel review.

3.1 Equipment Operational Requirements

The air monitoring equipment shall be operated by trained and qualified personnel. Personnel who perform air monitoring functions described in this CAMP shall be experienced in the use of field air monitoring equipment, as well as in the air monitoring procedures described above. There shall be appropriate staff (industrial hygienist or environmental scientist) for assessing the results of air monitoring and advising the Safety Officer and the Site Project Manager, of air quality considerations.

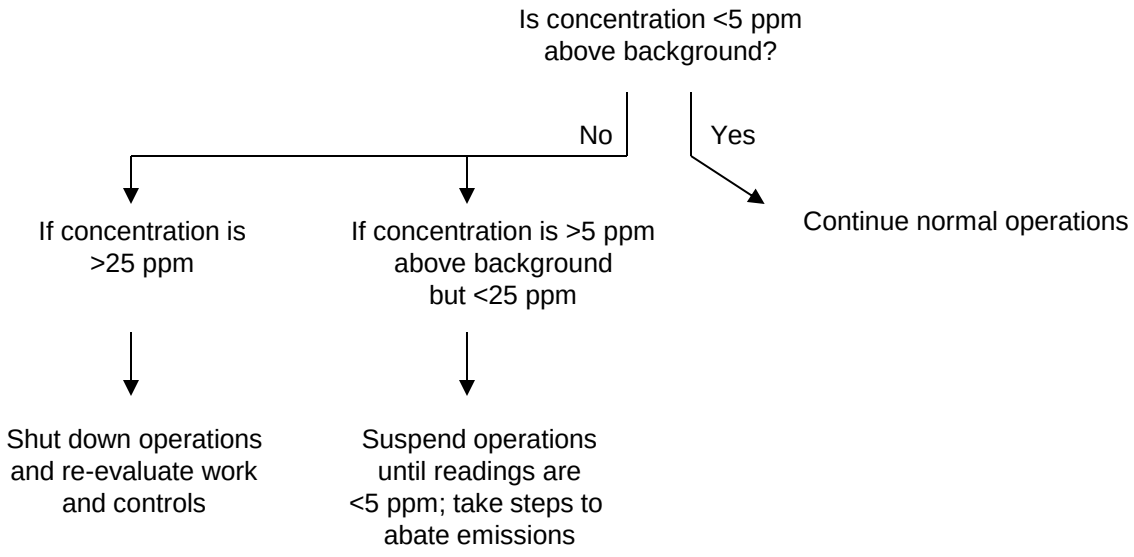
All monitoring equipment shall be calibrated on a daily basis in accordance with the manufacturer's operating instructions. A dedicated logbook for each monitoring unit shall be maintained that details the date, time, calibration gas or other standard, and the name of the person performing the calibration.

CAMP - Table 1
Air Monitoring Summary Table for Contaminated Soil Intrusive Activities
500 Kent Avenue, Brooklyn, NY

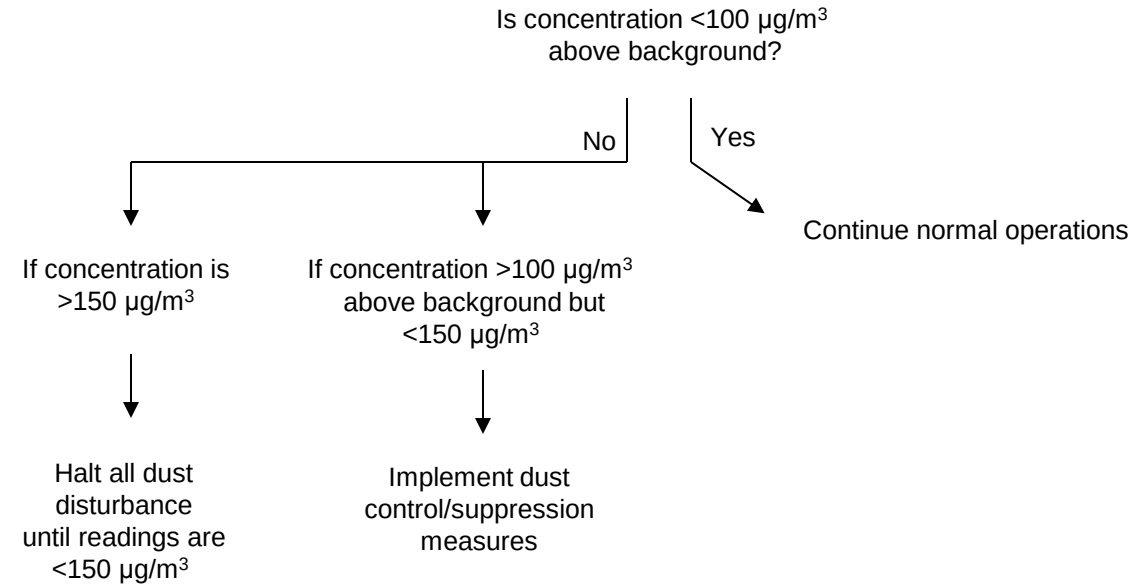
Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
PM-10 Particulate/ Aerosol Air Monitoring Unit with Audible Alarm and Datalogger	Upwind and Downwind of Site or Work Area	Continuous during all soil excavation or dust-producing activities for 15- minute average readings ("Background" is most recent upwind 15-minute average reading)	<100 µg/m^3 (15-min. TWA) above upwind background level at downwind perimeter of Site or work area >100 µg/m^3 (15-min. TWA) above upwind background level at downwind perimeter of Site or work area, or visible dust leaving the work area >150 µg/m^3 (15-min. TWA) above upwind background level at downwind perimeter of Site or dust leaving the Site	Continue normal operations Implement dust control/suppression measures Halt all dust disturbance until downwind perimeter of Site or work area is <150 µg/m^3 above upwind background level
PID with Audible Alarm and Datalogger	Upwind and Downwind of Site or Work Area	Continuous during all soil excavation or dust-producing activities for 15- minute average readings ("Background" is most recent upwind 15-minute average reading)	<5 ppm above background >5 ppm above background but <25 ppm (15-min. TWA) >25 ppm above background within 20 feet of nearest receptor	Continue normal operations Suspend operations until readings indicate <5 ppm for 15-min. TWA; Take steps to abate emissions* Shutdown operations and re-evaluate work and controls

TWA – Time-weighted average
PID – Photoionization detector
µg/m^3 – Micrograms per cubic meter
ppm – Parts per million
** Use plastic to cover excavation or stockpiled soil*

Volatile Organic Monitoring
Downwind of Work Area



Particulate Monitoring
Downwind of Work Area



VOC and particulate readings based on 15-minute time weighted average

CAMP - FIGURE 1

FLOW CHART FOR VOC AND PARTICULATE MONITORING ACTION LEVELS

500 KENT AVENUE
BROOKLYN, NY

APPENDIX H

COVER SYSTEM INSPECTION FORM

Annual Inspection Form

Former Kent Avenue Generating Station
500 Kent Avenue, Brooklyn, New York

Inspector's Name:	Weather Conditions:
Inspection Date:	Air Temperature (^{o}F):
Inspection Time:	
Comments:	

COVER SYSTEM INSPECTION

1. **Walk and inspect the entire perimeter of the Site.**
2. **Walk and inspect all of the unpaved areas of the Site.**

*	Are there any signs of significant cracks, settlement or deterioration?
*	Has any of the cover material been removed?
*	Are there signs of vehicular use on the unpaved areas (tire tracks, rutting, etc.)?
*	Have any structures been constructed on the unpaved areas?
*	Is the protective casing for the monitoring wells secured?
*	Are there any signs of soil washing or erosion (gullies, soil washed out into lower areas)?
*	Are there any signs of intrusive activities (digging, trenching, grading, excavating, etc.)?
*	Comments:

Repair

Summarize needed/completed repairs to Cover System:

Inspector's Signature: _____