REMEDIAL INVESTIGATION REPORT

for

416 KENT AVENUE
BROOKLYN, NEW YORK

NYSDEC BCP NO.: C224200

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below grade surface
CAMP	Community Air Monitoring Program
CEQR	City Environmental Quality Review
COC	Contaminant of Concern
CSM	Conceptual Site Model
CVOC	Chlorinated Volatile Organic Compound
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EDR	Environmental Data Resources
ELAP	Environmental Laboratory Approval Program
EM	Electromagnetic
EPA	United Stated Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FEMA	Federal Emergency Management
HASP	Health and Safety Plan
IDW	Investigation Derived Waste
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAVD88	North American Vertical Datum of 1988
NGVD29	National Geodetic Vertical Datum of 1929 at Sandy Hook, NJ
NYCRR	New York Codes, Rules, and Regulations
NYSDOH	New York State Department of Health
NYSDEC	New York State Department of Environmental Conservation
NTU	Nephelometric Turbidity Units
ORP	Oxidation-Reduction Potential
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	Parts per million
PVC	Polyvinyl Chloride

Acronym	Definition
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation Recovery Act
RD	Restrictive Declaration
RI	Remedial Investigation
RRU	Restricted Residential Use
SCO	Soil Cleanup Objective
SoMP	Soil/Materials Management Plan
STARS	Spill Technology and Remediation Series
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical and Operational Guidance Series
UN/DOT	United Nations Department of Transportation
USGS	United States Geological Survey
UST	Underground Storage Tank
UU	Unrestricted Use
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Remedial Investigation (RI) Report was prepared on behalf of 420 Kent Avenue LLC (the "Volunteer") for the property located at 416 Kent Avenue in the Williamsburg neighborhood of Brooklyn, New York (the "Site"). A Site Location Map is provided as Figure 1. The Volunteer has applied to the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) to remediate the Site in conjunction with new development under NYSDEC Brownfield Cleanup Agreement (BCA) dated December 11, 2015 for Site No. C224200. The Site is a part of the Kedem Winery Development rezoning. As a result of the rezoning, an environmental restrictive declaration (R-38) for hazardous materials and a restrictive 'E" zoning designation (E-161) for noise were assigned to the site. The City Environmental Quality Review (CEQR) number for the action is No. 02DCP045K.

This RI Report presents environmental data and findings from a remedial investigation that was conducted between November 14 and 21, 2014 and a supplemental remedial investigation conducted between January 23 and February 6, 2015 and incorporates previous environmental data obtained during the April 2002 Phase II Environmental Site Investigation (ESI) Report completed by AKRF, Inc. (AKRF), the July 2008 Phase II Investigation completed by Associated Environmental Services, Ltd. (AES), and the October 2009 Underground Storage Tank (UST) Closure Report completed by AES. The objective of this RI is to characterize subsurface conditions and determine, to the extent possible, the nature and extent of contamination in soil, soil vapor, and groundwater. Information presented in this RI Report will be used to evaluate appropriate remedial action alternatives.

This RI Report is organized as follows:

- Section 2.0 describes the Site setting and the physical characteristics of the Site.
- Section 3.0 describes the Site background including results of previous investigations and identified areas of concern (AOCs).
- Section 4.0 presents the investigation field procedures.
- Section 5.0 describes the field observations and analytical results.
- Section 6.0 presents an assessment of the exposure risks of Site contaminants to human, fish, and wildlife receptors.
- Section 7.0 presents the nature and extent of contamination in all Site media as determined through the field investigation and analysis of environmental samples.
- Section 8.0 summarizes the results of the investigation and presents conclusions based

on field observations and analytical results.

- Section 9.0 presents the references used in preparation of this report.

2.0 SITE PHYSICAL CHARACTERISTICS

2.1 Site Description

The Site is an irregularly-shaped, approximately 46,000-square-foot (1.056-acre) parking lot located at 416 Kent Avenue in the Williamsburg neighborhood of Brooklyn, New York (Block 2128, Lot 5). The Site was used until the end of January 2015 as accessory parking and staging for a film studio located in the south-adjoining building, and is currently vacant, awaiting redevelopment. It is bound by Kent Avenue to the east, a two-story warehouse to the south[1], the East River to the west, and a two-story restaurant with parking lot to the north. There is about 164 feet of frontage along Kent Avenue, and about 82 feet of frontage along the East River. The Site was historically occupied by a portion of a ferry company, vacant land, and a trucking company.

2.1.1 Description of Surrounding Properties

The Site is located in an urban setting historically characterized by industrial, manufacturing, residential and commercial development, which is summarized in the following table:

Direction	Adjoining Properties	Surrounding Properties
North	Two-story restaurant with parking lot	Multiple-story industrial, commercial and residential buildings
East	Kent Avenue followed by multiple two to four-story mixed use buildings	
South	Two-story warehouse	
West	East River	Manhattan

Sensitive receptors within a half mile of the Site are listed in the following table. Sensitive receptors in Manhattan that are within a half mile of the Site were not included in the summary, as the East River prevents any potential adverse impacts.

[1] The adjoining property to the south is known as 420 Kent Avenue and corresponds to NYSDEC BCP No. C224201.

Number	Name (Approximate distance from Site)	Address
1	Williamsburg Montessori Nursery and Pre-school (0.08 miles south)	450 Kent Avenue, Brooklyn, NY 11249
2	FasTracKids Williamsburg (0.1 miles south)	60 Broadway, Brooklyn, NY 11249
3	HASC Center (0.12 miles east)	85-87 S. 8th Street, Brooklyn, NY 11249
4	Ohel Sura School (0.18 miles south)	31 Division Avenue, Brooklyn, NY 11211
5	Y.M. & Y.W.H.A. of Williamsburg Head Start (0.2 miles southeast)	64 Division Avenue, Brooklyn, NY 11249
6	Yeshiva Bnai School (0.27 miles southeast)	467 Bedford Avenue, Brooklyn, NY 11211
7	Williamsburg School of Music (0.3 miles east)	400 Bedford Avenue, Brooklyn, NY 11249
8	Jewish Center for Special Education (0.32 miles southeast)	500 Bedford avenue, Brooklyn, NY 11211
9	Williamsburg Neighborhood Nursery School (0.35 miles north)	54 S 2nd Street, Brooklyn, NY 11249
10	Padre Kennedy Head Start (0.36 miles northeast)	288 Berry Street, Brooklyn, NY 11249
11	Saints Peter-Paul Elementary School (0.36 miles northeast)	288 Berry Street, Brooklyn, NY 11249
12	Yeshiva Yesode Hatorah (0.37 miles southeast)	505 Bedford Avenue, Brooklyn, NY 11211
13	Yeshivas Ahavas Israel Boys School (0.37 miles southeast)	2 Lee Avenue, Brooklyn, NY 11211
14	Graham-Windham Williamsburg Child Care Center (0.38 miles southeast)	110 Taylor Street, Brooklyn, NY 11211
15	Williamsburg Collegiate Charter School (0.4 miles southeast)	157 Wilson Street, Brooklyn, NY 11211
16	Public school 16 (0.4 miles southeast)	157 Wilson Street, Brooklyn, NY 11211
17	Public School 84 (0.4 miles northeast)	250 Berry Street, Brooklyn, NY 11249
18	Nuestros Ninos Child Day Care (0.42 miles northeast)	161 S. 3rd Street, Brooklyn, NY 11211
19	Junior High School 50 (0.46 miles northeast)	177 S. 8th Street, Brooklyn, NY 11211
20	Yashiva of Nitra Rabinnical College (0.47 miles southeast)	194 Division Avenue, Brooklyn, NY 11211
21	Mesivta Nachlas Yakov School (0.48 miles southeast)	212 Wilson Street, Brooklyn, NY 11211
22	P.S. 016 Leonard Dunkly (K016) (0.5 miles southeast)	157 Wilson Street, Brooklyn, NY 111211
23	Williamsburg Middle School (0.5 miles southeast)	183 S 3rd Street, Brooklyn, NY 11249

A map showing the surrounding land uses and the locations of the nearest sensitive receptors is included as Figure 2.

2.1.2 Topography

The topography of the Site and surrounding area generally slopes from east to west towards the East River. Ground surface elevations were obtained from a survey drawing by CND Mapping, Inc., dated October 23, 2014. According to survey data, the average elevation (el) is about 12 feet with grades ranging from el 18.66 in the southeast corner to 7.04 in the southwest corner. The sidewalk grade of Kent Avenue slopes upward from north to south from el 17.34 to el 18.66. All elevations presented herein are measured in feet and referenced to the North American Vertical Datum of 1988 (NAVD88), which is 1.095 feet above the National Geodetic Vertical Datum (NGVD29) at Sandy Hook, New Jersey.

2.1.3 Surface Water and Drainage

An impervious surface (asphalt or concrete paving) covers the entire Site with the exception of a permanent planter area located on the west side. Precipitation infiltrates to the water table in the planter area. Rainwater that infiltrates the ground percolates toward the water table and joins the anticipated regional flow of groundwater, which is calculated to flow west towards the East River (see Figure 3). Based on the groundwater gauging data, groundwater flows towards the west-southwest. Runoff drains directly into the adjacent East River or into city sewer drains located along a 30 foot wide sewer easement within the area what would be an extension of South 8th Street from Kent Avenue to the East River in the southern portion of the Site. The city sewer discharge flows from east to west, into the East River.

According to the National Flood Insurance Rate map for the City of New York published by the Federal Emergency Management (FEMA) (Community Panel Nos. 3604970 203 F and 3604970 204 F, dated September 5, 2007), the majority of the Site is located within Zone X and the southwestern portion of the Site is located within Zone AE. Zone X is designated for areas between the limits of the 0.2 percent annual chance flood and the 1 percent annual chance flood. Zone AE is designated for areas of 1 percent annual chance flood.

2.1.4 Wetlands

Potential wetlands on or near the Site were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands. There are no mapped wetlands located on the Site. The East River, which is an estuarine and marine deep water wetland, borders the Site to the west.

2.2 Regional Geology and Hydrogeology

2.2.1 Regional Geology

Pleistocene glacial activity modified the landscapes and surficial features of Brooklyn, Queens, and the remainder of Long Island. The glaciation scoured uplands areas and deposited varying amounts of till (an unsorted mixture of sand, clay and boulders) across the lowlands and valleys. The area of Brooklyn in which the Site is located is underlain by the confluence of glacial outwash and Lake Bayonne where the glacial outwash deposited into Lake Bayonne as deltas. These sediments were observed to be mostly sands (medium- to coarse-grained) with gravels. Observed beds of fine sands, silts and clay are likely discrete, highly localized horizons that form in quiescent waters associated with developing deltas. Bedrock outcrops were not observed at the Site. According to the United States Geological Survey (USGS) Bedrock and Engineering Geologic Maps of New York County and Parts of Kings and Queens Counties, New York, dated 1994, the Site is underlain by Cambrian-Ordovician Ravenswood Granodiorite, which consists of mica-quartz-feldspar gneiss.

2.2.2 Regional Hydrogeology

Groundwater flow is typically topographically influenced, as shallow groundwater tends to originate in areas of topographic highs and flows toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeologic network often governs groundwater flow at depth or in the bedrock aquifer. Groundwater depth and flow direction are also subject to hydrogeologic and anthropogenic variables such as precipitation, evaporation, extent of vegetation cover, and coverage by impervious surfaces. Other factors influencing groundwater include depth to bedrock, the presence of artificial fill, variability in local geology, and groundwater sources or sinks.

Based on the available gauging data, groundwater depth ranges from 6 to 15 feet bgs and flows to the west-southwest towards the East River. Groundwater in the New York City area is not used as a potable water source. Potable water is provided by the City of New York and is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds.

3.0 SITE BACKGROUND

This section describes historical site use, the proposed redevelopment, and provides discussion on the findings from previous environmental investigations. The AOCs are also summarized based on a review of the previous reports.

3.1 Historical Site Use

The Site and surrounding properties are located in an area of historical industrial, commercial and residential usage. Past uses of the Site include a ferry terminal (circa 1887), vacant buildings (circa 1918), a steel and tube corporation (circa 1928), and parking (circa 1947 to 2014). The Site historically contained five 4,000-gallon diesel underground storage tanks (USTs) that were removed in 2009, as discussed in Section 3.3.

Sanborn maps indicate surrounding properties were historically occupied by a meter company with an associated iron foundry (1887), a ferry company (1887), a brass foundry (1887), an iron and steel corporation (1918), a pipe and iron company (1918), manufacturing facilities (1918), office buildings (1918-1950), a knitting mill (1935), a brewing company (1935-1965), and warehouses (1979-present). Historical uses of the Site and surrounding properties are shown on Figure 4.

3.2 Proposed Redevelopment Plan

The purpose of the project is to develop an underutilized, contaminated parcel into residential and retail spaces, while implementing remedial measures that are protective of human health and the environment. The proposed project will have a footprint of about 46,000 square feet and will include:

- A mixed-use, twenty-two-story residential and retail building along Kent Avenue;
- Cellar–level and partial first floor parking; and
- A waterfront esplanade along the East River and an upland connection.

The proposed building will have a full cellar level. The proposed development depth for the building footprint is about el -1, which is about 20 feet bgs on the eastern side and about 10 feet bgs on the western side. Additional deeper excavations will be required for an elevator pit and foundation elements. Proposed development plans are provided in Appendix A.

3.3 Previous Investigations

Previous environmental reports were reviewed as part of this RI Report. Environmental reports prepared for the Site include the following:

- *Phase I Environmental Site Assessment (ESA) Report, prepared by AKRF, dated August 2001*
- *Phase II Site Investigation Report, prepared by AKRF, dated April 2002*
- *Phase II Investigation Report, prepared by AES, dated July 21, 2008*
- *Underground Storage Tank Closure Report, prepared by AES, dated October 31, 2009*
- *Geotechnical Boring Logs, prepared by McLaren, dated November 2014*

The reports listed above are summarized below and are included in Appendix B.

3.3.1 Phase I Environmental Site Assessment, prepared by AKRF, dated August 2001

AKRF was retained by Rector Hylan Corporation to perform a Phase I ESA of the former Kedem Winery in 2001. The former Kedem Winery consists of the Site and south-adjoining tax lot. Findings of the Phase I ESA, as they relate to the Site, are as follows:

- The regulatory database, Fire Department records, historical land-use atlases, and the visual site inspection indicated that the Site and surrounding area have a 90-year history of industrial, manufacturing, commercial, and residential use. Historical Sanborn Maps indicated that the Site was historically occupied by a portion of a ferry company circa 1887. The Site was occupied by vacant land in the 1935, 1950, and 1965 Sanborn Maps. During inspection of the Site, the Site was occupied by a trucking company.
- Five vent pipes were observed against the northern wall of the southern adjoining building, suggesting the presence of USTs at the Site (presence of USTs was confirmed and tanks were removed as discussed in the AES *Underground Storage Tank Closure Report, dated October 31, 2009*).
- Glantz Iron and Metals, Inc., located at 44 South Eighth Street (approximately 300 feet east of the Site) was listed in the New York State Petroleum Bulk Storage database with two in-service, 4,000-gallon diesel USTs.
- Several plastic and metal 55-gallon drums of unknown contents were observed at the Site during the site inspection.

Based on the above findings, AKRF recommended that a Phase II Subsurface Site Investigation be conducted.

3.3.2 Phase II Site Investigation Report, prepared by AKRF, dated April 2002

The Phase II ESI documented the findings of an environmental investigation conducted on the former Kedem Winery in accordance with a *Sampling Protocol,* also prepared by AKRF, dated August 10, 2001. The investigated area included the Site and the south-adjoining tax lot. The investigation consisted of the following:

- Electromagnetic survey to determine the location of USTs and vaults.
- The installation and sampling of 16 soil borings (8 on the Site and 8 in the south-adjoining lot) for target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), priority pollutant metals, polychlorinated biphenyls (PCBs), and pesticides analysis. Select soil borings were installed near anomalies identified during the electromagnetic survey. The surveyed area on the Site was approximately 50 feet by 150 feet and located along Kent Avenue. Two areas of high magnetic anomalies in the northern portion of the Site were detected and could represent buried tanks.

Eight soil borings were advanced to depths ranging from 12 to 15 feet bgs on the Site. Soil samples were collected from the surface (approximately 0 to 4 feet bgs) and from the groundwater interface (approximately 12 to 15 feet bgs). The subsurface material encountered in all borings consisted primarily of historic[2] fill material characterized by brown to black gravelly sand with wood chips, glass, brick, ash, concrete, and asphalt. Petroleum odors and elevated photoionization detector (PID) readings were noted at one sample location near the south central portion of the Site. The following is a summary of relevant analytical results based on the information provided:

- SVOCs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and dibenzo(a,h)anthracene, were detected at concentrations exceeding Unrestricted Use (UU) and/or Restricted-Residential Use (RRU) Soil Cleanup Objectives (SCOs) in five borings.

[2] As defined by NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation, Section 1.3 (b) 25: "Historic fill material" means non-indigenous or non-native material, historically deposited or disposed in the general area of, or on, a site to create useable land by filling water bodies, wetlands or topographic depressions, which is in no way connected with the subsequent operations at the location of the emplacement, and which was contaminated prior to emplacement. Historic fill may be solid waste including, but not limited to, coal ash, wood ash, municipal solid waste incinerator ash, construction and demolition debris, dredged sediments, railroad ballast, refuse and land clearing debris, which was used prior to October 10, 1962. [see 6 NYCRR 375-1.2(x)]

- Metals: copper, lead, zinc, and mercury were detected above UU SCOs and/or RRU SCOs. AKRF indicated that the metal concentrations are typical of historic fill material. A lead concentration of 600 milligram per kilogram (mg/kg) was detected in soil near the northwest corner of the Site, which exceeds the RRU SCO of 400 mg/kg.

- VOCs, pesticides and PCBs were not detected at concentrations exceeding UU or RRU SCOs.

AKRF recommended the removal of all USTs and associated piping that may be present and subsequent removal of any petroleum-contaminated soil surrounding the tanks.

3.3.3 Phase II Investigation Report, prepared by AES, dated July 21, 2008

AES documented the findings of a Phase II Investigation conducted on the former Kedem Winery between June 23 and 25, 2008. The investigated area included the Site and the south-adjoining tax lot. The investigation included the advancement of 8 soil borings, the conversion of each soil boring to a groundwater monitoring well (5 on the Site and 3 in the south-adjoining lot), and collection of 8 soil samples and 8 groundwater samples.

Eight soil borings were advanced to approximately 15 feet bgs. One soil sample was collected from the interval above the water table in each boring and one groundwater sample was collected from each monitoring well. Samples were submitted for analysis of VOCs and SVOCs via United States Environmental Protection Agency (EPA) Method 8260 and 8270, respectively. The subsurface material consisted primarily of historic fill containing ash, brick and gravel underlain by fine to medium sand with varying amounts of silt and clay. The following is a summary of relevant analytical results:

- VOCs and SVOCs were not detected in soil.

- VOCs, including total 1,2-dichloroethylene, chloroform and trichloroethylene (TCE), were detected above NYSDEC Technical and Operational Guidance Series (TOGS) Class GA Ambient Water Quality Standards and Guidance Values (SGVs) in groundwater near the south-central portion of the Site.

- SVOCs were not detected in groundwater.

AES recommended the removal of the underground storage tank in the south-adjoining lot and further delineation of impacts identified in soil borings advanced in south-adjoining lot.

3.3.4 Underground Storage Tank Closure Report, prepared by AES, dated October 31, 2009

AES documented the removal of five 4,000-gallon, single-wall steel, diesel USTs from the Site. The USTs were found to be encased in concrete and previously abandoned and filled with water. The USTs were pumped, cleaned of residual sludge, and transported off-site. The report stated that petroleum-impacted soil was not observed in the former diesel UST location. Eight endpoint samples were collected from the sidewalls of the UST excavation and were analyzed for VOCs and SVOCs listed in the NYSDEC Spill Technology and Remediation Series (STARS) Memorandum #1. VOCs were not detected in any endpoint samples. Several SVOCs were detected at concentrations above their UU and/or RRU SCOs in one endpoint sample on the north wall of the former diesel UST excavation.

3.3.5 Geotechnical Boring Logs, prepared by McLaren, dated November 2014

McLaren Engineering Group (McLaren) began a geotechnical subsurface investigation on November 3, 2014, which consisted of advancement of 12 soil borings to bedrock. The investigation was on-going at the time of this report; however, McLaren provided Langan with boring logs for the three borings completed to date. Three borings, NB-3, NB-5, and NB-13, were advanced to bedrock at depths of about 100, 98, and 75 feet bgs, respectively. Historic fill, characterized by coarse to medium brown sand with brick, gravel, and cobbles, was identified in all borings from surface grade up to about 15 feet bgs. Fill material was underlain by fine to medium brown sand with varying amounts of reddish brown silt and clay. Groundwater was encountered at about 7 to 13 feet bgs.

3.4 Summary of Areas of Concern

Based on a review of previous reports, the following AOCs were identified:

1. AOC-1 - Historic Fill: Historic fill was encountered in all borings and generally consisted of medium brown to black gravelly sand, with wood chips, glass, brick, ash, concrete and asphalt. Several SVOCs and metals were detected in historic fill at concentrations greater than UU and RRU SCOs.

2. AOC-2 - Petroleum-Impacted Soil: Five 4,000 gallon diesel USTs were identified and removed in 2009. Eight endpoint samples were taken around the former UST location and were analyzed for VOCs and SVOCs listed in the NYSDEC STARS Memorandum #1. Several SVOCs (all polycyclic aromatic hydrocarbons) were detected at concentrations above their respective UU and/or RRU SCOs in one endpoint sample on the north wall of the former diesel UST excavation. The detected SVOCs may be related to the USTs, or may also be related to a historic fill condition, as the detected types and concentration were consistent with those detected throughout the Site in historic fill.

Petroleum odors and elevated PID readings were noted at a boring that was advanced down-gradient from the former UST locations during the 2002 Phase II ESI by AKRF. Contaminants of Concern (COCs) include petroleum-related VOCs (benzene, toluene, ethylbenzene and xylene [BTEX]) and SVOCs in soil, groundwater and soil vapor.

3. AOC-3 – Chlorinated VOCs in Groundwater: During the 2008 Phase II Investigation, TCE and 1,2-dichloroethylene were detected in groundwater in the south central portion of the Site, at concentrations greater than the NYSDEC TOGS SGVs. COCs include chlorinated VOCs (CVOCs) in soil, groundwater and soil vapor.

4. AOC-4 – Potential RCRA Hazardous Waste Generation On-Site: High concentrations of lead (i.e., greater than 20 times the hazardous waste limit) were detected in historic fill during the Phase II ESI by AKRF. If excavated, this lead concentration may be representative of a Resource Conservation and Recovery Act (RCRA) hazardous waste.

4.0 FIELD INVESTIGATION

The RI was performed to characterize subsurface conditions, identify and delineate the extent of soil vapor, soil and groundwater contamination and to provide data to design and estimate the cost of remedial measures. The RI and supplemental RI supplemented the existing data set. Sample locations from the 2002 Phase II ESI, 2008 Phase II Investigation, 2009 UST Closure Report, the RI, and the supplemental RI are shown in Figure 5.

The 2002 Phase II ESI conducted by AKRF included the following activities in relation to the Site:

1. Electromagnetic survey.

2. Advancement of eight soil borings (B-9 through B-16) and collection of sixteen grab soil samples for laboratory analysis.

The 2008 Phase II Investigation conducted by AES included the following activities that are relevant to the Site:

1. Advancement of five soil borings (B-1 through B-4 and B-8), and collection of five grab soil samples for laboratory analysis.

2. Installation of groundwater monitoring wells at each boring location and collection of five groundwater samples for laboratory analysis.

The 2009 UST Closure conducted by AES included the following activities that are relevant to the Site:

1. Removal of five diesel USTs.

2. Collection and analysis of eight sidewall endpoint soil samples.

The 2014 RI included the following activities:

1. Geophysical survey performed to identify the locations of buried metallic anomalies and to clear boring/monitoring well and soil vapor sample locations of physical obstructions and subsurface utilities and structures.

2. Advancement of ten soil borings (SB04 through SB10 and D05E1 through D05E3) and collection of 25 soil samples, including one duplicate sample.

3. Installation of seven groundwater monitoring wells (MW04 through MW10) and collection of eight groundwater samples, including one duplicate sample.

4. Installation of nine soil vapor points (SV14 through SV22) and collection of eleven soil vapor samples, including one duplicate sample, and one ambient air sample.

The 2015 supplemental RI included the following activities:

1. Geophysical survey performed to identify the locations of buried metallic anomalies and to clear boring and monitoring well locations of physical obstructions and subsurface utilities and structures.

2. Advancement of seven soil borings (D05E2A, D05E3A, EB125, and EB127/D05W1) and collection of 6 soil samples to delineate petroleum impacts identified in the southwest corner of the Site during the 2014 RI.

Two of the borings (EB125 and EB127/D05W1) advanced during the supplemental RI were co-located with borings from waste characterization investigations conducted in February 2015[3].

Langan conducted the RI and supplemental RI in accordance with New York Codes, Rules and Regulations (NYCRR) Title 6 Part 375 (6 NYCRR Part 375), the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010), the NYSDEC Draft Brownfield Cleanup Program Guide (May 2004), and the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). A summary of samples collected during the RI is provided in Table 1.

4.1 Geophysical Investigation

Prior to commencement of intrusive RI and supplemental RI field activities (i.e., soil borings, well installation and soil vapor sampling), NOVA Geophysical & Environmental, Inc. (NOVA) of Douglaston, New York, conducted a geophysical survey under supervision of a Langan field engineer on November 14, 2014 and January 20, 2015 respectively. Borings were relocated as necessary to avoid subsurface utilities and anomalies (other subsurface impediments). The geophysical reports are included in Appendix C.

4.2 Soil Investigation

Ten soil borings were advanced during this RI, from which 25 soil samples were collected and four soil borings were advanced during the supplemental RI, from which 6 samples were collected. Continuous soil samples were collected from grade surface to the final depth of each environmental boring (approximately 13 to 24 feet bgs). Soil samples were screened for

[3] A waste characterization investigation was conducted at 416 Kent Avenue from February 2 to February 6, 2015.

visual, olfactory, and instrumental (PID) evidence of environmental impacts and were visually classified for soil type, grain size, texture, and moisture content. Boring locations are shown on Figure 5.

4.2.1 Investigation methodology

The RI included ten soil environmental soil borings (SB04 through SB10, and D05E1 through D05E3) that were selected to provide sufficient Site coverage, to evaluate the AOCs listed in section 3.4, to delineate the extent and magnitude of soil, soil vapor and groundwater impacted by the identified COCs, and to define the native soil horizon.

The supplemental RI included four soil environmental borings (D05E2A, D05E3A, EB125, and EB127/D05W1) that were selected to delineate the extent to the north and east of soil impacted by petroleum spill in the southwestern portion of the Site (and to evaluate AOC-2) listed in Section 3.4.

Soil borings were advanced with a direct-push Geoprobe® 7822DT drill rig by Aarco Environmental Services Corp. (Aarco) of Lindenhurst, New York under the supervision of a Langan field engineer. Boring locations are presented on Figure 4.

Borings were advanced to development depth or to the top of the native soil layer, whichever was deeper, in soil borings SB04 and SB06 through SB10. Soil boring, SB05 and its associated delineation borings, D05E1 through D05E3 (2014 RI) and D05E2A, D05E3A, EB125, and EB127/D05W1 (2015 supplemental RI) were advanced to depths where petroleum impacts were no longer apparent. Continuous soil samples were collected from grade surface to the final depth of each environmental boring (13 to 24 feet bgs). Samples were collected in five-foot Macro-Core® sample barrels with dedicated acetate liners. Each soil sample was screened for visual, olfactory, and instrumental evidence of environmental impacts, and was visually classified for soil type, grain size, texture, and moisture content. Instrument screening for the presence of VOCs was performed with a PID equipped with a 10.6 electron volt (eV) lamp. Boring logs documenting these observations are included in Appendix D. Following sample collection, borings were backfilled with soil cuttings and sand or converted to groundwater monitoring wells. Petroleum-impacted soil cuttings from with SB05 and its associated delineation borings were placed in 55-gallon drums, and disposed at an off-site facility.

4.2.2 Sampling Methodology

Twenty-five grab soil samples, including one duplicate, and one matrix spike (MS) and matrix duplicate (MSD) from the RI and six grab soil samples from the supplemental RI were collected for laboratory analysis. A duplicate sample of SB09_2-4 and a MS/MSD sample of SB10_7-8

were collected from soil. Soil samples were collected from the surface (0 to 2 feet), the top of the native soil layer, development depth and/or the depth interval exhibiting the greatest extent of apparent contamination, if observed. Samples submitted for VOC analysis were collected directly from the acetate sleeve via laboratory-supplied Terra Core® soil samplers. The remaining sample volume was homogenized and placed in appropriate laboratory-supplied containers for all additional analyses. The sample containers were labeled, placed in a laboratory-supplied cooler and packed on ice. The samples were picked up and delivered via courier service to Alpha Analytical Laboratories (Alpha), a NYSDOH ELAP-certified laboratory in Westborough, Massachusetts, under standard chain-of-custody protocol.

RI soil samples were analyzed for NYSDEC Part 375 and TCL VOCs by EPA Method 8260C, SVOCs by EPA method 8270D, Target Analyte List (TAL) metals (including trivalent and hexavalent chromium) by EPA methods 6010C/7473/7196A, pesticides by EPA method 8081B, herbicides by EPA method 8151A, PCBs by EPA method 8082A, total cyanide by EPA method 9014/9010C and Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP) metals. Supplemental RI soil samples were analyzed for NYSDEC Part 375 and TCL VOCs and SVOCs by EPA Method 8260C and EPA method 8270D, respectively. A sample log showing samples and sample analyses is provided in Table 1.

4.3 Groundwater Investigation

Seven monitoring wells (MW04 through MW10) were installed during the RI. Monitoring wells were sampled to investigate potential impacts to groundwater associated with the identified AOCs and to characterize groundwater conditions. Groundwater sampling locations are shown on Figure 5.

4.3.1 Monitoring Well Installation and Development Methodology

Seven monitoring wells were installed on the Site: five soil borings were converted into groundwater monitoring wells (MW04, MW05, MW06, MW08, and MW09), and two monitoring wells were installed at off-set locations due to refusal (MW07 and MW10). Each monitoring well ID corresponds to the boring or nearby off-set boring where it was installed (i.e. MW04 was installed in SB04 and MW07 was installed at an off-set of SB07). Monitoring wells were installed to depths of about 15 to 22 feet bgs. The monitoring wells were installed with 2.0-inch inner diameter (ID) by 3.4-inch outer diameter (OD) pre-packed well screens. Pre-packed well screens include a stainless steel wire mesh with a 0.011-inch pore size surrounding the 0.010-inch slotted PVC and containing 20/40 mesh silica sand. Pre-pack screen installation required overdrilling the Geoprobe boreholes with 4-inch ID steel augers to the desired well depth. The monitoring wells were installed with a 10-foot screen straddled across the water table. The annulus of each well was filled with #2 Morie sand to approximately 2 feet above the top of the screen. Hydrated bentonite well seals were installed above the filter

sand. Following installation, each well was developed using a Monsoon® submersible pump. Development water was placed into labeled 55-gallon drums. Monitoring well construction details are presented in Table 2 and construction logs are included in Appendix E. Monitoring well locations are shown on Figure 5.

The top of casing in groundwater monitoring wells was surveyed on December 16, 2014. A Langan field engineer completed synoptic groundwater gauging prior to sampling on November 21, 2014. Groundwater elevations are presented in Table 3. A groundwater contour map based on the November 21, 2014 groundwater gauging event is presented as Figure 3.

4.3.2 Groundwater Sampling

Monitoring wells were sampled one week after development on November 21, 2014, in accordance with the EPA's low-flow groundwater sampling procedure to allow for collection of a representative sample ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", EQASOP-GW 001, January 19, 2010). Immediately before sample collection, a minimum of three well volumes were purged from each well, groundwater parameters (pH, conductivity, turbidity, dissolved oxygen [DO], temperature, and oxidation-reduction potential [ORP]) had stabilized and turbidity measurements were below 50 Nephelometric Turbidity Units (NTU). The groundwater parameters at monitoring well MW04 did not stabilize prior to sampling due to a low recharge rate. Groundwater sampling logs are included in Appendix F.

Eight groundwater samples, one sample from each well and one duplicate sample, were collected into laboratory-supplied glassware and picked up and delivered via courier service to Alpha. A duplicate sample was collected from monitoring well MW06. An MS/MSD sample was collected from monitoring well MW09. Groundwater samples were analyzed for Part 375 VOCs by EPA Method 8260C, TCL SVOCs by EPA method 8270D, pesticides by EPA method 8081B, herbicides by EPA method 8151A, PCBs by EPA method 8082A and TAL metals (filtered and unfiltered) by EPA methods 6010C/7470.

4.4 Soil Vapor Investigation

NYSDEC Division of Environmental Remediation DER-10 requires an assessment of soil vapor for contaminated sites to assess the health risk associated with potential exposure to VOCs through vapor intrusion into occupied spaces. Nine soil vapor sample points (SV14 through SV22) were installed and sampled. Soil vapor and ambient air sample locations are shown on Figure 5.

4.4.1 Soil Vapor Point Installation

Soil vapor points SV14 through SV22 were installed by Aarco with a Geoprobe® 6610DT drill rig with 1.25-inch OD steel probe rods to a depth of 5 feet bgs. The probes were installed in accordance with the 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York and were comprised of a stainless steel screen implant (3/8-inch in diameter and approximately 6 inches in length) threaded into dedicated polyethylene tubing. A sand filter pack was installed around the screen implant by pouring #2 Morie sand into the annulus to approximately 1 foot bgs. The remainder of the annulus was filled to grade surface with a bentonite slurry seal.

4.4.2 Soil Vapor Sampling and Analysis

As a quality assurance/quality control (QA/QC) measure, an inert tracer gas (helium) was introduced into an above-grade sampling chamber to ensure that the soil vapor sampling points were properly sealed above the target sampling depth, thereby preventing subsurface infiltration of ambient air. Direct readings of helium of less than 10 percent prior to sampling were considered sufficient to verify a tight seal. Helium readings were taken before and after sampling. All soil vapor points had sufficiently tight seals.

Each soil vapor point was purged using a MultiRae meter at a rate of 0.2 liters per minute (L/min) to evacuate a minimum of three sample tubing volumes prior to sample collection. The purged soil vapor was also monitored for VOCs and the value was recorded. After purging was completed, the soil vapor samples were collected into laboratory-supplied, batch-certified Summa® canisters. Soil vapor samples were collected into 2.7-Liter Summa® canisters that were calibrated for a sampling rate of approximately 0.0225 L/min for 120 minutes of sampling. A duplicate sample (of SV22_111514) and an ambient air sample were collected and submitted to the lab for analysis for QA/QC purposes. Soil vapor sampling logs are provided in Appendix G.

The 2.7-Liter Summa® canisters were labeled and picked up by a courier for delivery to Alpha under standard chain-of-custody protocol. Soil vapor samples were analyzed for VOCs by EPA Method TO-15. Soil vapor sampling locations are shown on Figure 5.

4.5 Quality Control Sampling

During the RI, field blanks, trip blanks, field duplicate samples, matrix spike/matrix spike duplicate (MS/MSD) samples and an ambient air sample were collected during soil and groundwater sampling and submitted for laboratory analysis. Duplicate and ambient air samples were collected during soil vapor sampling and submitted for lab analysis. QA/QC samples are summarized in Table 1 and include the following matrix-specific samples.

Soil QA/QC samples

- One field duplicate sample;
- One MS/MSD sample;
- One field blank sample; and
- One trip blank sample.

Groundwater QA/QC samples

- One field duplicate sample;
- One MS/MSD sample;
- One field blank sample; and
- One trip blank sample.

Soil Vapor QA/QC Samples

- One field duplicate sample; and
- One ambient air sample.

Field blanks were collected to determine the effectiveness of the decontamination procedures for the groundwater sampling equipment and the cleanliness of unused neoprene gloves and acetate liners used to collect soil samples. Field blank samples consisted of deionized, distilled water provided by the laboratory that has passed through the sampling apparatus and over other sampling equipment. Field blank samples were analyzed for same parameter lists as the corresponding sampling event and sample matrix.

MS/MSD samples were collected to assess the effect of the sample matrix on the recovery of target compounds or target analytes.

The field duplicates were collected to assess the precision of the analytical methods relative to the sample matrix. The duplicate was collected from the same material as the primary sample by splitting the volume of homogenized sample collected in the field into two sample containers.

The ambient air sample was collected to analyze ambient air conditions and determine whether conditions existed on the Site during soil vapor sampling that could have potentially interfered

with sampling results. The ambient air sample was analyzed for the same parameter list as the soil vapor samples.

The trip blank samples were collected to assess the potential for contamination of the sample containers and samples during the trip from the laboratory, to the field, and back to the laboratory for analysis. Trip blanks contains approximately 40 milliliters of acidic water (doped with hydrochloric acid) that is sealed by the laboratory when the empty sample containers are shipped to the field, and unsealed and analyzed by the laboratory when the sample shipment is received from the field. The trip blank samples were analyzed for VOCs.

4.6 Data Validation

Data from the RI was validated by a Langan data validator in accordance with EPA and NYSDEC validation protocols. Copies of the data usability summary reports (DUSRs) and the data validator's credentials are provided in Appendix H.

4.6.1 Data Usability Summary Report Preparation

A DUSR was prepared for each sampling matrix. The DUSR presents 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. For the soil and groundwater samples, the following items were assessed:

- Holding times
- Sample preservation
- Sample Extraction and digestion
- Laboratory blanks
- Laboratory control samples
- System monitoring compounds
- MS/MSD recoveries
- Field duplicate, trip blanks, and field blanks sample results

For the air samples, the following items were assessed:

- Holding times

- Canister certification
- Laboratory blanks
- Laboratory control samples
- System monitoring compounds
- Target compound identification and qualification
- Field duplicate sample results

Based on the results of data validation, the following qualifiers may be assigned to the data in accordance with EPA's guidelines and best professional judgment:

- "U" – The analyte was analyzed for but was not detected at a level greater than or equal to the reporting limit (RL) or the sample concentration or the sample concentration for results impacted by blank contamination.
- "UJ" – The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
- "J" – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- "NJ" – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associate numerical value represents its approximate concentration.
- "R" – The sample results are not useable due to quality of the data generated because certain criteria were not met. The analyte may and may not be present in the sample.

After data validation activities were complete, validated data was used to prepare the tables and figures included in this report.

4.7 Field Equipment Decontamination

Field equipment decontamination measures were taken during the 2014 RI. Groundwater sampling equipment including interface probe, water quality meters, and sampling pump were cleaned with Alconox and rinsed with water between sampling locations during groundwater sample collection.

Decontamination occurred at the sampling locations, and all liquids were temporarily contained in five gallon buckets. Between rinses, equipment was placed on polyethylene sheets, avoiding contact with the ground. Decontamination wastewater was drummed for disposal.

4.8 Investigation-Derived Waste Management

Investigation-derived wastes (IDW) generated during the RI were containerized. Solid waste generated during drilling of soil borings and soil vapor points and aqueous waste from monitoring well development and purging, and decontamination water were placed into separate United Nations/Department of Transportation (UN/DOT)-approved 55-gallon steel drums with closed tops. The drums were staged in a secured area on-site. The drums will be properly transported by a licensed waste hauler and disposed at a licensed facility.

5.0 FIELD OBSERVATIONS AND ANALYTICAL RESULTS

This section summarizes the field observations and laboratory analytical results from the RI. Soil analytical results are compared to the Part 375-6.8(a) UU SCOs, RRU SCOs and RCRA Maximum Concentrations for Toxicity Characteristic and groundwater analytical results are compared to the NYSDEC Division of Water TOGS Class GA SGVs. Soil vapor sample results were evaluated using the NYSDOH Soil Vapor Decision Matrices and ambient air sample results from the corresponding sampling event. The nature and extent of contamination is discussed in Section 7.0.

A description of the soil, groundwater, and soil vapor samples collected during the 2014 RI and 2015 supplemental RI is provided in Table 1. Laboratory analytical data reports for data generated during the 2014 RI and 2015 supplemental RI are provided in Appendix I. Summaries of the soil, groundwater, soil vapor, and QA/QC sample analytical result detections for samples collected during the RI are provided in the following tables:

- Table 4: Soil Sample Analytical Results Summary
- Table 5: Soil Sample TCLP Analytical Results Summary
- Table 6: Groundwater Sample Analytical Results Summary
- Table 7: Soil Vapor and Ambient Air Analytical Results Summary
- Table 8: Trip Blank and Field Blank Analytical Results Summary

Supplemental RI soil analytical results are included in Table 4. The following sections describe the field observations and analytical data associated with the RI.

5.1 Geophysical Investigation Findings

A sewer utility line, electrical lines and a gas line were identified along the southern boundary of the Site. Scattered anomalies were identified in the west-central portion of the site; however, no anomalies were identified consistent with USTs. A copy of the November 2014 and January 2015 Geophysical Engineering Survey Report is included in Appendix C.

5.2 Geology and Hydrogeology

The following subsections provide a summary of the geologic and hydrogeologic findings of the 2014 RI. A groundwater contour map is provided as Figure 3. Cross-sectional diagrams showing the depths of each soil type encountered during the RI are shown on Figures 6A and 6B. Boring logs from the 2014 RI are provided in Appendix D.

5.2.1 Historic Fill

A historic fill layer extends from surface grade to between about 1.5 and 13 feet bgs on the majority of the Site, and up to 24 feet bgs in the borings closest to the East River (SB05 and its delineation borings). The fill layer was deepest in boring SB05, where historic fill including large wood fragments was observed to boring termination depth at 24 feet bgs. Fill generally consists of gray and dark brown, fine- to coarse-grained sand with varying amounts of brick, concrete, gravel, coal, slag, wood, and clay. The historic fill observed in previous investigations were similarly characterized (boring logs from the 2002, Phase II ESI and the 2008 Phase II Investigation are provided in Appendix B).

5.2.2 Native Soil Layers

The historic fill layer was generally underlain by silt and fine- to medium-grained sand layers containing trace amounts of clay and gravel. A layer of sand was encountered below the fill in borings D05E2, D05E3, and SB09. A layer of silt was encountered below the fill in borings SB06, SB07, SB08, and SB10. A layer of gravel was encountered below the fill in D05E1.

5.2.3 Bedrock

According to geotechnical boring logs completed on November 15 and 16, 2014 by McLaren Engineering Group (McLaren), bedrock was encountered at depths ranging from 83 to 94 feet bgs. The USGS "Bedrock and Engineering Geologic Maps of New York County and Parts Kings and Queens Counties, New York, and Parts of Bergen and Hudson Counties, New Jersey" indicates that the bedrock underlying the Site is part of the Hartland Formation and the depth to bedrock is approximately 100 feet.

5.2.4 Hydrogeology

Synoptic groundwater level measurements were collected on November 21, 2014. Groundwater was encountered between about 6 and 15 feet bgs. The groundwater elevation is highest in the eastern part of the Site and flows west toward the East River. A groundwater contour map is presented as Figure 5.

5.3 Soil Findings

5.3.1 Field Observations

Historical urban fill was encountered from surface grade to depths extending to 1.5 to 13 feet bgs. The fill material is underlain by a depositional environment consisting of the confluence of glacial outwash and historical Lake Bayonne where the glacial outwash deposited into Lake

Bayonne as deltas. These deposits were observed to be medium- to coarse-grained sand and gravel layers, with some silt and clay horizons.

Petroleum-like impacts, evidenced by odors, staining, and PID readings above background levels, were apparent in boring SB05 and its associated delineation borings, D05E1, D05E2 and D05E3, EB125, EB127/D05W1, D05E3A, and D05E2A. A sheen was observed on the groundwater table in MW-5. A spill was reported to NYSDEC on November 25, 2014 based on these observations and Spill No. 1408751 was assigned. Observations are suspected to be related to a petroleum release for the following reasons:

- Five 4,000 gallon diesel USTs were removed from the Site in 2009. Petroleum-like odors and PID readings above background were noted at a boring (B-15) located down-gradient from the former UST locations during the Phase II ESI by AKRF in 2002. Boring B-15 was located about 50 feet northeast (upgradient) of SB05 and its associated delineation borings.

- Soil exhibiting petroleum-like staining, odor, and PID readings up to 347 parts per million (ppm) was observed at depths ranging from 7 to 18 feet bgs in SB05 located in the southwestern part of the Site (down-gradient from the former UST locations).

- Borings D05E1, D05E2, and D05E3 were advanced east of boring SB05 during the RI in horizontal five-foot intervals to delineate the extent of the impacted soil. Soil exhibiting evidence of impacts (PID readings and petroleum-like odor) was observed in all three delineation borings. The depth of the impacts extended from 7 to 15 feet bgs in delineation boring D05E1 and 8 to 13 feet bgs in delineation borings D05E2 and D05E3. Borings D05E2A, D05E3A, EB125, and EB127/D05W1 were advanced to the north and east of boring SB05 to further delineate the extent of the impacted soil during the supplemental RI. Soil exhibiting evidence of impacts was observed in three delineation borings EB127/D05W1, D05E3A, and D05E2A. The depth of the impacts extended from 9 to 13 feet bgs in delineation boring EB127/D05W1, from 6 to 13 feet bgs in D05E2A, and from 9 to 10 feet bgs in delineation boring D05E3A.

- Petroleum-related compounds, including benzene, toluene, ethylbenzene, and xylenes (BTEX), were detected in soil samples collected from three of the SB05 delineation borings (see section 5.2.2).

- The petroleum-impacts observed in boring SB05 and its associated delineation borings may be related to a spill from the previously removed USTs, or an unknown source.

5.3.2 Analytical Results

Twenty-five soil samples were collected and analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides, metals and TCLP metals during the 2014 RI. Six soil samples were collected and analyzed for VOCs and SVOCs during the supplemental RI. A summary of laboratory detections for soil samples collected during the 2014 RIR is provided in Table 4 with comparisons to the Part 375-6.8(a) UU SCOs and the Part 375-6.8(b) RRU SCOs. A summary of soil sample analytical results with comparisons to RCRA TCLP waste limits is provided in Table 5. Full laboratory reports for the 2014 RIR are included in Appendix I. Soil sample results that exceed UU and RRU SCOs and RCRA TCLP waste limits for samples collected during the RI, in addition to those from previous investigations, are shown on Figure 7.

The following contaminants were detected at concentrations exceeding UU and/or RRU SCOs and the RCRA Maximum Concentrations for Toxicity Characteristic:

VOCs

The following VOCs were detected at concentrations exceeding UU SCOs in samples collected from delineation soil borings D05E1, D05E3, and D05E2A, and EB125. The UU SCO for each compound is shown in parenthesis at the end of each bullet.

- Acetone: 0.3 mg/kg in EB125_3-4 (0.05 mg/kg);
- Benzene: 0.1 mg/kg in D05E2A_8-9 and 0.16 mg/kg in D05E3_7.5-9 (0.06 mg/kg);
- Ethylbenene:1.4 mg/kg in D05E3_7.5-9 (1 mg/kg);
- Methylene chloride: 0.16 in D05E3_7.5-9 (0.05 mg/kg); and
- Total xylenes: 0.31 mg/kg in D05E1_6.5-7.5,0.45 mg/kg in D05E3_7.5-9, and 0.46 mg/kg in D05E2A (0.26 mg/kg)

Visual, olfactory, and instrumental evidence of petroleum impacts was observed to depths up to 18 feet bgs in SB05 and its associated delineation borings; however, VOC concentrations above UU SCOs were only observed in samples collected from the capillary fringe.

SVOCs

A range of concentrations of SVOCs exceeding their respective UU and/or RRU SCOs in samples collected from soil borings SB04, SB05, SB07, SB08, SB10, and D05E3 is listed below.

The following SVOCs exceeded their respective UU SCOs (The UU SCO for each compound is shown in parentheses at the end of each bullet):

- 3-methylphenol/4-methylphenol – 0.55 mg/kg in SB05_18-20 (0.33 mg/kg);
- Benzo(k)fluoranthene – 1.0 mg/kg in SB07_2.5-4 to 2.1 mg/kg in D05E3_7.5-9 (0.8 mg/kg); and
- Chrysene – 1.3 mg/kg in SB07_2.5-4 to 3 mg/kg in SB08_0-2 (1 mg/kg).

The following SVOCs exceeded their respective UU and RRU SCOs (The RRU SCO for each compound is shown in parentheses at the end of each bullet):

- Benzo(a)anthracene – 1.3 mg/kg in SB07_2.5-4 to 3.2 mg/kg in D05E3_7.5-9 and SB08_0-2 (1 mg/kg);
- Benzo(a)pyrene – 1.1 mg/kg in SB07_2.5-4 to 3.0 mg/kg in SB08_0-2 (1 mg/kg);
- Benzo(b)fluoranthene – 2.0 mg/kg in SB04-0-2 to 13 mg/kg in SB10_0-2 (1 mg/kg);
- Dibenzo(a,h)anthracene – 0.37 mg/kg in SB04-0-2 to 0.52 mg/kg in SB08_0-2 (0.33 mg/kg); and
- Indeno(1,2,3-cd)pyrene –0.61 mg/kg in SB07_2.5-4 to 2.0 mg/kg in SB08_0-2 (0.5 mg/kg).

There were no SVOCs detected at concentrations above their respective UU and RRU SCOs in any samples collected from the native soil layer.

Metals

A range of metal concentrations exceeding their respective UU and RRU SCOs in samples collected from soil borings SB04, SB05, SB06, SB07, SB08, SB09, SB10, D05E1, D05E2, and D05E3 is listed below. The UU SCO and RRU SCO for each compound is shown in parenthesis at the end of each bullet.

- Arsenic - 15 mg/kg in SB08_0-2 to 46 mg/kg in D05E2_8-9 (UU SCO of 13 mg/kg; RRU SCO of 16 mg/kg);
- Trivalent chromium - 36 mg/kg in D05E2_12-13 to 69 mg/kg in D05E1_6.5-7.5 (30 mg/kg; 180 mg/kg);
- Copper - 58 mg/kg in SB10_5-6.5 to 360 mg/kg in D05E3_7.5-9 (50 mg/kg; 270 mg/kg);

- Lead - 150 mg/kg in SB06_0-2 to 1,000 mg/kg in D05E2_8-9 (63 mg/kg; 400 mg/kg);
- Manganese – 2,200 mg/kg in D05E2_8-9 and 3,700 mg/kg in D05E3_7.5-9 (1600 mg/kg; 2,000 mg/kg);
- Mercury – 0.46 mg/kg in SB10_5-6.5 to 5.8 mg/kg in SB05_18-20 (0.18 mg/kg; 0.81 mg/kg);
- Nickel at 31 mg/kg in D05E2_12-13 (30 mg/kg; 310 mg/kg); and
- Zinc - 110 mg/kg in SB04_9-10 to 1,400 mg/kg in D05E2_8-9 (109 mg/kg; 10,000 mg/kg).

In addition to metals that exceeded their respective SCOs, a TCLP lead concentration of 13 milligrams per liter (mg/L) was detected in sample SB07_8-10, exceeding its RCRA Maximum Toxicity Characteristic Concentration of 5 mg/L.

The majority of metals impacts were detected in samples collected from the historic fill layer; however, Zinc was detected above its respective UU SCO in native soil sample SB04_9-10.

Pesticides

The following pesticides were detected at concentrations exceeding UU SCOs in samples collected from soil borings SB06, SB08, and SB10. The UU SCO for each compound is shown in parenthesis at the end of each bullet:

- 4,4'-DDD – 0.00804 mg/kg in SB06_0-2 and 0.0327 mg/kg in SB10_5-6.5 (0.0033 mg/kg);
- 4,4'-DDE – 0.0101 mg/kg in SB06_0-2 (0.0033 mg/kg);
- 4,4'-DDT – 0.0146 mg/kg in SB06_0-2 and 0.00787 mg/kg in SB08_0-2 (0.0033 mg/kg); and
- Dieldrin – 0.00561 mg/kg in SB06_0-2 and 0.0068 mg/kg in SB10_5-6.5 (0.005 mg/kg).

There were no pesticides detected at concentrations above their respective UU and RRU SCOs in any samples collected from the native soil layer.

PCBs

PCBs were not detected in any soil samples collected during the RI

Herbicides

Herbicides were not detected in any soil samples collected during the RI.

5.4 Groundwater Findings

5.4.1 Field Observations

All wells were gauged for free product with an oil-water interface probe on November 21, 2014. No evidence of free product was observed on groundwater during the RI; however, sheen was observed on groundwater purged from MW05 during groundwater development. PID headspace readings ranged from 0.0 ppm to 0.4 ppm (highest reading in monitoring well MW10) during development and sampling. Refer to section 5.1.4 for a discussion of hydrogeology.

5.4.2 Analytical Data

Eight groundwater samples, including one duplicate sample, were analyzed for VOCs, SVOCs, total and dissolved metals, herbicides, PCBs, and pesticides during the RI. A summary of the groundwater sample laboratory detections from the RI compared to NYSDEC TOGS 1.1.1 Class GA SGVs is presented in Table 6. Groundwater sample locations and results from the RI, as well as those from the 2008 Phase II, that exceed their respective Class GA SGVs are presented on Figure 8. COCs detected at concentrations above their respective SGVs are summarized as follows:

VOCs

The following VOCs and corresponding ranges of concentrations were detected above their Class GA SGVs in monitoring wells MW-4, MW-6, MW-7, MW-8, MW-9, and MW-10 (Class GA SGVs are included in parenthesis at the end of each bullet):

- 1,2-Dichlorobenzene at 9.1 micrograms per liter (µg/L) in MW-7 (3 µg/L);
- Chloroform at 9.2 µg/L in MW-7 (7 µg/L); and
- Tetrachloroethylene (PCE) at 8 µg/L in MW-6 to 38 µg/L in MW-4 (5 µg/L).

SVOCs

The following SVOCs and corresponding detected concentrations exceeded their Class GA SGVs in monitoring wells MW-4 and MW-5 (Class GA SGVs are included in parenthesis):

- 1,2-Dichlorobenzene at 5.3 µg/L in MW-7 (3 µg/L);

- Benzo(a)anthracene from 0.75 µg/L in MW-4 and 0.06 µg/L in MW-5 (0.002 µg/L);
- Benzo(a)pyrene at 0.74 µg/L in MW-4 (0.002 µg/L);
- Benzo(b)fluoranthene at 0.84 µg/L in MW-4 (0.002 µg/L);
- Benzo(k)fluoranthene at 0.38 µg/L in MW-4 (0.002 µg/L);
- Chrysene at 0.7 µg/L in MW-4 (0.002 µg/L); and
- Indeno(1,2,3-cd)pyrene at 0.58 µg/L in MW-4 (0.002 µg/L).

Dissolved Metals

The following dissolved metals and corresponding range of detected concentrations exceeding their Class GA SGVs in monitoring wells MW-4 through MW-10 are listed below (Class GA SGVs are included in parenthesis):

- Antimony from 4.08 µg/L in MW-4, and 6.87 µg/L in MW-5 (3 µg/L) ;
- Iron 9,260 µg/L in MW-6 and 9,090 µg/L in DUP-01_112114 (Duplicate of MW-6_112114) (300 µg/L);
- Magnesium from 204,000 µg/L in MW-4 and 238,000 µg/L in MW-5(35,000 µg/L);
- Manganese from 350.6 µg/L in MW-8 to 9,380 µg/L in DUP-01_112114 (Duplicate of MW-6_112114) (300 µg/L);
- Selenium at 27.1 µg/L in MW-7 (10 µg/L); and
- Sodium from 66,300 µg/L in MW-10 to 4,060,000 µg/L in MW-5 (20,000 µg/L).

Total Metals

The following metals and corresponding range of detected concentrations exceeding their Class GA SGVs in monitoring wells MW-4 through MW-10 are listed below (Class GA SGVs are included in parenthesis):

- Iron from 1,380 µg/L in MW-5 to 13,000 µg/L in MW-6 (300 µg/L);
- Magnesium from 188,000 µg/L in MW-4 and 210,000 µg/L in MW-5 (35,000 µg/L);
- Manganese from 376 µg/L in MW-7 to 8,192 µg/L in MW-6 (300 µg/L);

- Selenium at 26.5 µg/L in MW-7 (10 µg/L); and

- Sodium from 69,200 µg/L in MW-10 to 4,800,000 µg/L in MW-5 (20,000 µg/L),

5.5 Soil Vapor Findings

Nine soil vapor samples, including one duplicate sample, and one ambient air sample were collected during the RI and submitted for laboratory analysis. Results for VOCs were evaluated using the NYSDOH Soil Vapor Decision Matrices and the corresponding ambient air sample results. A summary of laboratory results is provided in Table 7. Full laboratory reports are included in Appendix I.

Thirty-two VOCs, including petroleum-related and chlorinated VOCs, were detected in soil vapor samples. Total VOC concentrations ranged from 25.453 µg/m³ in SV22, located in the northeastern portion of the Site, to 2,168 µg/m³ in SV15, located in the southwestern portion of the Site.

The NYSDOH Soil Vapor Decision Matrices provide guidance about actions that should be taken to address current and potential exposures related to soil vapor intrusion in buildings. While no buildings are present on the Site, our data was assessed using these matrices to evaluate the potential for concern under a future building condition:

- Carbon tetrachloride was not detected in any soil vapor samples collected during the RI.

- TCE was found in two of ten soil vapor samples at concentrations ranging from 1.88 µg/m³ in SV14 to 5.08 micrograms per cubic meter (µg/m³) in SV21. Using the maximum detected concentration of TCE in soil vapor in the applicable decision matrix, recommended actions range from 'no further action' to 'mitigate'.

- PCE was found in six of ten soil vapor samples at concentrations ranging from 4.32 µg/m³ in SV20 to 65.7 µg/m³ in SV14. Using the maximum detected concentration of PCE in the applicable decision matrix, recommended actions range from 'no further action to 'take reasonable and practical actions to identify source(s) and reduce exposures'.

- 1,1,1-Trichloroethene was found in six of ten soil vapor samples at concentrations ranging from 1.13 µg/m³ in SV21 to 16..8 µg/m³ in SV21. Using the maximum detected concentration of 1,1,1-trichloroethene in the applicable decision matrix, recommend actions range from 'no further action to 'take reasonable and practical actions to identify source(s) and reduce exposures'.

A map showing soil vapor sample locations and results is presented as Figure 9.

5.6 Quality Control Results

Duplicates, field blanks, MS/MSD, and trip blanks samples were collected during the 2014 RIR and are listed in Table 1. Duplicate soil samples were collected at a rate of less than 1 per 20 due to six additional delineation samples, and low soil recovery in the added delineation borings. Quality control sample results were evaluated during data validation. The analytical results of field blanks and trip blank samples are summarized in Table 8.

5.7 Data Usability

Category B laboratory reports for the soil, groundwater, soil vapor, and air samples were provided by Alpha and were forwarded to Langan's data validator for all samples collected during the 2014 RIR. Copies of the DUSRs are provided in Appendix H. The results of the data validation review are summarized below.

The data were determined to be mostly acceptable. Completeness, defined as the percentage of analytical results that are judged to be valid, is 99%. All data are considered usable, as qualified. The following results were flagged as unusable, indicating that the results are not sufficiently valid or technically supportable to be used for data interpretation:

- The presence of acetone could not be determined for sample SV-15_111514 due to a non-target compound interfering with identification and quantification. The associated sample result is qualified as "R" for rejected.

- The presence of 2,2,4-trimethylpentane could not be determined for samples SV-21_111514 and SV-20_111514 due to a non-target compound interfering with identification and quantification. The associated sample results are qualified as "R" for rejected.

- The presence of isopropyl alcohol could not be determined for sample SV-17_111514 due to a non-target compound interfering with identification and quantification. The associated sample result is qualified as "R" for rejected.

5.8 Evaluation of Areas of Concern

This section discusses the results of the 2014 RIR with respect to the AOCs described in Section 3.4.

5.8.1 AOC-1: Historic Fill

AOC-1 Findings Summary

AOC-1 represents historic fill observed below the asphalt cap. All borings were advanced through a layer of historic fill that was ubiquitous across the Site. COCs generally associated with historic fill include SVOCs and metals. These compounds were detected at concentrations typical of historic fill in New York City. Investigation locations associated with AOC-1 include soil borings SB04 through SB10, D05E1 through D05E3, and D05E2A, D05E3A, EB125, and EB127/D05W1.

A summary of findings associated with AOC-1 is presented below:

AOC-1 Soil

The boring logs and sample analysis for RI and supplemental RI borings identified historic fill below the asphalt cap to depths ranging from about 1.5 to 13 feet bgs. A total of 14 samples were collected from the historic fill layer. Sample results are summarized as follows:

- SVOCs and metals were detected at concentrations exceeding UU and/or RRU SCOs in 10 borings.
- Metal concentrations were consistent with those typical of historic fill in New York City. Anomalously high (at least one order of magnitude greater than the UU SCO) concentrations of metals, particularly lead and mercury, were identified in the following borings:
  - lead – D05E2, SB10
  - mercury – SB05, D05E2

TCLP Lead – detected in sample SB07_8-10 at a concentration that exceeds its respective RCRA hazardous waste limit.

AOC-1 Conclusions

Historic fill material is ubiquitous and consists of metal and SVOC concentrations greater than their UU and/or RRU SCOs. The fill layer was generally underlain by silt, fine- to medium-grained sand, and gravel layers. Analytical results confirm that the native soil quality is different from that of the overlying historic fill. The RI has characterized the historic fill layer and has also defined the native soil horizon beneath the fill.

5.8.2 AOC-2: Petroleum-Impacted Soil in the Southwestern Portion of the Site

AOC-2 Findings Summary

AOC-2 represents the location of visual and olfactory evidence of petroleum-like impacts and petroleum-related contaminants in soil that were identified during the 2002 Phase II ESI. This AOC is located down-gradient with respect to groundwater flow direction from the former location of five diesel USTs and the predicted source of the release is the former tank area. The USTs were removed in September 2009. The impacts were delineated during this RI, to the extent practical due to existing structures to the north and south. COCs include petroleum-related VOCs and SVOCs in soil, groundwater and soil vapor. Investigation locations associated with AOC-2 include soil borings SB05, D05E1 through D05E3, D05E2A, D05E3A, EB125, and EB127/D05W1; monitoring wells MW-4 and MW-5; and soil vapor points SV-15, SV-16, and SV-17.

A summary of the RI and supplemental RI findings associated with AOC-2 is presented below:

AOC-2 Soil

Visual and/or olfactory evidence of petroleum-like impacts were apparent in borings SB05, D05E1, D05E2, D05E3, D05E2A, D05E3A, and EB127/D05W1. Benzene, ethylbenzene, and total xylenes were detected in all borings, but only exceeded UU SCOs in samples D05E1-6.5-7.5, D05E3_7.5-9 and D05E2A_8-9.

AOC-2 Groundwater

During the 2014 RI, odors and a sheen were observed on purge water generated from monitoring well MW-5. VOCs and SVOCs were detected at concentrations exceeding NYSDEC TOGS SGVs in monitoring wells MW-4 and MW-5; however, petroleum related VOCs or SVOCs were not detected.

AOC-2 Soil Vapor

Petroleum-related VOCs, including BTEX, were detected in soil vapor samples (SV-15, SV-16, and SV-17) collected within the southwest corner of the Site at concentrations above the ambient air concentrations.

AOC-2 Conclusions

Conclusions relevant to AOC-2 include:

- Field observations from borings B-15, SB05, D05E1 through D05E3, D05E2A, D05E3A, and EB127/D05W1 and monitoring well MW-5 indicate a possible petroleum release from the former USTs.

- Analytical results indicate VOC impacts to soil and soil vapor, however, based on the groundwater sample results collected from wells in AOC-2, groundwater has not been impacted.

5.8.3 AOC-3: Chlorinated VOCs in Groundwater and Soil Vapor

AOC-3 Findings Summary

AOC-3 represents CVOCs identified in groundwater during the 2008 Phase II Investigation and the 2014 RI. AOC-3 represents the likely presence of CVOCs that originate from groundwater in soil vapor. Contaminants of concern include CVOCs in groundwater and soil vapor. Investigation locations associated with AOC-3 and AOC-3 include monitoring wells MW-4, MW-5, MW-6 MW-8, MW-9, and MW-10 and soil vapor points SV-14, SV-15, SV-17, SV-19, SV-20, and SV-21.

A summary of findings associated with AOC-3 and AOC-4 is presented below:

AOC-3 Groundwater

During the 2008 Phase II Investigation, TCE and 1,2-dichloroethylene were detected in monitoring well B-4 at concentrations of 6 µg/L, which exceeds the NYSDEC TOGS AWQS Guidance values of 5 µg/L for both contaminants. During the RI, PCE was detected in six monitoring wells (MW-4, MW-5, MW-6, MW-8, MW-9, and MW-10) at concentrations ranging from 3 µg/L in MW-5 to 38 µg/L in MW-4; detected concentrations of PCE in five of the six monitoring wells exceed the NYSDEC TOGS SGVs of 5 µg/L.

AOC-3 Soil Vapor

PCE was found in six of nine soil vapor samples at concentrations ranging from 4.32 µg/m^3 in SV20 to 65.7 µg/m^3 in SV14. TCE was found in two of ten soil vapor samples at concentrations ranging from 1.88 µg/m^3 in SV14 to 5.08 µg/m^3 in SV21. Based on the NYSDOH Soil Vapor Decision Matrices, detected concentrations of PCE and TCE in soil vapor samples would require actions ranging from 'take reasonable and practical actions to identify source(s) and reduce exposures' to 'mitigate' under an enclosed building condition.

AOC-3 Conclusions

Chlorinated solvents were detected in groundwater and soil vapor across the Site, including along the eastern/upgradient perimeter of the Site. An on-site source of chlorinated solvents was not detected in soil and there was no specific concern related to solvents that was identified in the Phase I ESA.

5.8.4 AOC-4: Potential RCRA Hazardous Waste Generation On-Site

AOC-4 represents lead concentrations in soil near the southeast corner of the Site that, if excavated, are representative of a RCRA hazardous waste. The investigation location associated with AOC-4 includes RI soil boring SB07.

AOC-4 Findings Summary

A TCLP lead concentration of 13 mg/L was detected in RI boring SB07 from about 8 to 10 feet bgs, exceeding the RCRA hazardous waste limit of 5 mg/L.

AOC-4 Conclusions

Lead was detected at a concentration exceeding the RCRA hazardous waste limit in a boring collected from the southeast corner. This soil will be considered a RCRA characteristic hazardous waste upon excavation.

6.0 QUALITATIVE HUMAN AND FISH/WILDLIFE EXPOSURE ASSESSMENT

Human health exposure risk was evaluated for both current and future Site and off-Site conditions, in accordance with the May 2010 NYSDEC Final DER-10 Technical Guidance for Site Investigation and Remediation. The assessment includes an evaluation of potential sources and migration pathways of Site contamination, potential receptors, exposure media, and receptor intake routes and exposure pathways.

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. Based on the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, there was no need to prepare an FWRIA for the Site. A completed form of DER-10 Appendix 3C is enclosed in Appendix J.

6.1 Current Conditions

The Site is irregularly shaped and encompasses an approximate area of 46,000 square feet (1.056-acre). According to survey data, the Site grade is at an average elevation (el) of approximately 12 feet and Site grade ranges from el 17.34 in the northeast corner to 7.04 in the southwest corner. The sidewalk grade of Kent Avenue slopes upward from north to south from el 17.34 to el 18.66.

6.2 Proposed Conditions

The proposed project will include the construction of a twenty-two story residential and retail building along Kent Avenue, and a waterfront esplanade along the East River. The building will include cellar-level and partial first floor parking. An upland connection will be constructed between Kent Avenue and the waterfront esplanade. The anticipated excavation depth necessary for the cellar floor slab varies from about 10 feet bgs on the western side to about 20 feet bgs on the eastern side. Additional deeper excavations will be required for an elevator pit and foundation elements. Proposed development plans are provided in Appendix A.

6.3 Summary of Environmental Conditions

Soil sample analysis revealed VOCs, SVOCs, metals, and pesticides at concentrations that exceeded their respective UU SCOs, with SVOC and metal concentrations also above RRU SCOs. Soil COCs include VOCs, SVOCs, pesticides, and metals.

SVOCs and metals are ubiquitous at concentrations greater than their respective UU and/or RRU SCOs in historic fill; underlying native soils comply with the UU SCO over majority of the Site, with the exception being a zinc concentration in one sample from boring SB04. SVOC concentrations above RRU SCOs were detected in historic fill samples collected from five of

seventeen RI borings (SB04, D05E3, SB07, SB08, and SB10) at depths ranging from grade surface to 9 feet bgs. Metal concentrations above RRU SCOs were detected in samples collected from seven of ten RI borings (SB05, D05E1, D05E2, D05E3, SB07, SB08, SB09, and SB10) at depths ranging from surface grade to 20 feet bgs. These results are consistent with those of the previous studies conducted by AKRF and AES. In addition, a TCLP lead concentration representative of a RCRA characteristic hazardous waste was identified in RI boring SB07.

Groundwater samples had concentrations of VOCs, SVOCs, and metals that exceeded their respective Class GA SGVs. Chlorinated VOCs were detected in samples from 6 of 7 RI monitoring wells at concentrations above their Class GA SGVs. Metal concentrations above the Class GA SGVs were detected throughout the Site, and are likely attributable to regional groundwater conditions.

Several VOCs, including chlorinated aliphatic hydrocarbons and petroleum-related VOCs, were detected in soil vapor samples at concentrations above background ambient air levels. Based on NYSDOH Soil Vapor Decision Matrices, detected concentrations of TCE, PCE, and 1,1,1-trichloroethene would require actions ranging from 'take reasonable and practical actions to identify source(s) and reduce exposures' to 'mitigate' under an enclosed building condition.

6.4 Conceptual Site Model

A conceptual site model (CSM) has been developed based on the findings of the RI. The purpose of the CSM is to develop a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways, as discussed below.

6.4.1 Potential Sources of Contamination

Potential sources of contamination have been identified and include historic fill, former diesel USTs and off-site sources. The ubiquitous historic fill has been established as a source of SVOCs and metals. A TCLP lead concentration of 13 mg/L (SB07) was detected in historic fill in the southeast corner of the Site, which exceeds its RCRA Maximum Concentration for Toxicity Characteristic of 5 mg/L. The former diesel USTs have been established as a potential source of petroleum-related VOCs in soil and soil vapor and SVOCs in soil. Chlorinated solvents in groundwater and soil vapor appear to be attributed to upgradient off-site sources, as there was no detection of CVOCs in soil.

6.4.2 Exposure Media

The impacted media include soil, groundwater, and soil vapor. Analytical data indicates that the historic fill material contains VOCs, SVOCs, metals, and pesticides. Groundwater impacts include VOCs, SVOCs and metals. Soil vapor is impacted by VOCs.

6.4.3 Receptor Populations

The Site was used until the end of January 2015 as an accessory parking and staging lot for the film studio businesses on the south-adjoining property (Block 2128, Lot 56). It is currently vacant, awaiting redevelopment. Access is limited to authorized guests, and consultants investigating environmental and geotechnical conditions on the Site. During Site development, human receptors will be limited to construction and remediation workers, authorized guests visiting the Site and the public adjacent to the Site. Under future conditions, receptors will include the new building tenants, workers, and visitors to the residential properties, including children.

6.5 Potential Exposure Pathways – On-Site

6.5.1 Current Conditions

The Site is covered entirely with an asphalt slab with the exception of a raised planter in the northwest corner of the Site; therefore, human exposure to contaminated soil is limited. In localized areas where human exposure to contaminated soil is possible (i.e., during investigation where the ground surface is penetrated), the potential exposure pathway for dermal absorption, inhalation and ingestion is controlled through the implementation of a Health and Safety Plan (HASP).

Because groundwater in this area of New York City is not used as a potable water source, there is no complete exposure pathway under current Site conditions. There is a potential exposure pathway through dermal absorption, inhalation, and ingestion during groundwater sampling associated with Site investigation, but it is controlled through the implementation of a HASP.

There is a potential exposure pathway to soil vapor through inhalation during soil, soil vapor and groundwater sampling associated with Site investigation. This pathway is controlled through the implementation of a HASP. No other complete or potentially complete exposure pathway to contaminated soil vapor currently exists.

6.5.2 Construction/Remediation Condition

Construction and remediation activities may result in potential exposures to Site contaminants in the absence of a CHASP and a Community Air Monitoring Plan (CAMP). Construction and

remedial activities include excavation and off-site disposal of impacted soil and construction of foundation components. In the absence of a CHASP and CAMP, this scenario presents the potential for exposure of soil COCs to construction and remediation workers via dermal absorption, ingestion, and inhalation of vapors and particulate matter. This exposure pathway will be marginalized through the implementation of a CHASP, CAMP, and vapor and dust suppression techniques.

Groundwater will be encountered during excavation activities by workers, and there is potential for exposure to groundwater COCs, in the absence of a CHASP, to construction workers via dermal absorption, ingestion, or inhalation.

During Site development, construction and remediation workers and the surrounding community could be exposed to soil vapor COCs and contaminated soil via inhalation. Exposure to soil vapor and dust will be limited through the implementation of a CHASP, CAMP, and dust and vapor suppression techniques.

6.5.3 Proposed Future Conditions

The proposed development will include residential, commercial and recreational uses. Upon completion of the new development, the entire Site will be capped with a concrete building foundation with a ventilated parking structure on the lowest floors, by asphalt/pavement or by landscaped areas with at least two feet of clean fill. These barriers will prevent direct human exposure to impacted soil and groundwater.

In the absence of engineering controls (e.g., vapor barrier and/or ventilated parking garage [basement or first level]), the presence of VOCs in the groundwater and soil vapor creates potential for VOCs to volatilize and accumulate in the proposed building, completing an inhalation exposure pathway for future users.

There is no risk of ingesting groundwater COCs because the Site and surrounding areas will continue to obtain their drinking water supply from surface water reservoirs located upstate and not from groundwater. In addition, the Site will be capped with either concrete or at least two feet of clean soil and the final development grade will be several feet above the groundwater table.

6.6 Potential Exposure Pathways – Off-Site

In the absence of CAMP and Construction Health and Safety Plan, soil has the potential to be transported off-site by wind in the form of dust or on the tires of vehicles or equipment leaving the Site during development and remediation activities and create an exposure risk to the public adjacent to the Site. Groundwater would be expected to flow to the adjoining East River, rather

than towards the adjoining neighborhood, precluding a complete exposure pathway to the public adjacent to the Site. Soil vapor would not be expected to migrate off-Site, as it migrates vertically through the subsurface and dissipates and dilutes with ambient air.

The potential off-site migration of Site contaminants is not expected to result in a complete exposure pathway for current, construction and remediation, or future conditions for the following reasons:

- Air monitoring will be conducted for particulates (i.e., dust) and VOCs during all intrusive activities as part of a CAMP. Dust and/or vapor suppression techniques will be employed to limit potential for off-site migration of soil and vapors.
- Vehicle tires and undercarriages will be washed as necessary prior to leaving the Site to prevent tracking material off-site.
- A soil erosion/sediment control plan will be implemented during construction to control off-Site migration of soil.
- The Site is located in an urban area with continuous impervious (i.e. concrete) surface covering.
- Groundwater in New York City is not used as a potable water source.

6.7 Evaluation of Human Health Exposure

Based upon the CSM and the review of environmental data, complete on-site exposure pathways appear to be present, in the absence of institutional and engineering controls, in current, construction and remediation, and future conditions. The complete exposure pathways indicate there is a risk of exposure to humans from Site contaminants via exposure to soil, groundwater, and soil vapor if institutional and engineering controls are not implemented.

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the Site is provided below.

6.7.1 Current Conditions

Contaminant sources include the following: 1) historic fill with varying levels of SVOCs and metals; 2) Localized areas of soil containing pesticides; 3) petroleum-impacted soil; 4) chlorinated and petroleum-related VOCs in groundwater; 5) regional metals-impacted groundwater; and 6) PCE, TCE, and other VOCs in soil vapor.

Contaminant release and transport mechanisms include contaminated soil transported as dust and volatilization of contaminants from the soil and groundwater matrices to the soil vapor phase, and existing soil vapor contaminants. Under current conditions, the likelihood of exposure to humans is limited, as access to the Site is restricted and the Site surface cover (i.e. asphalt slab) generally prevents direct contact with soil and groundwater, with the exception of disturbance of soil and groundwater during investigation. In addition, groundwater is not used as a potable supply in Brooklyn. The Site property is kept locked and activity is limited to authorized guests and film studio business personnel.

The potential for complete exposure pathways is present since all five elements of an exposure pathway exist; however, the risk can be avoided or minimized by applying appropriate health and safety measures during investigation, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, maintaining Site security, and wearing the appropriate personal protective equipment (PPE).

6.7.2 Construction/Remediation Activities

During development and remediation, points of exposure include disturbed and exposed soil during excavation, dust and organic vapors generated during excavation, and contaminated groundwater that will be encountered during excavation and dewatering operations. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of organic vapors arising from contaminated soil and groundwater, and inhalation of dust arising from contaminated soil. The receptor population includes the construction and remediation workers and, to a lesser extent, the public adjacent to the Site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk can be avoided or minimized by applying appropriate health and safety measures during construction and remediation, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the Site to prevent off-site soil tracking, maintaining Site security, and wearing the appropriate PPE.

In accordance with a CHASP, a Soil/Materials Management Plan (SoMP), and a CAMP, measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. Such measures will prevent completion of these potential migration pathways.

6.7.3 Proposed Future Conditions

For the proposed future conditions, some residual contaminants may remain on-Site, depending on the remedy, and may include those listed under current conditions. Contaminant release and transport mechanisms include volatilization of contaminants from the soil or groundwater matrix to the soil vapor phase. If institutional and/or engineering controls are not implemented, points of exposure include potential cracks in the foundation or lower-level slab of the proposed development. Routes of exposure may include inhalation of vapors entering the building. The receptor population includes the building tenants, residential property employees, and visitors. The possible routes of exposure can be avoided or mitigated by proper installation of soil vapor mitigation measures (e.g., vapor barrier and/or ventilated parking garage [basement or first level]) and construction of a Site capping system (i.e., concrete or at least two feet of clean soil).

6.7.4 Human Health Exposure Assessment Conclusions

The following conclusions were developed from this human health exposure assessment:

1. Under current conditions there is a moderate risk for exposure. The primary exposure pathway is for dermal contact, ingestion and inhalation of soil or groundwater by site investigation workers. The exposure risks can be avoided or minimized by following the appropriate health and safety and vapor and dust suppression measures during investigation activities.

2. In the absence of institutional and engineering controls, there is a moderate risk of exposure during the construction and remediation activities. The primary exposure pathways are:

    a. Dermal contact, ingestion and inhalation of contaminated soil, groundwater or soil vapor by construction workers.

    b. Dermal contact, ingestion and inhalation of soil (dust) by the community in the vicinity of the Site.

    These can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety (in accordance with OSHA 29 CFR 1910), vapor and dust suppression, and Site security measures.

3. The existence of a complete exposure pathway for Site contaminants to human receptors during proposed future conditions is unlikely, as a large quantity of soil will be excavated and transported to an off-site disposal facility, groundwater is not used as a potable water source in New York City, and the potential pathway for soil vapor

intrusion into the building would be addressed through the use of soil vapor mitigation measures (e.g., vapor barrier and/or ventilated parking garage [basement or first level]).

4. It is unlikely that a complete exposure pathway exists for the migration of Site contaminants to off-site human receptors for current, construction phase, or future conditions. Monitoring and control measures will be used during investigation and construction to prevent completion of this pathway. Under future conditions, the Site will be remediated and engineering controls will be implemented to prevent completion of this pathway.

7.0 NATURE AND EXTENT OF CONTAMINATION

This section evaluates the nature and extent of soil, groundwater and soil vapor contamination. The nature and extent of the contamination is derived from a combination of field observations and analytical data that were discussed in Section 5.0.

7.1 Contaminated Soil

The site-wide historic fill layer extends from surface grade to depths up to about 13 feet bgs and contains varying levels of VOCs, SVOCs, pesticides, and metals that are discussed in detail in this Section. The discussion is divided by the following contaminant classifications:

1. VOC-Impacted Material
2. SVOC-Impacted Material
3. Metals-Impacted Material
4. Pesticide-Impacted Material

7.1.1 VOC-Impacted Material

Petroleum related compounds, benzene, ethylbenzene and xylenes, were detected at concentrations that exceed their corresponding UU SCOs in the soil samples collected from RI borings D05E1, D05E3, and D05E2A. These VOCs are most likely related to former diesel USTs that were removed from the Site in 2009 or an unidentified source. A petroleum release (NYSDEC Spill No. 1408751) related to these soil impacts was reported. Soil exhibiting evidence of petroleum impacts was apparent between 7 and 18 feet bgs in boring SB05, located near the southwestern part of the Site. Borings D05E1, D05E2, and D05E3 were advanced east of boring SB05 in five-foot intervals to delineate the horizontal extent of the impacted soil. Petroleum-related impacts were apparent in all three delineation borings. The depth of the impacts extended from about 7 to 15 feet bgs in delineation boring D05E1 and about 8 to 13 feet bgs in delineation borings D05E2 and D05E3. Borings D05E2A, D05E3A, EB125, and EB127/D05W1 were advanced to north and east of boring SB05 to further delineate the extent of the impacted soil during the supplemental RI. Soil exhibiting evidence of impacts was observed in three delineation borings EB127/D05W1, D05E3A, and D05E2A. The depth of the impacts extended from 9 to 13 feet bgs in delineation boring EB127/D05W1, from 6 to 13 feet bgs in D05E2A, and 9 to 10 feet bgs in delineation boring D05E3A. In addition, methylene chloride was detected at concentrations exceeding its corresponding UU SCO in a soil sample collected from D05E3.

7.1.2 SVOC-Impacted Material

SVOCs were detected at concentrations exceeding the UU and/or RRU SCOs in soil collected from the historic fill interval in five of eight soil borings during the 2002 Phase II ESI, in five of ten soil borings during the 2014 RI. The COCs include 3-mehtylphenol/4-methylphenol, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. These SVOCs are typically found in historic fill throughout New York City. COCs were detected above the RRU SCOs in samples collected from historic fill throughout the Site, at depths ranging from surface grade to 9 feet bgs. In addition, several SVOCs were detected at concentrations above their respective UU and/or RRU SCOs in one endpoint sample collected from the north wall of the former diesel UST excavation in September 2009.

7.1.3 Metals-Impacted Material

Metals were detected at concentrations above the UU SCOs in samples collected from all eight soil borings during the 2002 Phase II ESI and all ten soil borings during the 2014 RI, and at concentrations above the RRU SCOs in samples collected from two of eight soil borings during the 2002 Phase II ESI and in eight of ten soil borings during the 2014 RI. Lead was detected at a concentration above the RCRA Maximum Concentrations for Toxicity Characteristic in one boring (SB7). The COCs include arsenic, trivalent chromium, copper, lead, manganese, mercury, nickel and zinc.

Metal concentrations above the RRU SCOs were detected within historic fill throughout the Site.

The primary source of metals is historic fill. Metals were detected in native soil located below the historic fill layer at concentrations within background ranges.

7.1.4 Pesticide-Impacted Material

Pesticides, specifically 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and dieldrin, exceeded their respective UU SCOs in historic fill (0 to 6.5 feet bgs) in three of ten soil borings. There were no pesticides detected at concentrations above their respective RRU SCOs. The elevated pesticide concentrations were located in discrete locations throughout the Site with no discernable pattern. Pesticides were not detected in native soil. The source of the pesticides is either historic pesticide application or a historic fill condition.

7.2 Groundwater Contamination

Evaluation of the groundwater analytical results identified the following COCs for groundwater, which are discussed in more detail in this Section:

1. VOC Impacted Groundwater
2. SVOC Impacted Groundwater
3. Metals Impacted Groundwater

7.2.1 VOC Impacted Groundwater

VOC concentrations exceeding TOGS Class GA SGVs were found in groundwater in two out of five monitoring wells during the 2002 Phase II ESI and in six out of seven monitoring wells during the 2014 RI. Chloroform was detected at a concentration above TOGS Class GA SGVs in B-3. Chloroform and 1,2-dichlorobenzene were detected at concentrations above TOGS Class GA SGVs in MW-7. CVOCs, including TCE and 1,2-dichloroethylene, were identified in groundwater samples collected from B-4 during the 2002 Phase II ESI. PCE was identified in groundwater samples collected from MW-4, MW-6, MW-8, MW-9, and MW-10 at a concentration above Class GA SGVs during the 2014 RI. Chloroform is naturally occurring as it is known to form as a result of the chlorination of naturally occurring organic materials found in raw water supplies. An on-site source of chlorinated solvents was not detected in soil and there was no specific concern related to solvents that was identified in the Phase I ESA.

7.2.2 SVOC-Impacted Groundwater

Groundwater sample results from two monitoring wells, MW-4 and MW-5, revealed one or more of the following SVOCs at concentrations that exceed their TOGS Class GA SGVs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene. These SVOCs were detected in soil samples collected from historic fill throughout the Site, but were not detected in groundwater samples collected from any of the other five monitoring wells sampled during this RI. The presence of these SVOCs is most likely related to the entrained sediments in the groundwater samples. Recharge of monitoring well MW-4 was slow during purging activities, and resulted in high turbidity in the groundwater sample.

7.2.3 Metals-Impacted Groundwater

Filtered groundwater sample results from all seven RI monitoring wells revealed one or more of the following metals at concentrations above their respective TOGS Class GA SGVs: antimony, iron, magnesium, manganese, selenium, and sodium. These dissolved metals are due to the brackish nature of groundwater near the East River and are representative of regional groundwater quality. Filtered (i.e., dissolved) groundwater sample results indicate that metals that are present in fill have not impacted groundwater quality.

7.3 Soil Vapor Contamination

Multiple VOCs, included those related to petroleum and chlorinated solvents, were detected in soil vapor samples. PCE and TCE were detected above ambient air concentrations. The highest concentrations of TCE and PCE were identified along the eastern boundary of the Site along Kent Avenue. Petroleum-related VOCs in soil vapor samples were generally identified at concentrations above ambient air concentrations throughout the Site. The highest concentrations of petroleum-related VOCs were identified in the southwest corner of the Site. Petroleum-related VOC impacts to soil vapor are most likely attributed to the former diesel USTs or an unidentified source. An on-site source of chlorinated solvents was not detected in soil and there was no specific concern related to solvents that was identified in the Phase I ESA.

8.0 CONCLUSIONS

The RI was implemented between November 14 and November 21, 2014 to supplement the existing environmental data obtained during the 2002 Phase II ESI, 2008 Phase II Investigation, and 2009 UST Closure. The findings summarized herein are based on both qualitative data (field observations and instrumental readings), and laboratory analytical results of soil, groundwater, and soil vapor samples. Findings and conclusions are as follows:

1. Stratigraphy: Beneath the Site surface cover (i.e., asphalt), overburden includes a historic fill layer, which extends to depths of up to approximately 13 feet bgs. The layer is comprised of gray and dark brown fine- to coarse-grained sand with varying amounts of brick, concrete, gravel, coal, slag, wood, ash, and organic clay, and was underlain by silt and fine- to medium-grained sand layers. Bedrock was encountered during a geotechnical investigation by McLaren at depths ranging from 75 to 100 feet bgs.

2. Hydrogeology: Synoptic groundwater level measurements were collected on November 21, 2014. Groundwater was encountered between approximately 6 and 15 feet bgs. The groundwater elevation is highest in the eastern part of the Site and appears to flow west-southwest toward the East River.

3. Soil Impacts:

    a. Historic Fill – The historic fill layer contains concentrations of VOCs, SVOCs, metals, and pesticides at concentrations that exceed their respective UU or RRU SCOs.

        i. SVOCs were detected at concentrations above RRU SCOs within the fill layer at levels considered typical of historic fill found in New York City.

        ii. Pesticide concentrations above the UU SCO, but below the RRU SCOs, were detected in the fill and may be related to historic surficial application of pesticides or to the nature and quality of the historic fill material.

        iii. Metals were detected at concentrations above RRU SCOs within the historic fill layer. A hazardous concentration of lead was detected in soil at a concentration that exceeds its respective RCRA Maximum Concentrations for Toxicity Characteristic in the southeast corner of the Site. Hazardous lead has been delineated vertically and will be further delineated during a waste characterization investigation.

        iv. Petroleum-Impacted Soil: Petroleum impacts, evidenced by odors, staining, and PID readings above background levels, were observed in

the southwest corner of the Site and in one boring, B-15 in the 2008 Phase II ESI and in soil borings SB05 and D05E1 through D05E3 in the 2014 RI and in soil borings D05E2A, D05E3A, and EB127/D05W1 in the supplemental RI Petroleum-related compounds were also detected in soil samples above UU SCOs in this area. Several SVOCs were detected at concentrations above UU and/or RRU SCOs in one endpoint sample collected during the 2009 UST closure. A spill was reported for this release area to NYSDEC and Spill No. 1408751 was assigned to the Site. This area of contamination was located down-gradient with respect to groundwater flow direction from the former location of five diesel USTs. The USTs were removed in September 2009.

4. Groundwater Impacts: Groundwater VOC, SVOC and metal concentrations exceeded Class GA SGVs.

    a. CVOCs, particularly PCE, were found at concentrations above Class GA SGVs in monitoring wells throughout the Site. TCE and 1,2-dichloroethylene were detected above Class GA SGVs in a monitoring well, B-14. An on-site source of chlorinated solvents was not detected in soil and there was no specific concern related to solvents that was identified in the Phase I ESA.

    b. SVOC and metal impacts to groundwater are consistent with regional groundwater quality.

    c. Petroleum-Impacted Groundwater: A sheen was observed on groundwater during purging and development of monitoring well MW-5. No petroleum-related compounds were detected in groundwater analyzed from this well and no petroleum-related compounds were detected above Class GA SGVs in any monitoring wells.

5. Soil Vapor Impacts: Soil vapor sampling results indicate the presence of several VOCs, including chlorinated solvents and petroleum-related compounds, above the range of ambient air concentrations. The highest concentrations of TCE and PCE were identified along the eastern boundary of the Site along Kent Avenue. An on-site source of chlorinated solvents was not detected in soil and there was no specific concern related to solvents that was identified in the Phase I ESA.

6. Sufficient analytical data were gathered during the 2002 Phase II ESI, 2008 Phase II Investigation, 2009 UST Closure, and 2014 RIR to establish Site-specific soil cleanup levels and to develop a remedy for the Site. The remedy will be described and evaluated in a Remedial Action Work Plan (RAWP) prepared in accordance with

NYSDEC BCP guidelines. The remedy will need to address petroleum-impacted soil, historic fill impacted with metals and SVOCs, soil contaminated with hazardous lead, the potential for soil vapor intrusion, groundwater impacted with chlorinated VOCs from an off-site source, and a contingency for the removal and closure of unknown USTs.

9.0 REFERENCES

1. AKRF, Inc., Phase I Environmental Site Assessment Report, dated August 2001

2. AKRF, Inc. Phase II Site Investigation Report, dated April 2002

3. Restrictive Declaration, dated July 19, 2005

4. Associated Environmental Services, Ltd., Phase II Investigation, dated July 21, 2008

5. Associated Environmental Services, Ltd., Underground Storage Tank Closure Report, dated October 31, 2009

6. New York State Department of Health, Final Guidance for the Evaluation of Soil Vapor Intrusion in the State of New York, dated October 2006.

7. New York State Department of Environmental Conservation, Division of Environmental Remediation, Draft Brownfield Cleanup Program Guide, dated May 2004.

8. New York State Department of Environmental Conservation, DER-10 Technical Guidance for Site Investigation and Remediation, issued May 3, 2010; effective June 18, 2010.

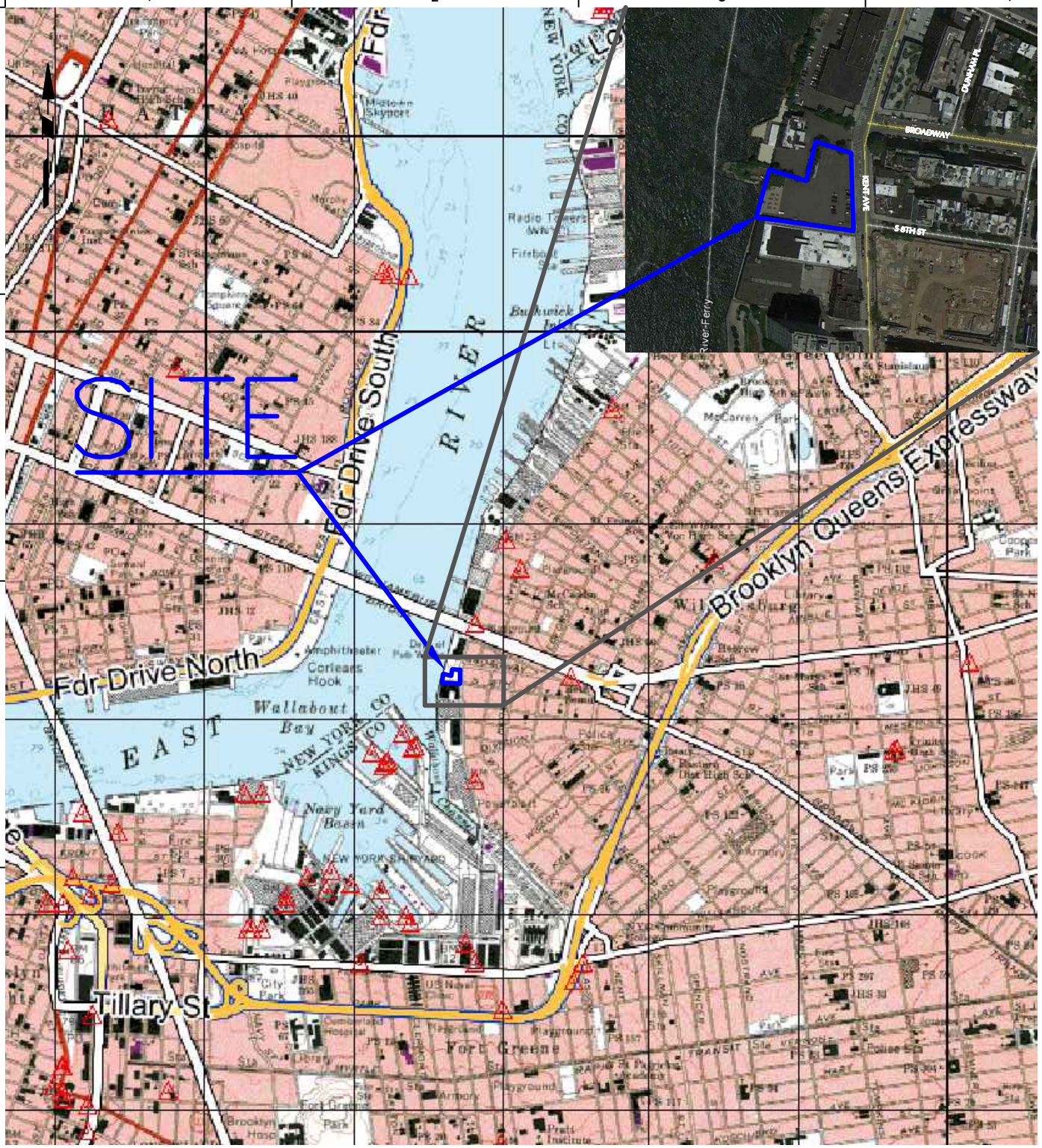
9. New York State Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1) dated June 1998.

10. United States Environmental Protection Agency, Low Flow Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW 001, January 19, 2010.

11. New York State Department of Environmental Conservation, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, Effective December 14, 2006.

12. Geotechnical Boring Logs, McLaren Engineering Group, dated November 4, 2014.

Figures



LEGEND:

SITE BOUNDARY

NOTES:

1. BASE MAP BASED ON USGS 5.7 MINUTE SERIES BROOKLYN QUADRANGLE MAP DATED 1929.
2. INSET BASE MAP TAKEN FROM GOOGLE EARTH IMAGE DATED 6/19/2014, 1 INCH = 400 FEET.

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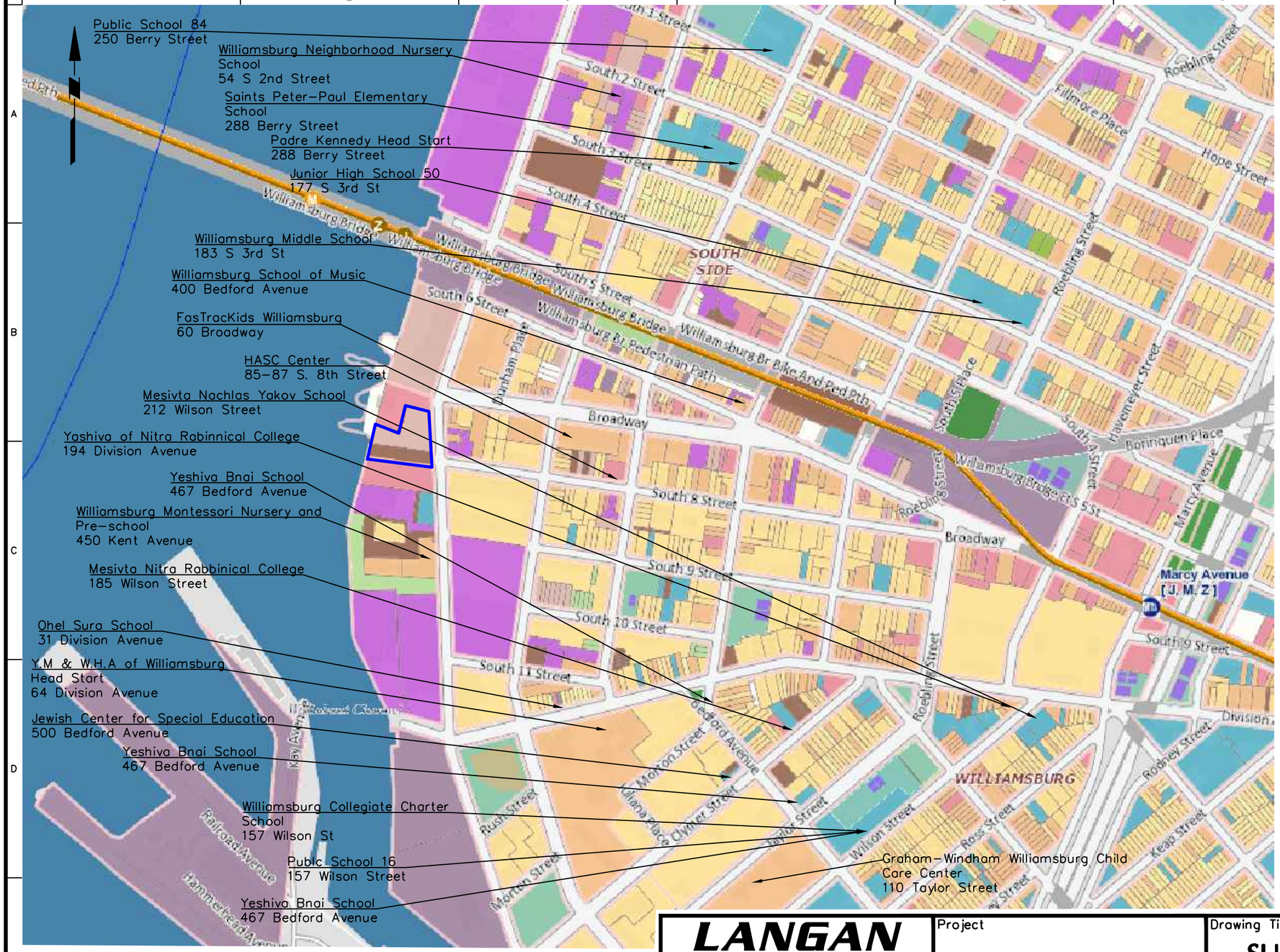
Project	416 KENT AVENUE BLOCK No. 2128, LOT No. 5 BROOKLYN KINGS NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170332901
Date	12/5/2014
Scale	NTS
Drawn By	JL
Checked By	NR
Submission Date	
Figure No.	1
Sheet	1 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 1 - RIR-Site location map_North_Lot_12-22-14.dwg Date: 1/22/2015 Time: 18:31 User: pmcmahon Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

SITE BOUNDARY

- 1 & 2 FAMILY RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- MIXED USED
- OPEN SPACE & OUTDOOR RECREATION
- COMMERCIAL
- INSTITUTIONS
- INDUSTRIAL
- PARKING
- TRANSPORTATION/UTILITIES
- VACANT LOTS

NOTES:

1. BASE MAP TAKEN FROM HTTP://WWW.OASISNYC.NET
2. SENSITIVE RECEPTORS SHOWN WITHIN 0.5 MILE FROM THE SITE

250 0 125 250
SCALE IN FEET

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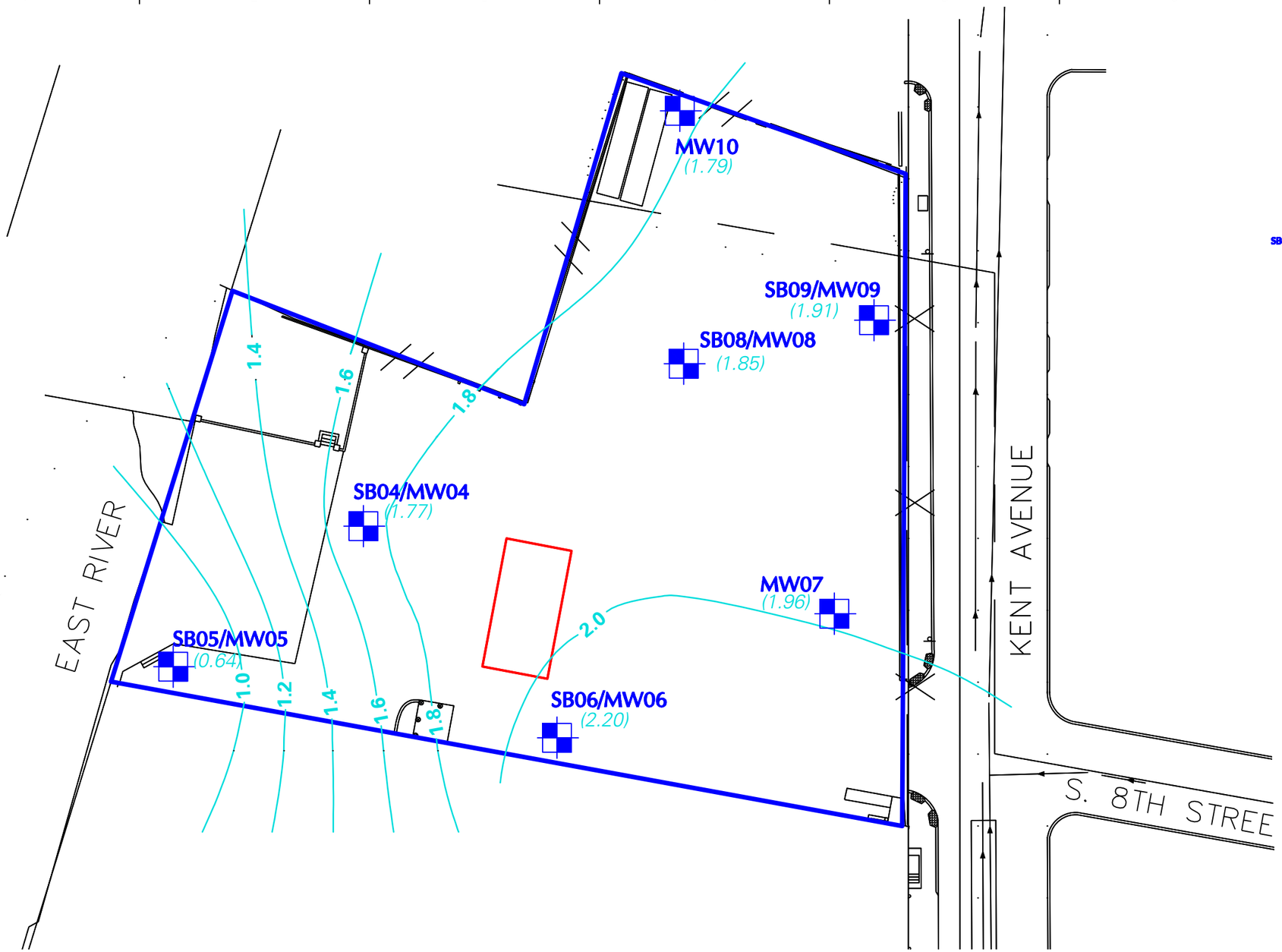
Drawing Title
SURROUNDING LAND USE AND SENSITIVE RECEPTOR MAP

Project No. 170332901	Drawing No. 2
Date 12/8/2014	
Scale 1" = 250'	
Drawn By JL/MB / Checked By NR	
Submission Date 1/15/2015	Sheet 2 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 2 - RIR Surrounding Land Use and Sensitve Receptors Map_North Lot_12-22-14.dwg Date: 1/22/2015 Time: 18:38 User: pmcmahon Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

SB08/MW08 (1.85) — 2014 REMEDIAL INVESTIGATION MONITORING WELL LOCATION (GROUNDWATER ELEVATION IN FEET IN PARENTHESES)

FORMER UNDERGROUND STORAGE TANK LOCATION

SITE BOUNDARY

GROUNDWATER ELEVATION CONTOUR LINE

NOTES:

1. BASE MAP OBTAINED FROM THE TOPOGRAPHICAL SURVEY, BY CND MAPPING, INC. DATED OCTOBER 23, 2014.
2. GROUNDWATER ELEVATIONS ARE BASED ON DEPTH TO WATER READINGS TAKEN ON NOVEMBER 21, 2014.
3. MERIDIAN OF SURVEY IS REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM NYLI NAD 83 AS ESTABLISHED BY GPS METHOD.
4. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS ESTABLISHED BY GPS METHODS.

40 0 10 25 40
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Drawing Title
GROUNDWATER CONTOUR MAP

Project No. 170332901	Drawing No. 3
Date 12/16/2014	
Scale 1" = 40'	
Drawn By JL / Checked By NR	
Submission Date	Sheet 3 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 4 - Groundwater Contour Map.dwg Date: 2/12/2015 Time: 15:17 User: pmcmahon Style Table: Langan.stb Layout: GW

OFF-SITE HISTORICAL USES:
BANK (1887-1904)
OFFICE BUILDING (1918-1950)

ON-SITE HISTORICAL USES:
FERRY TERMINAL (1887)
VACANT LAND (1918-1965)
TRUCK PARKING (2001-2012)

OFF-SITE HISTORICAL USES:
METER COMPANY (1887)
FERRY COMPANY (1887)
IRON AND STEEL CORPORATION (1918)
PIPE AND IRON COMPANY (1918)
FACTORIES (1918)
MANUFACTURING FACILITIES (1918)
WAREHOUSE (1979-1986, 2001)

OFF-SITE HISTORICAL USES:
BRASS FOUNDRY (1887)
OPTICIAN (1918)
KNITTING MILL (1935)

LEGEND:

SITE BOUNDARY

NOTES:
1. BASE MAP TAKEN FROM TOPOGRAPHICAL SURVEY BY CND MAPPING, INC. DATED OCTOBER 23, 2014.

50 0 25 50
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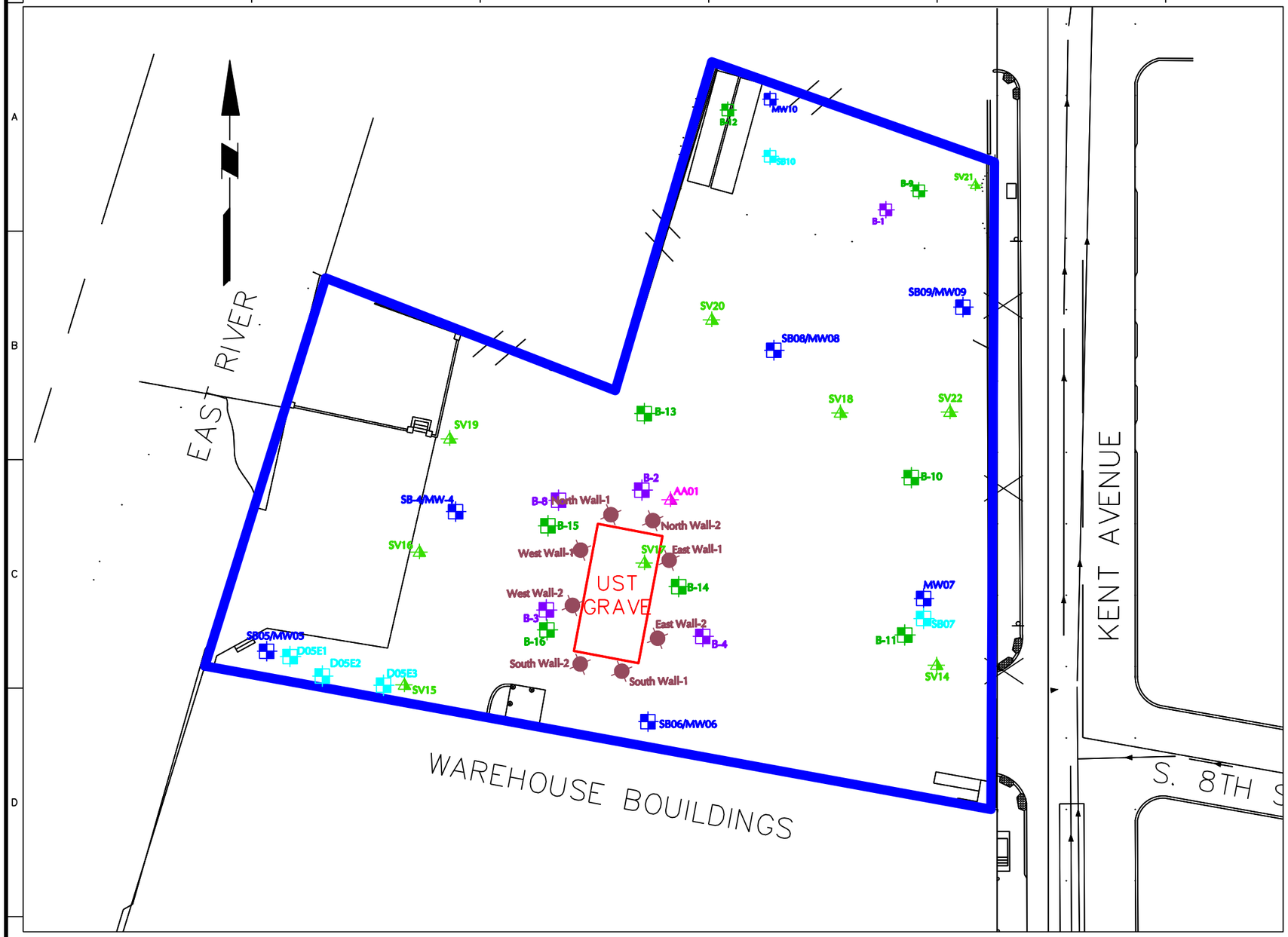
Drawing Title
HISTORICAL SITE AND SURROUNDING PROPERTY USAGE

Project No. 170332901	Drawing No. 4
Date 12/5/2014	
Scale 1" = 50'	
Drawn By JL/MB / Checked By NR	
Submission Date	Sheet 4 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 3 - RIR-Historical Site and Surrounding Property Usage_North Lot_12-22-14.dwg Date: 1/22/2015 Time: 18:48 User: pmcmahon Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- SB-8/MW-8 — SOIL BORING AND MONITORING WELL LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION – LANGAN)
- MW10 — MONITORING WELL LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION – LANGAN)
- D05E1 — SOIL BORING LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION – LANGAN)
- SV-14 — SOIL VAPOR SAMPLE LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION – LANGAN)
- AA01 — AMBIENT AIR SAMPLE LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION – LANGAN)
- B-2 — SOIL BORING AND TEMPORARY MONITORING WELL LOCATION (JULY 2008 PHASE II INVESTIGATION – AES)
- B-9 — SOIL BORING LOCATION (APRIL 2002 PHASE II SITE INVESTIGATION – AKRF)
- North Wall-1 — ENDPOINT SAMPLE LOCATION (OCTOBER 2009 UST CLOSURE – AES)
- FORMER UST LOCATION
- SITE BOUNDARY

NOTES:

1. DRAWING BASED ON OCTOBER 23, 2014 SURVEY BY CND MAPPING, INC.
2. 2014 REMEDIAL INVESTIGATION MONITORING WELL LOCATIONS WERE SURVEYED. 2014 REMEDIAL INVESTIGATION BORING LOCATIONS AND SOIL VAPOR SAMPLE LOCATIONS WERE LOCATED BY FIELD MEASUREMENTS OFF OF SURVEYED STRUCTURES.
3. BORING AND MONITORING WELL LOCATIONS FROM PREVIOUS INVESTIGATIONS ARE APPROXIMATE.

40 0 20 40
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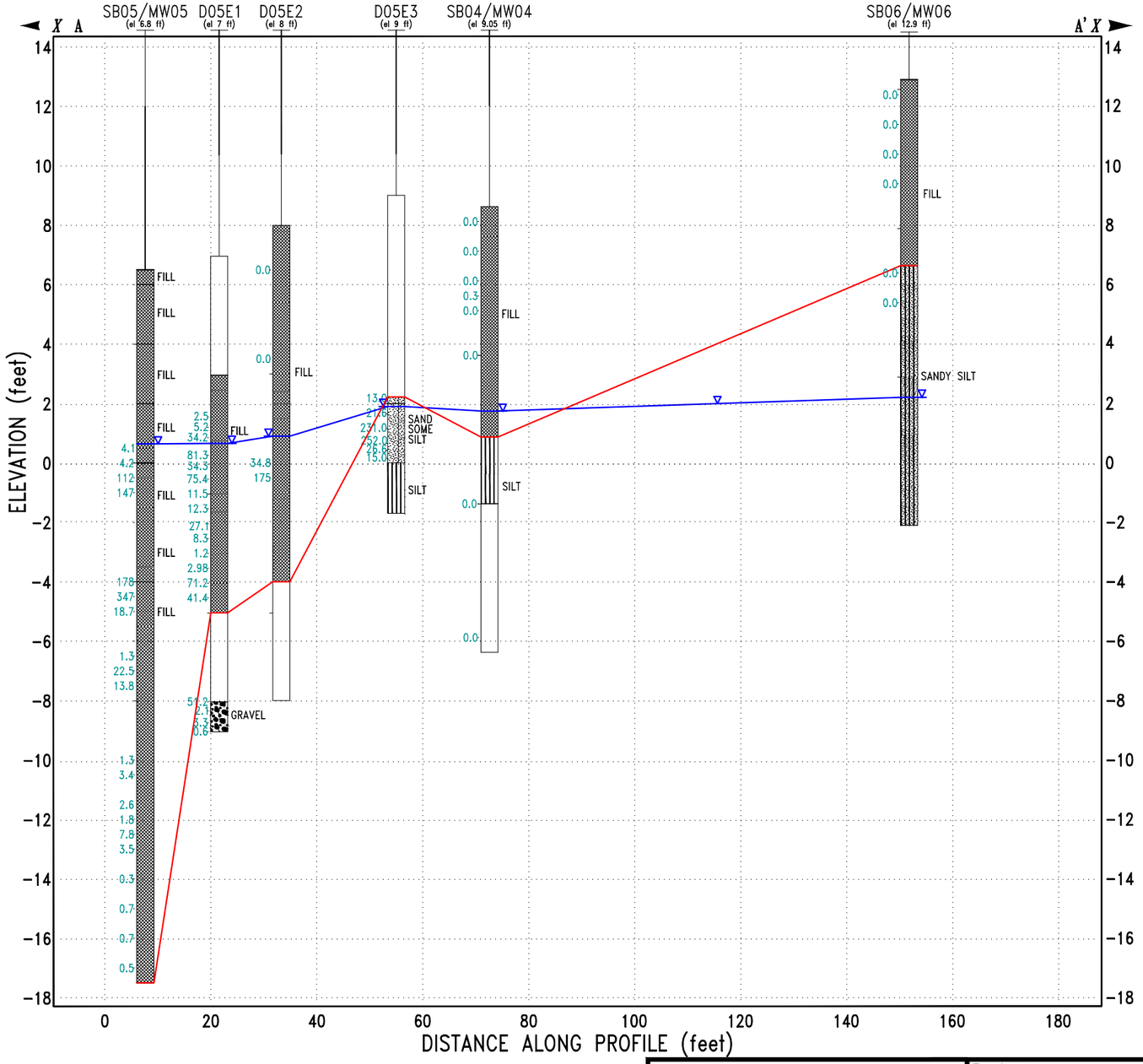
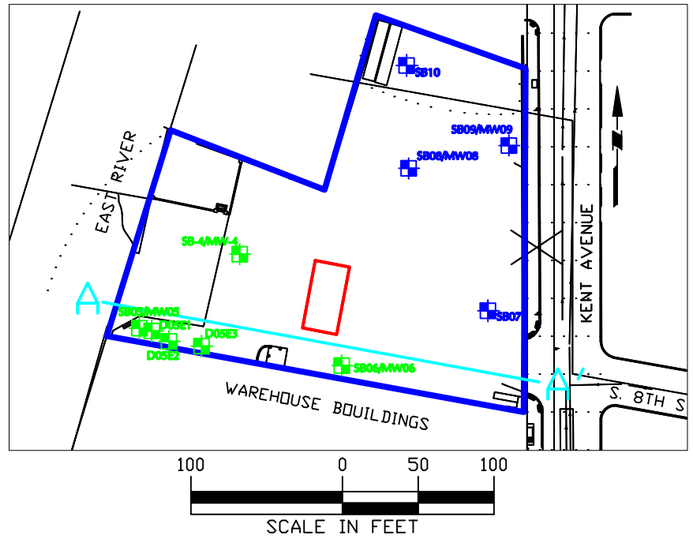
Drawing Title
SITE MAP AND SAMPLE LOCATION PLAN

Project No. 170332901	Drawing No. 5
Date 12/8/2014	
Scale 1" = 40'	
Drawn By MB / Checked By NR	
Submission Date	Sheet 5 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 2 - Site Plan.dwg Date: 2/12/2015 Time: 15:07 User: pmcmahon Style Table: Langan.stb Layout: ANSIB-BL

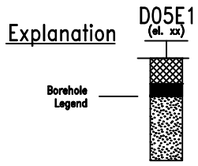




Legend

- Fill
- Gravel
- SAND
- Sand with some silt
- Silt
- Silty sand
- Sandy silt
- No recovery
- Groundwater Elevation
- Bottom of Fill Elevation
- 0.0 PID Reading
- SB04/MW04 Boring shown in subsurface profile A-A'
- SB09/MW09 Boring not shown in subsurface profile

Explanation



Notes

Elevations of borings D05E1, D05E2, and D05E3 are estimated at 9 feet.

Elevations shown are referenced to the North American Vertical Datum of 1988 (NAV1988) as established by GPS methods.

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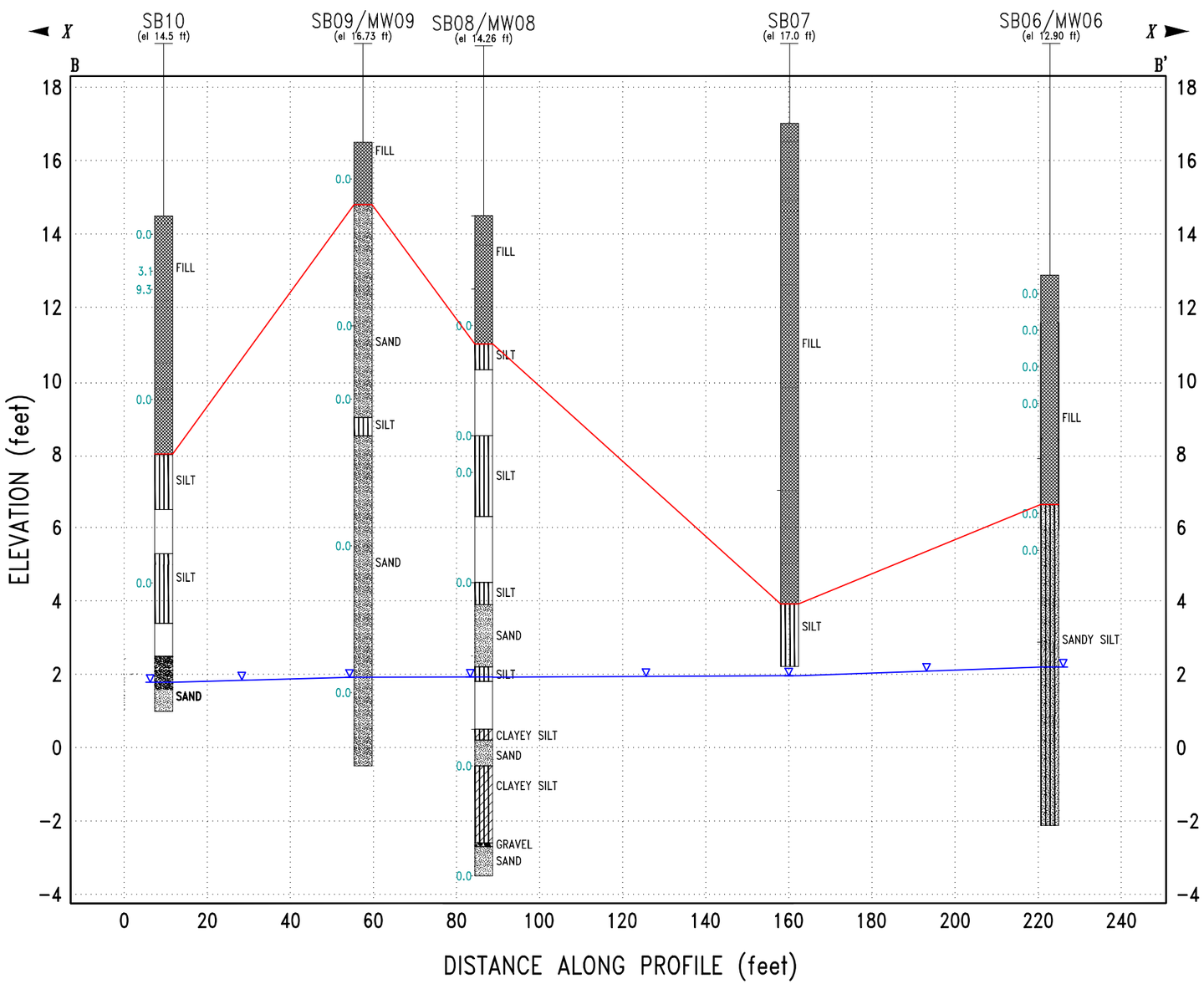
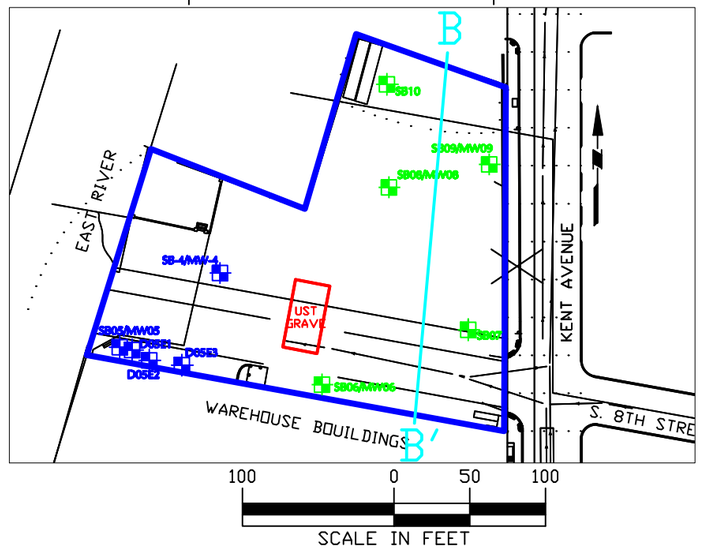
Drawing Title
SUBSURFACE PROFILE A-A'

Project No. 170332901	Drawing No. 6A
Date 1/02/2015	
Scale AS SHOWN	
Drawn By CM / Checked By X	
Submission Date X	Sheet 6 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 5A - Subsurface Profile A-A'.dwg Date: 2/12/2015 Time: 15:20 User: pmcmahon Style Table: Langan.stb Layout: ANSIB-BL





Legend

- Fill
- Sandy silt
- Silt
- SAND
- USCS Silt
- Gravel
- No recovery
- Groundwater Elevation
- Bottom of Fill Elevation
- 0.0 PID Reading
- SB09/MW09 Boring shown in subsurface profile B–B'
- SB05/MW05 Boring not shown in subsurface profile

Explanation SB06/MW06 (el. xx) — Borehole Number (surface elevation); Borehole Legend

Notes

Elevations of borings SB10 AND SB07 are estimated at 17 and 14.5 feet, respectively.
Elevations shown are referenced to the North American Vertical Datum of 1988 (NAV1988) as established by GPS methods.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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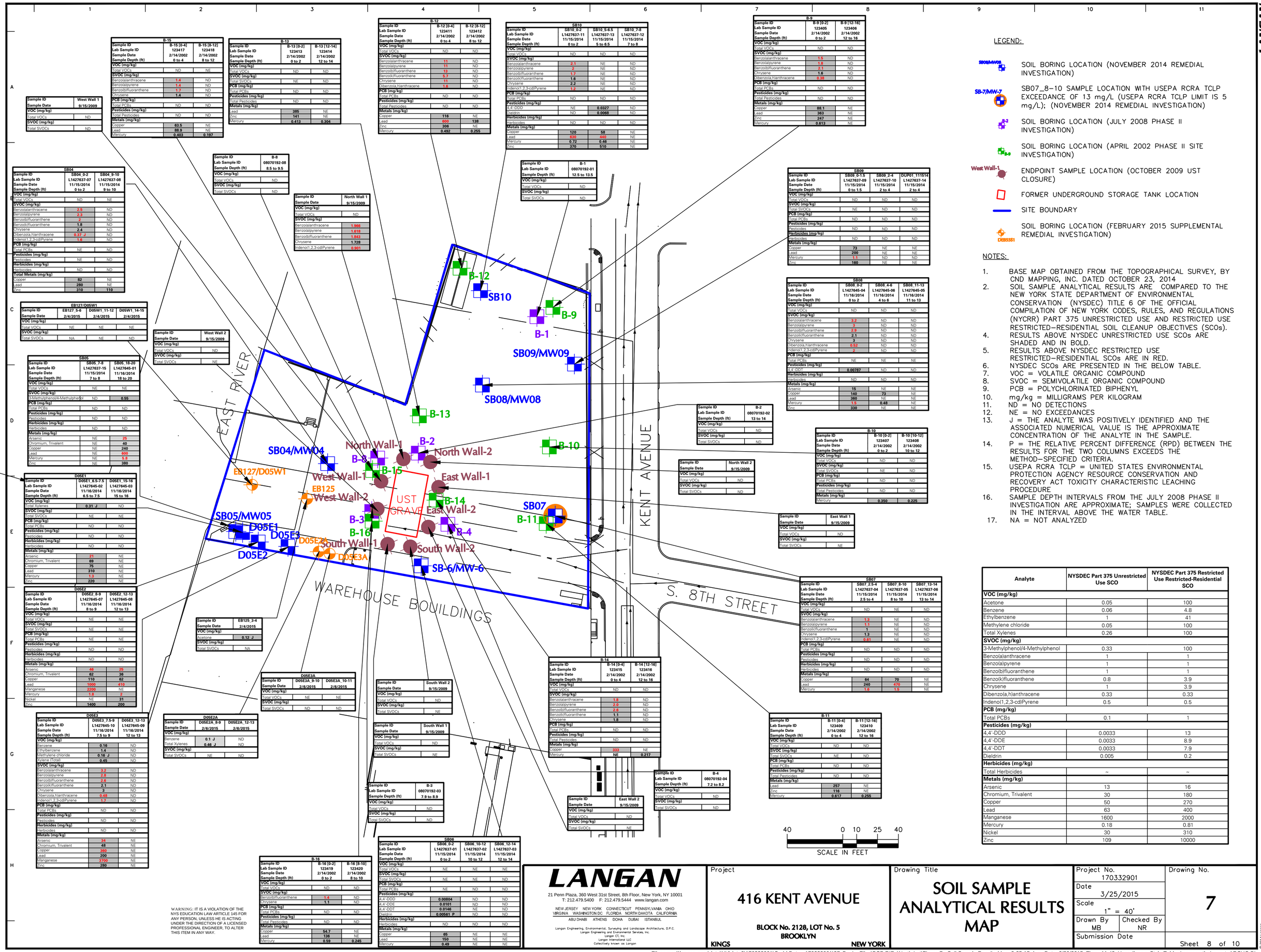
Drawing Title
SUBSURFACE PROFILE B-B'

Project No. 170332901	Drawing No. 6B
Date 1/16/2014	
Scale AS SHOWN	
Drawn By CM / Checked By NR	
Submission Date	Sheet 7 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 5B - Subsurface Profile B-B'.dwg Date: 2/12/2015 Time: 15:30 User: pmcmahon Style Table: Langan.stb Layout: ANSIB-BP



B-15

Sample ID	B-15 [0-4]	B-15 [8-12]
Lab Sample ID	123417	123418
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 4	8 to 12
VOC (mg/kg)		
Total VOCs	ND	NE
SVOC (mg/kg)		
Benzo(a)anthracene	1.4	ND
Benzo(a)pyrene	1.4	ND
Benzo(b)fluoranthene	1.7	ND
Chrysene	1.4	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Copper	63.5	NE
Lead	88.9	NE
Mercury	0.403	0.197

B-13

Sample ID	B-13 [0-2]	B-13 [12-14]
Lab Sample ID	123413	123414
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 2	12 to 14
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Total SVOCs	NE	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Lead	385	NE
Zinc	141	NE
Mercury	0.413	0.304

B-12

Sample ID	B-12 [0-4]	B-12 [8-12]
Lab Sample ID	123411	123412
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 4	8 to 12
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Benzo(a)anthracene	11	ND
Benzo(a)pyrene	11	ND
Benzo(b)fluoranthene	13	ND
Benzo(k)fluoranthene	5.7	ND
Chrysene	11	ND
Dibenzo(a,h)anthracene	1.6	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Copper	116	NE
Lead	600	138
Zinc	306	NE
Mercury	0.492	0.255

SB10

Sample ID	SB10_0-2	SB10_5-6.5	SB10_7-8
Lab Sample ID	L1427637-11	L1427637-13	L1427637-12
Sample Date	11/15/2014	11/15/2014	11/15/2014
Sample Depth (ft)	0 to 2	5 to 6.5	7 to 8
VOC (mg/kg)			
Total VOCs	ND	ND	ND
SVOC (mg/kg)			
Benzo(a)anthracene	2.1	NE	ND
Benzo(a)pyrene	2	NE	ND
Benzo(b)fluoranthene	1.7	NE	ND
Benzo(k)fluoranthene	1.6	NE	ND
Chrysene	2.2	NE	ND
Indeno(1,2,3-cd)Pyrene	1.2	NE	ND
PCB (mg/kg)			
Total PCBs	ND	ND	ND
Pesticides (mg/kg)			
4,4'-DDD	NE	0.0327	ND
Dieldrin	ND	0.0065	ND
Herbicides (mg/kg)			
Herbicides	ND	ND	ND
Metals (mg/kg)			
Copper	120	58	NE
Lead	639	440	NE
Mercury	0.72	0.46	NE
Zinc	370	510	NE

B-9

Sample ID	B-9 [0-2]	B-9 [12-16]
Lab Sample ID	123405	123406
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 2	12 to 16
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Benzo(a)anthracene	1.5	ND
Benzo(a)pyrene	1.8	ND
Benzo(b)fluoranthene	2.1	ND
Chrysene	1.6	ND
Dibenzo(a,h)anthracene	0.38	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Copper	88.1	NE
Lead	363	NE
Zinc	247	NE
Mercury	0.613	NE

SB04

Sample ID	SB04_0-2	SB04_9-10
Lab Sample ID	L1427637-07	L1427637-08
Sample Date	11/15/2014	11/15/2014
Sample Depth (ft)	0 to 2	9 to 10
VOC (mg/kg)		
Total VOCs	ND	NE
SVOC (mg/kg)		
Benzo(a)anthracene	2.5	ND
Benzo(a)pyrene	2.3	ND
Benzo(b)fluoranthene	2	ND
Benzo(k)fluoranthene	1.8	ND
Chrysene	2.4	ND
Dibenzo(a,h)anthracene	0.37 J	ND
Indeno(1,2,3-cd)Pyrene	1.6	ND
PCB (mg/kg)		
Total PCBs	NE	ND
Pesticides (mg/kg)		
Pesticides	NE	ND
Herbicides (mg/kg)		
Herbicides	ND	ND
Total Metals (mg/kg)		
Copper	82	NE
Lead	280	NE
Zinc	310	110

SB09

Sample ID	SB09_0-1.5	SB09_2-4	DUP01_111514
Lab Sample ID	L1427637-09	L1427637-10	L1427637-14
Sample Date	11/15/2014	11/15/2014	11/15/2014
Sample Depth (ft)	0 to 1.5	2 to 4	2 to 4
VOC (mg/kg)			
Total VOCs	ND	ND	ND
SVOC (mg/kg)			
Total SVOCs	NE	ND	ND
PCB (mg/kg)			
Total PCBs	ND	ND	ND
Pesticides (mg/kg)			
Pesticides	ND	ND	ND
Herbicides (mg/kg)			
Herbicides	ND	ND	ND
Metals (mg/kg)			
Copper	73	NE	NE
Lead	200	NE	NE
Mercury	1.1	ND	ND
Zinc	160	NE	NE

SB08

Sample ID	SB08_0-2	SB08_4-6	SB08_11-13
Lab Sample ID	L1427645-04	L1427645-06	L1427645-05
Sample Date	11/16/2014	11/16/2014	11/16/2014
Sample Depth (ft)	0 to 2	4 to 6	11 to 13
VOC (mg/kg)			
Total VOCs	ND	ND	ND
SVOC (mg/kg)			
Benzo(a)anthracene	3.2	ND	ND
Benzo(a)pyrene	3	ND	ND
Benzo(b)fluoranthene	2.9	ND	ND
Benzo(k)fluoranthene	2.1	ND	ND
Chrysene	3	ND	ND
Dibenzo(a,h)anthracene	0.52	ND	ND
Indeno(1,2,3-cd)Pyrene	2	ND	ND
PCB (mg/kg)			
Total PCBs	NE	NE	NE
Pesticides (mg/kg)			
4,4'-DDT	0.00787	ND	ND
Herbicides (mg/kg)			
Herbicides	ND	ND	ND
Metals (mg/kg)			
Arsenic	15	NE	NE
Copper	140	73	NE
Lead	360	NE	NE
Mercury	1.5	0.48	NE
Zinc	330	NE	NE

EB127/D05W1

Sample ID	EB127_5-6	D05W1_11-12	D05W1_14-15
Sample Date	2/4/2015	2/4/2015	2/4/2015
VOC (mg/kg)			
Total VOCs	NE	NE	NE
SVOC (mg/kg)			
Total SVOCs	NA	NE	ND

SB05

Sample ID	SB05_7-8	SB05_18-20
Lab Sample ID	L1427637-15	L1427645-01
Sample Date	11/15/2014	11/16/2014
Sample Depth (ft)	7 to 8	18 to 20
VOC (mg/kg)		
Total VOCs	NE	NE
SVOC (mg/kg)		
3-Methylphenol/4-Methylphenol	ND	0.55
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Pesticides	ND	ND
Herbicides (mg/kg)		
Herbicides	ND	ND
Metals (mg/kg)		
Arsenic	NE	25
Chromium, Trivalent	NE	40
Copper	NE	240
Lead	NE	600
Mercury	NE	5.8
Zinc	NE	380

D05E1

Sample ID	D05E1_6.5-7.5	D05E1_15-16
Lab Sample ID	L1427645-02	L1427645-03
Sample Date	11/16/2014	11/16/2014
Sample Depth (ft)	6.5 to 7.5	15 to 16
VOC (mg/kg)		
Total Xylenes	0.31 J	ND
SVOC (mg/kg)		
Total SVOCs	NE	NE
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Pesticides	ND	ND
Herbicides (mg/kg)		
Herbicides	ND	ND
Metals (mg/kg)		
Arsenic	21	NE
Chromium, Trivalent	69	NE
Copper	75	NE
Lead	310	NE
Mercury	1.3	NE
Zinc	220	NE

D05E2

Sample ID	D05E2_8-9	D05E2_12-13
Lab Sample ID	L1427645-07	L1427645-08
Sample Date	11/16/2014	11/16/2014
Sample Depth (ft)	8 to 9	12 to 13
VOC (mg/kg)		
Total VOCs	NE	NE
SVOC (mg/kg)		
Total SVOCs	NE	NE
PCB (mg/kg)		
Total PCBs	NE	NE
Pesticides (mg/kg)		
Pesticides	ND	ND
Herbicides (mg/kg)		
Herbicides	ND	ND
Metals (mg/kg)		
Arsenic	46	25
Chromium, Trivalent	62	36
Copper	110	62
Lead	1000	410
Manganese	2200	NE
Mercury	1.8	2
Nickel	NE	31
Zinc	1400	200

D05E3

Sample ID	D05E3_7.5-9	D05E3_12-13
Lab Sample ID	L1427645-10	L1427645-09
Sample Date	11/16/2014	11/16/2014
Sample Depth (ft)	7.5 to 9	12 to 13
VOC (mg/kg)		
Benzene	0.16	ND
Ethylbenzene	1.4	ND
Methylene chloride	0.16 J	ND
Xylene (Total)	0.65	ND
SVOC (mg/kg)		
Benzo(a)anthracene	3.2	ND
Benzo(a)pyrene	2.8	ND
Benzo(b)fluoranthene	2.6	ND
Benzo(k)fluoranthene	2.1	ND
Chrysene	3	ND
Dibenzo(a,h)anthracene	0.48	ND
Indeno(1,2,3-cd)Pyrene	1.7	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Pesticides	ND	ND
Herbicides (mg/kg)		
Herbicides	ND	ND
Metals (mg/kg)		
Arsenic	34	NE
Chromium, Trivalent	48	NE
Copper	380	NE
Lead	200	NE
Manganese	3700	NE
Zinc	280	NE

B-16

Sample ID	B-16 [0-2]	B-16 [8-10]
Lab Sample ID	123419	123420
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 2	8 to 10
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Benzo(b)fluoranthene	1.4	ND
Chrysene	1.1	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Copper	54.7	NE
Lead	136	NE
Mercury	0.59	0.245

SB06

Sample ID	SB06_0-2	SB06_10-12	SB06_12-14
Lab Sample ID	L1427637-01	L1427637-02	L1427637-03
Sample Date	11/15/2014	11/15/2014	11/15/2014
Sample Depth (ft)	0 to 2	10 to 12	12 to 14
VOC (mg/kg)			
Total VOCs	NE	NE	NE
SVOC (mg/kg)			
Total SVOCs	NE	NE	ND
PCB (mg/kg)			
Total PCBs	NE	ND	ND
Pesticides (mg/kg)			
4,4'-DDD	0.00804	ND	ND
4,4'-DDE	0.0101	ND	ND
4,4'-DDT	0.0146	NE	ND
Dieldrin	0.00561 P	ND	ND
Herbicides (mg/kg)			
Herbicides	ND	ND	ND
Metals (mg/kg)			
Copper	65	NE	NE
Lead	150	NE	NE
Mercury	0.49	NE	NE

B-14

Sample ID	B-14 [0-4]	B-14 [12-16]
Lab Sample ID	123415	123416
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 4	12 to 16
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Benzo(a)anthracene	1.8	ND
Benzo(a)pyrene	2.0	ND
Benzo(b)fluoranthene	2.6	ND
Benzo(k)fluoranthene	1.1	ND
Chrysene	1.8	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Copper	333	NE
Mercury	NE	0.217

B-11

Sample ID	B-11 [0-4]	B-11 [12-16]
Lab Sample ID	123409	123410
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 4	12 to 16
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Total SVOCs	NE	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Lead	257	NE
Zinc	116	NE
Mercury	0.617	0.255

B-10

Sample ID	B-10 [0-2]	B-10 [10-12]
Lab Sample ID	123407	123408
Sample Date	2/14/2002	2/14/2002
Sample Depth (ft)	0 to 2	10 to 12
VOC (mg/kg)		
Total VOCs	ND	ND
SVOC (mg/kg)		
Total SVOCs	NE	ND
PCB (mg/kg)		
Total PCBs	ND	ND
Pesticides (mg/kg)		
Total Pesticides	ND	ND
Metals (mg/kg)		
Mercury	0.350	0.225

SB07

Sample ID	SB07_2.5-4	SB07_8-10	SB07_13-14
Lab Sample ID	L1427637-04	L1427637-05	L1427637-06
Sample Date	11/15/2014	11/15/2014	11/15/2014
Sample Depth (ft)	2.5 to 4	8 to 10	13 to 14
VOC (mg/kg)			
Total VOCs	ND	NE	ND
SVOC (mg/kg)			
Benzo(a)anthracene	1.3	NE	ND
Benzo(a)pyrene	1.1	NE	ND
Benzo(k)fluoranthene	1	NE	ND
Chrysene	1.3	NE	ND
Indeno(1,2,3-cd)Pyrene	0.61	NE	ND
PCB (mg/kg)			
Total PCBs	ND	ND	ND
Pesticides (mg/kg)			
Pesticides	ND	ND	ND
Herbicides (mg/kg)			
Herbicides	ND	ND	ND
Metals (mg/kg)			
Copper	64	70	NE
Lead	240	470	NE
Mercury	1.4	1.5	NE

Sample ID	B-1
Lab Sample ID	08070192-01
Sample Depth (ft)	12.5 to 13.5
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	B-2
Lab Sample ID	08070192-02
Sample Depth (ft)	13 to 14
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	B-3
Lab Sample ID	08070192-03
Sample Depth (ft)	7.9 to 8.9
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	B-4
Lab Sample ID	08070192-04
Sample Depth (ft)	7.2 to 8.2
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	B-8
Lab Sample ID	08070192-08
Sample Depth (ft)	8.5 to 9.5
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	North Wall 1
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Benzo(a)anthracene	1.966
Benzo(a)pyrene	1.618
Benzo(b)fluoranthene	1.843
Chrysene	1.728
Indeno(1,2,3-cd)Pyrene	0.901

Sample ID	West Wall 1
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	West Wall 2
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	NE

Sample ID	North Wall 2
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

Sample ID	East Wall 1
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	NE

Sample ID	East Wall 2
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	NE

Sample ID	South Wall 1
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	NE

Sample ID	South Wall 2
Sample Date	9/15/2009
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	NE

D05E2A

Sample ID	D05E2A_8-9	D05E2A_12-13
Sample Date	2/6/2015	2/6/2015
VOC (mg/kg)		
Benzene	0.1 J	ND
Total Xylenes	0.46 J	ND
SVOC (mg/kg)		
Total SVOCs	NE	ND

D05E3A

Sample ID	D05E3A_9-10	D05E3A_10-11
Sample Date	2/6/2015	2/6/2015
VOC (mg/kg)		
Total VOCs	NE	NE
SVOC (mg/kg)		
Total SVOCs	ND	ND

Sample ID	EB125_3-4
Sample Date	2/4/2015
VOC (mg/kg)	
Acetone	0.12 J
SVOC (mg/kg)	
Total SVOCs	NA

LEGEND:

- SB08/MW08 — SOIL BORING LOCATION (NOVEMBER 2014 REMEDIAL INVESTIGATION)
- SB-7/MW-7 — SB07_8-10 SAMPLE LOCATION WITH USEPA RCRA TCLP EXCEEDANCE OF 13 mg/L (USEPA RCRA TCLP LIMIT IS 5 mg/L); (NOVEMBER 2014 REMEDIAL INVESTIGATION)
- B-2 — SOIL BORING LOCATION (JULY 2008 PHASE II INVESTIGATION)
- B-9 — SOIL BORING LOCATION (APRIL 2002 PHASE II SITE INVESTIGATION)
- West Wall-1 — ENDPOINT SAMPLE LOCATION (OCTOBER 2009 UST CLOSURE)
- FORMER UNDERGROUND STORAGE TANK LOCATION
- SITE BOUNDARY
- DEB5351 — SOIL BORING LOCATION (FEBRUARY 2015 SUPPLEMENTAL REMEDIAL INVESTIGATION)

NOTES:

1. BASE MAP OBTAINED FROM THE TOPOGRAPHICAL SURVEY, BY CND MAPPING, INC. DATED OCTOBER 23, 2014
2. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE AND RESTRICTED USE RESTRICTED–RESIDENTIAL SOIL CLEANUP OBJECTIVES (SCOs).
4. RESULTS ABOVE NYSDEC UNRESTRICTED USE SCOs ARE SHADED AND IN BOLD.
5. RESULTS ABOVE NYSDEC RESTRICTED USE RESTRICTED–RESIDENTIAL SCOs ARE IN RED.
6. NYSDEC SCOs ARE PRESENTED IN THE BELOW TABLE.
7. VOC = VOLATILE ORGANIC COMPOUND
8. SVOC = SEMIVOLATILE ORGANIC COMPOUND
9. PCB = POLYCHLORINATED BIPHENYL
10. mg/kg = MILLIGRAMS PER KILOGRAM
11. ND = NO DETECTIONS
12. NE = NO EXCEEDANCES
13. J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
14. P = THE RELATIVE PERCENT DIFFERENCE (RPD) BETWEEN THE RESULTS FOR THE TWO COLUMNS EXCEEDS THE METHOD–SPECIFIED CRITERIA.
15. USEPA RCRA TCLP = UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RESOURCE CONSERVATION AND RECOVERY ACT TOXICITY CHARACTERISTIC LEACHING PROCEDURE
16. SAMPLE DEPTH INTERVALS FROM THE JULY 2008 PHASE II INVESTIGATION ARE APPROXIMATE; SAMPLES WERE COLLECTED IN THE INTERVAL ABOVE THE WATER TABLE.
17. NA = NOT ANALYZED

Analyte	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Use Restricted-Residential SCO
VOC (mg/kg)		
Acetone	0.05	100
Benzene	0.06	4.8
Ethylbenzene	1	41
Methylene chloride	0.05	100
Total Xylenes	0.26	100
SVOC (mg/kg)		
3-Methylphenol/4-Methylphenol	0.33	100
Benzo(a)anthracene	1	1
Benzo(a)pyrene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	0.8	3.9
Chrysene	1	3.9
Dibenzo(a,h)anthracene	0.33	0.33
Indeno(1,2,3-cd)Pyrene	0.5	0.5
PCB (mg/kg)		
Total PCBs	0.1	1
Pesticides (mg/kg)		
4,4'-DDD	0.0033	13
4,4'-DDE	0.0033	8.9
4,4'-DDT	0.0033	7.9
Dieldrin	0.005	0.2
Herbicides (mg/kg)		
Total Herbicides	~	~
Metals (mg/kg)		
Arsenic	13	16
Chromium, Trivalent	30	180
Copper	50	270
Lead	63	400
Manganese	1600	2000
Mercury	0.18	0.81
Nickel	30	310
Zinc	109	10000

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

LANGAN

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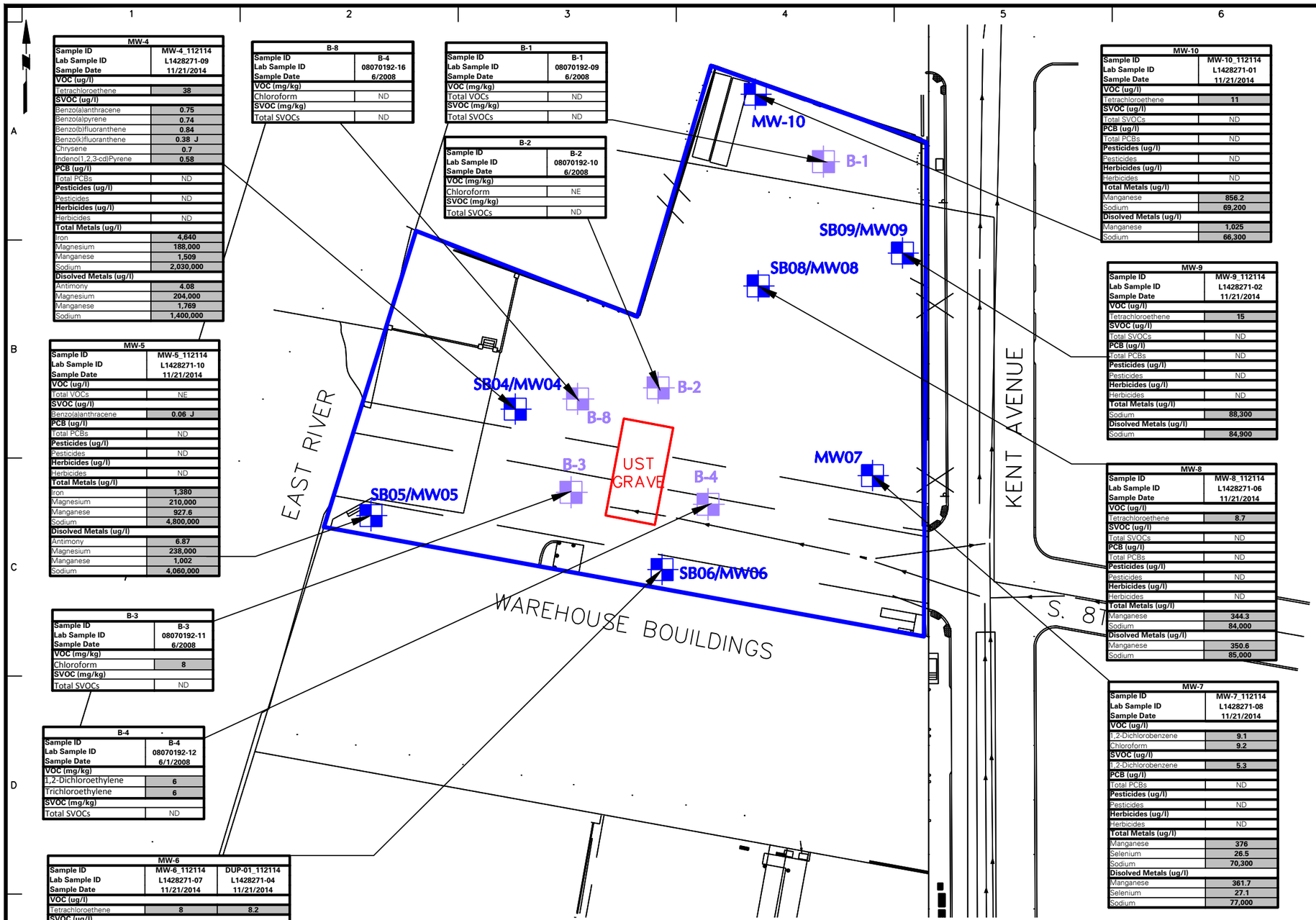
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project: 416 KENT AVENUE
BLOCK No. 2128, LOT No. 5
BROOKLYN
KINGS NEW YORK

Drawing Title: SOIL SAMPLE ANALYTICAL RESULTS MAP

Project No. 170332901	Drawing No. 7
Date 3/25/2015	
Scale 1" = 40'	
Drawn By MB / Checked By NR	
Submission Date	Sheet 8 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 7 - Soil Sample Results Map_3-25-15.dwg Date: 3/30/2015 Time: 11:43 User: jleung Style Table: Langan.stb Layout: ARCHC-BL



MW-4	
Sample ID	MW-4_112114
Lab Sample ID	L1428271-09
Sample Date	11/21/2014
VOC (ug/l)	
Tetrachloroethene	38
SVOC (ug/l)	
Benzo(a)anthracene	0.75
Benzo(a)pyrene	0.74
Benzo(b)fluoranthene	0.84
Benzo(k)fluoranthene	0.38 J
Chrysene	0.7
Indeno(1,2,3-cd)Pyrene	0.58
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Iron	4,640
Magnesium	188,000
Manganese	1,509
Sodium	2,030,000
Disolved Metals (ug/l)	
Antimony	4.08
Magnesium	204,000
Manganese	1,769
Sodium	1,400,000

MW-5	
Sample ID	MW-5_112114
Lab Sample ID	L1428271-10
Sample Date	11/21/2014
VOC (ug/l)	
Total VOCs	NE
SVOC (ug/l)	
Benzo(a)anthracene	0.06 J
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Iron	1,380
Magnesium	210,000
Manganese	927.6
Sodium	4,800,000
Disolved Metals (ug/l)	
Antimony	6.87
Magnesium	238,000
Manganese	1,002
Sodium	4,060,000

B-3	
Sample ID	B-3
Lab Sample ID	08070192-11
Sample Date	6/2008
VOC (mg/kg)	
Chloroform	8
SVOC (mg/kg)	
Total SVOCs	ND

B-4	
Sample ID	B-4
Lab Sample ID	08070192-12
Sample Date	6/1/2008
VOC (mg/kg)	
1,2-Dichloroethylene	6
Trichloroethylene	6
SVOC (mg/kg)	
Total SVOCs	ND

MW-6		
Sample ID	MW-6_112114	DUP-01_112114
Lab Sample ID	L1428271-07	L1428271-04
Sample Date	11/21/2014	11/21/2014
VOC (ug/l)		
Tetrachloroethene	8	8.2
SVOC (ug/l)		
Total SVOCs	NE	NE
PCB (ug/l)		
Total PCBs	ND	ND
Pesticides (ug/l)		
Pesticides	ND	ND
Herbicides (ug/l)		
Herbicides	ND	ND
Total Metals (ug/l)		
Iron	13,000	12,700
Manganese	8,192	7,828
Sodium	324,000	311,000
Disolved Metals (ug/l)		
Iron	9,260	9,090
Manganese	9,284	9,380
Sodium	364,000	366,000

B-8	
Sample ID	B-8
Lab Sample ID	08070192-16
Sample Date	6/2008
VOC (mg/kg)	
Chloroform	ND
SVOC (mg/kg)	
Total SVOCs	ND

B-1	
Sample ID	B-1
Lab Sample ID	08070192-09
Sample Date	6/2008
VOC (mg/kg)	
Total VOCs	ND
SVOC (mg/kg)	
Total SVOCs	ND

B-2	
Sample ID	B-2
Lab Sample ID	08070192-10
Sample Date	6/2008
VOC (mg/kg)	
Chloroform	NE
SVOC (mg/kg)	
Total SVOCs	ND

MW-10	
Sample ID	MW-10_112114
Lab Sample ID	L1428271-01
Sample Date	11/21/2014
VOC (ug/l)	
Tetrachloroethene	11
SVOC (ug/l)	
Total SVOCs	ND
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Manganese	856.2
Sodium	69,200
Disolved Metals (ug/l)	
Manganese	1,025
Sodium	66,300

MW-9	
Sample ID	MW-9_112114
Lab Sample ID	L1428271-02
Sample Date	11/21/2014
VOC (ug/l)	
Tetrachloroethene	15
SVOC (ug/l)	
Total SVOCs	ND
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Sodium	88,300
Disolved Metals (ug/l)	
Sodium	84,900

MW-8	
Sample ID	MW-8_112114
Lab Sample ID	L1428271-06
Sample Date	11/21/2014
VOC (ug/l)	
Tetrachloroethene	8.7
SVOC (ug/l)	
Total SVOCs	ND
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Manganese	344.3
Sodium	84,000
Disolved Metals (ug/l)	
Manganese	350.6
Sodium	85,000

MW-7	
Sample ID	MW-7_112114
Lab Sample ID	L1428271-08
Sample Date	11/21/2014
VOC (ug/l)	
1,2-Dichlorobenzene	9.1
Chloroform	9.2
SVOC (ug/l)	
1,2-Dichlorobenzene	5.3
PCB (ug/l)	
Total PCBs	ND
Pesticides (ug/l)	
Pesticides	ND
Herbicides (ug/l)	
Herbicides	ND
Total Metals (ug/l)	
Manganese	376
Selenium	26.5
Sodium	70,300
Disolved Metals (ug/l)	
Manganese	361.7
Selenium	27.1
Sodium	77,000

LEGEND:

- 2014 REMEDIAL INVESTIGATION MONITORING WELL LOCATION
- 2008 PHASE II INVESTIGATION MONITORING WELL LOCATION
- FORMER UNDERGROUND STORAGE TANK LOCATION
- SITE BOUNDARY

NOTES:

1. BASE MAP OBTAINED FROM THE TOPOGRAPHICAL SURVEY, BY CND MAPPING, INC. DATED OCTOBER 23, 2014.
2. THE REMEDIAL INVESTIGATION (RI) WAS CONDUCTED BY LANGAN FROM NOVEMBER 14–16 AND ON NOVEMBER 21, 2014.
3. THE 2008 PHASE II INVESTIGATION WAS CONDUCTED BY ASSOCIATED ENVIRONMENTAL SERVICES, LTD. FROM JUNE 23–25, 2008.
3. GROUNDWATER SAMPLES ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS) 1.1.1 AMBIENT WATER QUALITY STANDARDS (AWQS) AND GUIDANCE VALUES FOR DRINKING WATER (CLASS GA).
4. RESULTS ABOVE NYSDEC TOGS AWQS AND GUIDANCE VALUES ARE HIGHLIGHTED AND BOLDED.
5. NYSDEC TOGS AWQS AND GUIDANCE VALUES ARE PRESENTED IN THE BELOW TABLE.
6. VOC = VOLATILE ORGANIC COMPOUND
7. SVOC = SEMIVOLATILE ORGANIC COMPOUND
8. PCB = POLYCHLORINATED BIPHENYL
9. ug/l = MICROGRAMS PER LITER
10. ND = NO DETECTIONS
11. NE = NO EXCEEDANCES
12. J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.

Analyte	NYSDEC TOGS 1.1.1 AWQS
VOC (ug/l)	
1,2-Dichlorobenzene	3
1,2-Dichloroethylene	5
Chloroform	7
Tetrachloroethene	5
Trichloroethylene	5
SVOC (ug/l)	
1,2-Dichlorobenzene	3
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0.002
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)Pyrene	0.002
Metals (ug/l)	
Antimony	3
Iron	300
Magnesium	35,000
Manganese	300
Selenium	10
Sodium	20,000

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SCALE IN FEET

LANGAN
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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
416 KENT AVE
BLOCK No. 2128, LOT No. 5
BROOKLYN
KINGS NEW YORK

Drawing Title
GROUNDWATER SAMPLE ANALYTICAL RESULTS MAP

Project No. 170332901
Date 12/10/2014
Scale 1" = 50'
Drawn By JL/MB | Checked By NR
Submission Date

Drawing No. 8
Sheet 9 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 8 - GW Sample Location Map_12-29-14.dwg Date: 1/23/2015 Time: 13:53 User: pmcmahon Style Table: Langan.stb Layout: GW

SV-20	
Sample ID	**SV-19_111514**
Lab Sample ID	**L1427643-08**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	6.44
Carbon tetrachloride	ND
Tetrachloroethene	25.9
Trichloroethane	ND

SV-21	
Sample ID	**SV-21_111514**
Lab Sample ID	**L1427649-02**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	1.13
Carbon tetrachloride	ND
Tetrachloroethene	23.9
Trichloroethane	5.08

SV-19	
Sample ID	**SV-19_111514**
Lab Sample ID	**L1427643-08**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	16.8
Carbon tetrachloride	ND
Tetrachloroethene	4.33
Trichloroethane	ND

SV-16	
Sample ID	**SV-16_111514**
Lab Sample ID	**L1427643-06**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	ND
Carbon tetrachloride	ND
Tetrachloroethene	ND
Trichloroethane	ND

SV-17	
Sample ID	**SV-17_111514**
Lab Sample ID	**L1427649-06**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	5.45
Carbon tetrachloride	ND
Tetrachloroethene	4.94
Trichloroethane	ND

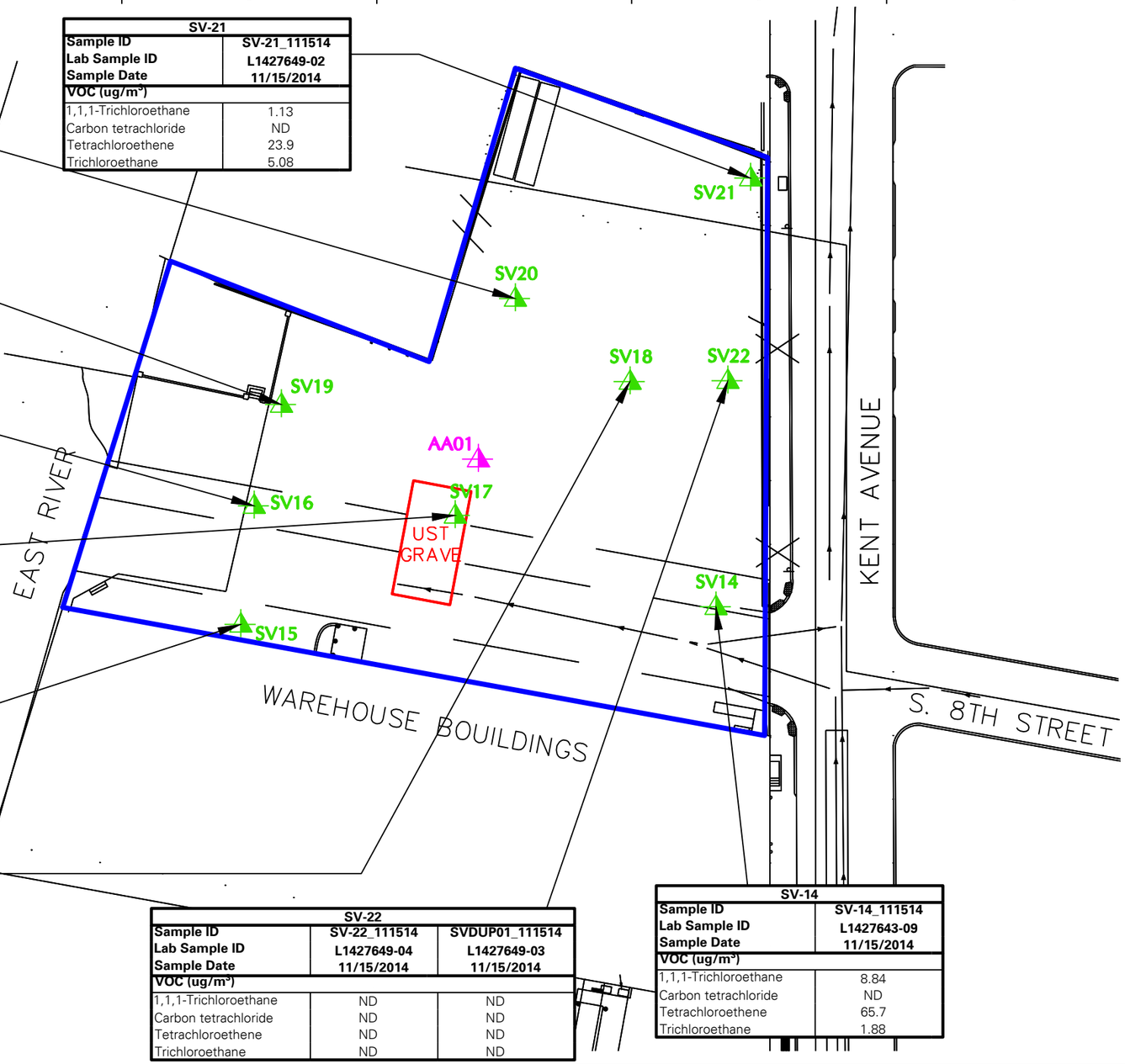
SV-15	
Sample ID	**SV-15_111514**
Lab Sample ID	**L1427643-07**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	ND
Carbon tetrachloride	ND
Tetrachloroethene	6.78
Trichloroethane	ND

SV-18	
Sample ID	**SV-18_111514**
Lab Sample ID	**L1427649-01**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	4.85
Carbon tetrachloride	ND
Tetrachloroethene	ND
Trichloroethane	ND

SV-22		
Sample ID	**SV-22_111514**	**SVDUP01_111514**
Lab Sample ID	**L1427649-04**	**L1427649-03**
Sample Date	**11/15/2014**	**11/15/2014**
VOC (ug/m³)		
1,1,1-Trichloroethane	ND	ND
Carbon tetrachloride	ND	ND
Tetrachloroethene	ND	ND
Trichloroethane	ND	ND

SV-14	
Sample ID	**SV-14_111514**
Lab Sample ID	**L1427643-09**
Sample Date	**11/15/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	8.84
Carbon tetrachloride	ND
Tetrachloroethene	65.7
Trichloroethane	1.88

AA01	
Sample ID	**AA01_111614**
Lab Sample ID	**L1427643-01**
Sample Date	**11/16/2014**
VOC (ug/m³)	
1,1,1-Trichloroethane	ND
Carbon tetrachloride	ND
Tetrachloroethene	ND
Trichloroethane	ND



LEGEND:

- SV18 — SOIL VAPOR SAMPLE LOCATION
- AA01 — AMBIENT AIR SAMPLE LOCATION
- FORMER UNDERGROUND STORAGE TANK LOCATION
- SITE BOUNDARY

NOTES:

1. BASE MAP OBTAINED FROM THE TOPOGRAPHICAL SURVEY, BY CND MAPPING, INC. DATED OCTOBER 23, 2014.
2. THE REMEDIAL INVESTIGATION (RI) WAS CONDUCTED BY LANGAN FROM NOVEMBER 15–16, 2014.
3. SOIL VAPOR SAMPLES ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH) SOIL VAPOR DECISION MATRICES
4. VOC = VOLATILE ORGANIC COMPOUND
5. ug/m3 = MICROGRAMS PER CUBIC METER
6. ND = NO DETECTION

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SCALE IN FEET

LANGAN
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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
416 KENT AVE
BLOCK No. 2128, LOT No. 5
BROOKLYN
KINGS **NEW YORK**

Drawing Title
SOIL VAPOR SAMPLE ANALYTICAL RESULTS MAP

Project No.	Drawing No.
170332901	9
Date: 3/27/2015	
Scale: 1" = 50'	
Drawn By: MB / Checked By: NR	
Submission Date	Sheet 10 of 10

Filename: \\langan.com\data\NY\data9\170332901\Cadd Data - 170332901\2D-DesignFiles\BCP RIRs\North Lot\Figure 9. Soil Vapor Sample Location Map_3.27.15.dwg Date: 3/27/2015 Time: 15:48 User: jleung Style Table: Langan.stb Layout: Soil Vapor

Tables

Table 1
Sample Summary for 2014 Remedial Investigation
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Sample Location	Sample ID	Sample Depth (ft bgs)	Sample Date	Sample Analysis	Sample Rationale
SOIL					
SB04	SB04_0-2	0 to 2	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Surface Sample
	SB04_9-10	9 to 10	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
SB05	SB05_7-8	7 to 8	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Staining/Odor/Elevated PID Readings
	SB05_18-20	18 to 20	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Bottom of Observed Impacts
SB06	SB06_0-2	0 to 2	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Surface Sample
	SB06_10-12	10 to 12	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Development Depth
	SB06_12-14	12 to 14	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
SB07	SB07_2.5-4	2.5 to 4	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Historic Fill
	SB07_8-10	8 to 10	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Deep Historic Fill
	SB07_13-14	13 to 14	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
SB08	SB08_0-2	0 to 2	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Surface Sample
	SB08_4-6	4 to 6	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
	SB08_11-13	11 to 13	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Development Depth
SB09	SB09_0-1.5	0 to 1.5	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Surface Sample
	SB09_2-4	2 to 4	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
SB10	SB10_0-2	0 to 2	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Surface Sample
	SB10_5-6.5	5 to 6.5	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Deep Historic Fill
	SB10_7-8 & MS/MSD	7 to 8	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Top of Native Layer
D05E1	D05E1_6.5-7.5	6.5 to 7.5	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Staining/Odor/Elevated PID Readings
	D05E1_15-16	15 to 16	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Bottom of Observed Impacts
D05E2	D05E2_8-9	8 to 9	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Staining/Odor/Elevated PID Readings
	D05E2_12-13	12 to 13	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Bottom of Observed Impacts
D05E3	D05E3_7.5-9	7.5 to 9	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Staining/Odor/Elevated PID Readings
	D05E3_12-13	12 to 13	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN, TCLP-RCRA8	Bottom of Observed Impacts
D05E2A	D05E2A_8-9	8 to 9	2/6/2015	Part 375/TCL VOCs and SVOCs	Staining/Odor/Elevated PID Readings
	D05E2A_12-13	12 to 13	2/6/2015	Part 375/TCL VOCs and SVOCs	Bottom of Observed Impacts
D05E3A	D05E3A_8-9	8 to 9	2/6/2015	Part 375/TCL VOCs and SVOCs	Staining/Odor/Elevated PID Readings
	D05E3A_10-11	10 to 11	2/6/2015	Part 375/TCL VOCs and SVOCs	Bottom of Observed Impacts
EB125	EB125_3-4	3 to 4	2/4/2015	Part 375/TCL VOCs	Surface Sample
EB127	EB127_5-6	5 to 6	2/4/2015	Part 375/TCL VOCs	Surface Sample
D05W1	D05W1_11-12	11 to 12	2/4/2015	Part 375/TCL VOCs and SVOCs	Staining/Odor/Elevated PID Readings
	D05W1_14-15	14 to 15	2/4/2015	Part 375/TCL VOCs and SVOCs	Bottom of Observed Impacts

Notes:

1. NA = Not Applicable
2. VOCs = Volatile organic compounds
3. SVOCs = Semivolatile organic compounds
4. TAL = Target Analyte List
5. TCL = Target Compound List
6. PCB = Polychlorinated Biphenyls
7. TCN = Total Cyanide
8. ft bgs = feet below ground surface
9. Samples analyzed against NYSDEC 6 NYCRR Part 375 Remedial Soil Cleanup Objectives for commercial use

Table 1
Sample Summary for 2014 Remedial Investigation
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Sample Location	Sample ID	Sample Depth (ft bgs)	Sample Date	Sample Analysis	Sample Rationale
Groundwater					
MW-4	MW-4_112114	5 to 15	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Down gradient of former tank grave
MW-5	MW-5_112114	5 to 15	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Down gradient of former tank grave
MW-6	MW-6_112114	8 to 18	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Determine extent of GW impacts
MW-7	MW-7_112114	10 to 20	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Investigate off-Site impacts
MW-8	MW-8_112114	10 to 20	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Determine extent of GW impacts
MW-9	MW-9_112114	12 to 22	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Investigate off-Site impacts
MW-10	MW-10_112114	12 to 22	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Investigate off-Site impacts
MW-10	MW-12_020615	7.5-17.5	2/6/2015	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	Location of former tank grave
Soil Vapor					
SV-14	SV-14_111514	5	11/15/2014	TO-15 VOCs	Evaluate potential for offsite impacts
SV-15	SV-15_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-16	SV-16_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-17	SV-17_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-18	SV-18_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-19	SV-19_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-20	SV-20_111514	5	11/15/2014	TO-15 VOCs	Determine extent of soil vapor impacts
SV-21	SV-21_111514	5	11/15/2014	TO-15 VOCs	Evaluate potential for offsite impacts
SV-22	SV-22_111514	5	11/15/2014	TO-15 VOCs	Evaluate potential for offsite impacts
Soil Quality Assurance/ Quality Control					
SB09	DUP01_111514	2 to 4	11/15/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN	NA
Soil Trip Blank	TB01_111614	N/A	11/16/2014	Part 375/TCL VOCs	NA
Soil Field Blank	FB01_111614	N/A	11/16/2014	Part 375/TCL VOCs, SVOCs,TAL Metals, Pesticides, PCB, Herbicides, Chromium III, Chromium VI, TCN	NA
Groundwater Quality Assurance/ Quality Control					
MW-6	DUP-01_112114	8 to 18	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	NA
Soil Trip Blank	TB01_112114	NA	11/21/2014	Part 375 VOCs	NA
Soil Field Blank	FB01_112114	NA	11/21/2014	Part 375 VOCs, SVOCs, Pesticides, PCB, Herbicides, Total Metals and Dissolved Metals,	NA
Soil Vapor Quality Assurance/ Quality Control					
SV-22	SVDUP01	5	11/15/2014	TO-15 VOCs	NA
AA01	AA01_111614	NA	11/16/2014	TO-15 VOCs	NA

Notes:

1. NA = Not Applicable
2. VOCs = Volatile organic compounds
3. SVOCs = Semivolatile organic compounds
4. TAL = Target Analyte List
5. TCL = Target Compound List
6. PCB = Polychlorinated Biphenyls
7. TCN = Total Cyanide
8. ft bgs = feet below ground surface
9. Samples analyzed against NYSDEC 6 NYCRR Part 375 Remedial Soil Cleanup Objectives for commercial use
10. DUP01_111514 parent sample is SB09_2-4
11. DUP01_111214 parent sample is MW6_111214
12. SVDUP01 parent sample is SV22_111514

Table 2
Monitoring Well Construction Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Monitoring Well ID	Installation Date	Equipment Used	Assoicated Soil Boring	Well Diameter (inches)	Total Depth (feet bgs)	Screened Interval (feet bgs)	Screen Length (feet)	Screen Material	Riser Interval (feet bgs)	Riser Material	Sand Pack Interval (feet bgs)	Bentonite Seal Interval (feet bgs)	Casing Depth (feet bgs)	Casing Elevation (feet)
MW04	11/15/2014	Geoprobe 7822 DT	SB04	2	15	5 to 15	10	0.010-inch PVC	0 to 5	PVC	3 to 15	0 to 3	0.5	9.07
MW05	11/15/2014	Geoprobe 7822 DT	SB05	2	15	5 to 15	10	0.010-inch PVC	0 to 5	PVC	3 to 15	0 to 3	0.5	6.8
MW06	11/15/2014	Geoprobe 7822 DT	SB06	2	18	8 to 18	10	0.010-inch PVC	0 to 8	PVC	6 to 8	0 to 6	0.5	12.9
MW07	11/15/2014	Geoprobe 7822 DT	SB07	2	20	10 to 20	10	0.010-inch PVC	0 to 10	PVC	8 to 10	0 to 8	0.5	17.35
MW08	11/15/2014	Geoprobe 7822 DT	SB08	2	20	10 to 20	10	0.010-inch PVC	0 to 10	PVC	8 to 10	0 to 8	0.5	14.26
MW09	11/15/2014	Geoprobe 7822 DT	SB09	2	22	12 to 22	10	0.010-inch PVC	0 to 12	PVC	10 to 12	0 to 10	0.5	16.73
MW10	11/15/2014	Geoprobe 7822 DT	SB10	2	20	12 to 22	10	0.010-inch PVC	0 to 12	PVC	10 to 12	0 to 10	0.5	14.76

Notes:

1. bgs = below ground surface
2. PVC = polyvinyl chloride
3. Meridian of survey for casing elevations is referenced to the New York State Plane Coordinate System NYLI NAD 83 as established by GPS methods.
4. Elevations are referenced to the North American Vertical Datum of 1988 (NAVD88) as established by GPS methods.

Table 3
Groundwater Elevation Data Summary
Remedial Investigation Report
416 Kent Ave
Brooklyn, New York
Langan Project No. 170332901

Well ID	Date	Depth to Water (feet bgs)	Top of Casing Elevation[(1)] (feet)	Water Elevation[(1)] (feet)
MW04	11/21/2014	7.30	9.07	1.77
MW05	11/21/2014	6.16	6.80	0.64
MW06	11/21/2014	10.70	12.90	2.20
MW07	11/21/2014	15.39	17.35	1.96
MW08	11/21/2014	12.41	14.26	1.85
MW09	11/21/2014	14.82	16.73	1.91
MW10	11/21/2014	12.97	14.76	1.79

Notes:
1. Elevations are relative to the North American Vertical Datum of 1988 (NAVD88).
2. USGS (1929 NGVD) Mean Sea Level at Sandy Hook, NJ is 1.095 feet higher than NAVD88 (NAVD88 + 1.095 = NGVD 1929 NGVD)
3. Water Elevation = Top of Casing Elevation - Depth to Water.
4. bgs = below ground surface.

Table 4
Soil Sample Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Location Client Sample ID Sampling Date Lab Sample ID Sample Depth (feet)	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Use Restricted-Residential SCO	SB04 SB04_0-2 11/15/2014 L1427637-07 0 to 2	SB04 SB04_9-10 11/15/2014 L1427637-08 9 to 10	SB05 SB05_7-8 11/15/2014 L1427637-15 7 to 8	SB05 SB05_18-20 11/16/2014 L1427645-01 18 to 20	D05E1 D05E1_6.5-7.5 11/16/2014 L1427645-02 6.5 to 7.5	D05E1 D05E1_15-16 11/16/2014 L1427645-03 15 to 16	D05E2 D05E2_8-9 11/16/2014 L1427645-07 8 to 9	D05E2 D05E2_12-13 11/16/2014 L1427645-08 12 to 13	D05E3 D05E3_7.5-9 11/16/2014 L1427645-10 7.5 to 9	D05E3 D05E3_12-13 11/16/2014 L1427645-09 12 to 13	SB06 SB06_0-2 11/15/2014 L1427637-01 0 to 2	SB06 SB06_10-12 11/15/2014 L1427637-02 10 to 12	SB06 SB06_12-14 11/15/2014 L1427637-03 12 to 14
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	0.0065 U	0.0036 U	21	0.0057 J	0.2 J	0.00077 J	13	0.011 U	1.9	0.35	0.0014 J	0.0039 U	0.0039 U
1,2,4-Trimethylbenzene	3.6	52	0.0081 U	0.0045 U	*6.2* U	0.014 U	0.37	0.0074 U	*4.8* U	0.014 U	1	0.36 U	0.0056 U	0.0048 U	0.0048 U
1,3,5-Trimethylbenzene	8.4	52	0.0081 U	0.0045 U	6.2 U	0.014 U	0.12 J	0.0074 U	4.8 U	0.014 U	0.5	0.36 U	0.0056 U	0.0048 U	0.0048 U
1,4-Diethylbenzene	~	~	0.0065 U	0.0036 U	4.4 J	0.00094 J	0.16 J	0.0059 U	0.53 J	0.011 U	1.2	0.061 J	0.0045 U	0.0039 U	0.0039 U
2-Butanone	0.12	100	0.016 U	0.009 U	*12* U	0.028 U	*0.71* U	0.015 U	*9.5* U	0.028 U	*0.71* U	*0.72* U	0.011 U	0.0097 U	0.0097 U
4-Ethyltoluene	~	~	0.0065 U	0.0036 U	5 U	0.011 U	0.18 J	0.0059 U	3.8 U	0.011 U	0.7	0.29 U	0.0045 U	0.0039 U	0.0039 U
Acetone	0.05	100	0.016 U	0.0094	*12* U	0.012 J	*0.71* U	0.015 U	*9.5* U	0.022 J	*0.71* U	*0.72* U	0.011 U	0.028	0.0083 J
Benzene	0.06	4.8	0.0016 U	0.0009 U	*1.2* U	0.0028 U	*0.071* U	0.0015 U	*0.95* U	0.0028 U	**0.16**	*0.072* U	0.0011 U	0.00097 U	0.00097 U
Carbon disulfide	~	~	0.016 U	0.009 U	12 U	0.028 U	0.71 U	0.015 U	9.5 U	0.028 U	0.71 U	0.72 U	0.011 U	0.0097 U	0.0097 U
Chlorobenzene	1.1	100	0.0016 U	0.0009 U	*1.2* U	0.0028 U	0.071 U	0.0015 U	0.95 U	0.0028 U	0.071 U	0.052 J	0.0011 U	0.00097 U	0.00097 U
Ethylbenzene	1	41	0.0016 U	0.0009 U	*1.2* U	0.0028 U	0.14	0.0015 U	0.95 U	0.0028 U	**1.4**	0.072 U	0.0011 U	0.00097 U	0.00097 U
Isopropylbenzene	~	~	0.0016 U	0.0009 U	1.3	0.0028 U	0.083	0.0015 U	0.98	0.0028 U	2.2	0.14	0.0011 U	0.00097 U	0.00097 U
Methylene chloride	0.05	100	0.016 U	0.009 U	*12* U	0.028 U	*0.71* U	0.015 U	*9.5* U	0.028 U	**0.16** J	*0.72* U	0.011 U	0.0097 U	0.0097 U
Naphthalene	12	100	0.0081 U	0.0045 U	6.2 U	0.014 U	0.64	0.0074 U	4.8 U	0.014 U	2.1	0.36 U	0.00072 J	0.0048 U	0.0048 U
n-Butylbenzene	12	100	0.0016 U	0.0009 U	4.6	0.0028 U	0.071 U	0.0015 U	0.95 U	0.0028 U	1.5	0.11	0.0011 U	0.00097 U	0.00097 U
n-Propylbenzene	3.9	100	0.0016 U	0.0009 U	3	0.0028 U	0.17	0.0015 U	0.95 U	0.0028 U	2.6	0.064 J	0.0011 U	0.00097 U	0.00097 U
o-Xylene	~	~	0.0032 U	0.0018 U	2.5 U	0.0055 U	0.05 J	0.003 U	1.9 U	0.0057 U	0.14 U	0.14 U	0.0022 U	0.0019 U	0.0019 U
p/m-Xylene	~	~	0.0032 U	0.0018 U	2.5 U	0.0055 U	0.26	0.003 U	1.9 U	0.0057 U	0.45	0.14 U	0.0022 U	0.0019 U	0.0019 U
p-Isopropyltoluene	~	~	0.0016 U	0.0009 U	1.2 U	0.0019 J	0.071 U	0.0015 U	0.95 U	0.0028 U	0.8	0.072 U	0.0011 U	0.00097 U	0.00097 U
sec-Butylbenzene	11	100	0.0016 U	0.0009 U	4.4	0.0028 U	0.075	0.0015 U	3.4	0.0028 U	1.8	0.11	0.0011 U	0.00097 U	0.00097 U
tert-Butylbenzene	5.9	100	0.0081 U	0.0045 U	*6.2* U	0.014 U	0.36 U	0.0074 U	0.61 J	0.014 U	0.33 J	0.36 U	0.0056 U	0.0048 U	0.0048 U
Tetrachloroethene	1.3	19	0.0016 U	0.0009 U	1.2 U	0.0028 U	0.071 U	0.0015 U	0.95 U	0.0028 U	0.071 U	0.072 U	0.0011 U	0.00097 U	0.00097 U
Toluene	0.7	100	0.0024 U	0.0014 U	*1.9* U	0.0042 U	0.076 J	0.0022 U	*1.4* U	0.0042 U	0.11 U	0.11 U	0.0017 U	0.0014 U	0.0014 U
Xylene (Total)	0.26	100	0.0032 U	0.0018 U	*2.5* U	0.0055 U	**0.31** J	0.003 U	*1.9* U	0.0057 U	**0.45**	0.14 U	0.0022 U	0.0019 U	0.0019 U
Semivolatile Organic Compounds (mg/kg)															
2-Methylnaphthalene	~	~	2.1 U	0.23 U	11 U	0.39 U	0.38	0.24 U	1.8 U	0.42 U	2.5	0.24 U	0.22 U	0.067 J	0.24 U
3-Methylphenol/4-Methylphenol	0.33	100	*2.5* U	0.28 U	*13* U	**0.55**	0.3 U	0.28 U	*2.1* U	*0.5* U	0.29 U	0.29 U	0.27 U	0.27 U	0.29 U
Acenaphthene	20	100	0.53 J	0.16 U	3.9 J	0.26 U	0.2	0.16 U	0.81 J	0.28 U	1.1	0.16 U	0.039 J	0.19	0.16 U
Acenaphthylene	100	100	1.4 U	0.16 U	7.4 U	0.07 J	0.16 U	0.16 U	1.2 U	0.28 U	0.16 U	0.16 U	0.15 U	0.15 U	0.16 U
Anthracene	100	100	1.5	0.12 U	5.6 U	0.16 J	0.18	0.056 J	0.62 J	0.21 U	1.8	0.12 U	0.12	0.36	0.12 U
Benzo(a)anthracene	1	1	**2.5**	0.12 U	*5.6* U	0.3	0.47	0.24	0.64 J	0.13 J	**3.2**	0.12 U	0.32	0.77	0.12 U
Benzo(a)pyrene	1	1	**2.3**	0.16 U	*7.4* U	0.33	0.42	0.17	0.7 J	0.16 J	**2.8**	0.16 U	0.32	0.65	0.16 U
Benzo(b)fluoranthene	1	1	**2**	0.12 U	*5.6* U	0.21	0.36	0.12	0.58 J	0.12 J	**2.6**	0.12 U	0.28	0.58	0.12 U
Benzo(ghi)perylene	100	100	1.6	0.16 U	7.4 U	0.2 J	0.26	0.067 J	0.47 J	0.099 J	1.4	0.16 U	0.22	0.33	0.16 U
Benzo(k)fluoranthene	0.8	3.9	**1.8**	0.12 U	*5.6* U	0.24	0.38	0.14	0.64 J	0.12 J	**2.1**	0.12 U	0.31	0.59	0.12 U
Biphenyl	~	~	3.9 U	0.44 U	21 U	0.74 U	0.47 U	0.45 U	3.4 U	0.8 U	0.46 U	0.46 U	0.43 U	0.43 U	0.45 U
Bis(2-Ethylhexyl)phthalate	~	~	1.7 U	0.19 U	9.3 U	0.32 U	0.21 U	0.2 U	1.5 U	0.35 U	0.2 U	0.2 U	0.071 J	0.19 U	0.2 U
Carbazole	~	~	1.7 U	0.19 U	9.3 U	0.32 U	0.21 U	0.2 U	1.5 U	0.35 U	0.61	0.2 U	0.072 J	0.18 J	0.2 U
Chrysene	1	3.9	**2.4**	0.12 U	*5.6* U	0.28	0.49	0.2	0.62 J	0.13 J	**3**	0.12 U	0.34	0.74	0.12 U
Dibenzo(a,h)anthracene	0.33	0.33	**0.37** J	0.12 U	*5.6* U	0.19 U	0.078 J	0.12 U	*0.89* U	0.21 U	**0.48**	0.12 U	0.059 J	0.1 J	0.12 U
Dibenzofuran	7	59	1.7 U	0.19 U	3.4 J	0.32 U	0.21 U	0.2 U	1.5 U	0.35 U	0.92	0.2 U	0.19 U	0.11 J	0.2 U
Fluoranthene	100	100	5.5	0.12 U	3 J	0.54	0.89	0.31	1.4	0.14 J	5.8	0.12 U	0.66	1.6	0.12 U
Fluorene	30	100	0.58 J	0.19 U	9.3 U	0.32 U	0.21 U	0.2 U	1.5 U	0.35 U	1.6	0.2 U	0.19 U	0.17 J	0.2 U
Indeno(1,2,3-cd)Pyrene	0.5	0.5	**1.6**	0.16 U	*7.4* U	0.18 J	0.29	0.08 J	0.49 J	0.11 J	**1.7**	0.16 U	0.24	0.39	0.16 U
Naphthalene	12	100	1.7 U	0.19 U	9.3 U	0.12 J	0.4	0.2 U	0.54 J	0.35 U	2.1	0.2 U	0.19 U	0.15 J	0.2 U
Phenanthrene	100	100	4.3	0.12 U	16	0.43	0.62	0.038 J	3.3	0.21 U	6.4	0.12 U	0.45	1.4	0.12 U
Pyrene	100	100	4.6	0.12 U	3.6 J	0.52	0.79	0.33	2.2	0.18 J	5	0.12 U	0.54	1.3	0.12 U
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1254	~	~	0.00443 J	0.038 U	0.0356 U	0.0632 U	0.0414 U	0.0376 U	0.0508 U	0.034 U	0.0388 U	0.0391 U	0.0178 J	0.0377 U	0.039 U
Aroclor 1260	~	~	0.00786 J	0.038 U	0.0356 U	0.0632 U	0.0414 U	0.0376 U	0.023 U	0.0698 U	0.0388 U	0.0391 U	0.0379 U	0.0377 U	0.039 U
Total Polychlorinated Biphenyls	0.1	1	0.0123 J	0.038 U	0.0356 U	0.0632 U	0.0414 U	0.0376 U	0.0738 JB	0.034 JB	0.0388 U	0.0391 U	0.0178 J	0.0377 U	0.039 U
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	0.00164 U	0.00184 U	*0.018* U	0.00309 U	0.00195 U	0.00188 U	*0.00362* U	0.0033 U	0.0019 U	0.00186 U	**0.00804**	0.00177 U	0.00186 U
4,4'-DDE	0.0033	8.9	0.00199	0.00184 U	*0.018* U	0.00309 U	0.00195 U	0.00188 U	*0.00362* U	0.0033 U	0.0019 U	0.00186 U	**0.0101**	0.00177 U	0.00186 U
4,4'-DDT	0.0033	7.9	0.00308 U	*0.00344* U	*0.0338* U	*0.0058* U	*0.00365* U	*0.00352* U	*0.00678* U	*0.00618* U	*0.00357* U	*0.0035* U	**0.0146**	0.0029 J	*0.00348* U
Dieldrin	0.005	0.2	0.00103 U	0.00115 U	*0.0112* U	0.00193 U	0.00122 U	0.00118 U	0.00226 U	0.00206 U	0.00119 U	0.00117 U	**0.00561** P	0.00111 U	0.00116 U
Herbicides (mg/kg)															
Total Herbicides	~	~	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals (mg/kg)															
Aluminum, Total	~	~	2900	10000	3000	11000	9200	11000	8400	15000	18000	12000	7400	6000	10000
Antimony, Total	~	~	2.4 J	0.73 J	4.3 U	3.8 J	1.4 J	4.7 U	2.2 J	8.4 U	4.8 U	4.7 U	1.4 J	0.78 J	4.6 U
Arsenic, Total	13	16	10	4.9	3.6	**25**	**21**	3.5	**46**	**25**	**34**	3.9	7	4	6.6
Barium, Total	350	400	72	40	31	63	90	140	94	110	240	30	48	54	56
Beryllium, Total	7.2	72	0.34 J	0.44 J	0.32 J	0.6 J	0.52	0.18 J	0.86 U	0.64 J	2.8	0.37 J	0.37 J	0.31 J	0.63
Cadmium, Total	2.5	4.3	0.21 J	0.9 U	0.87 U	0.25 J	0.18 J	0.94 U	1.1 J	0.2 J	1.1	0.93 U	0.77 J	0.9 U	0.92 U
Calcium, Total	~	~	76000	610	5000	12000 J	14000	1500	24000	1800	54000	420	3100	13000	1200
Chromium, Total	~	~	11	17	8.4	40	69	25	62	36	48	17	16	15	28
Chromium, Hexavalent	1	110	0.83 U	0.94 U	0.91 U	*1.6* U	1 U	0.95 U	*1.8* U	*1.7* U	0.98 U	0.98 U	0.92 U	0.92 U	0.23 J
Chromium, Trivalent	30	180	11	17	8.4	**40**	**69**	25	**62**	**36**	**48**	17	16	15	28
Cobalt, Total	~	~	5.2	6.3	5.6	8.8	12	11	8.5	12	5.2	4.5	6.2	5.5	10
Copper, Total	50	270	**82**	21	14	**240**	**75**	31	**110**	**62**	**360**	9.5	**65**	25	24
Iron, Total	~	~	20000	20000	11000	27000	31000	24000	60000	28000	22000	17000	17000	14000	33000
Lead, Total	63	400	**280**	32	10	**600** J	**310**	51	**1000**	**410**	**200**	13	**150**	55	10
Magnesium, Total	~	~	34000	2400	2200	4900	5500	4300	10000	6000	7400	2000	1700	3000	2700
Manganese, Total	1600	2000	210	120	200	260	900	170	**2200**	430	**3700**	110	240	240	470
Mercury, Total	0.18	0.81	0.12	0.1	0.04 J	**5.8**	**1.3**	0.15	**1.8**	**2**	0.03 J	0.1	**0.49**	0.14	0.02 J
Nickel, Total	30	310	15	15	12	21	22	17	27	**31**	15	9.7	14	19	16
Potassium, Total	~	~	600	970	480	2200	1100	7200	1900	4300	2000	720	1400	840	1800
Selenium, Total	3.9	180	1.6 U	1.8 U	0.45 J	1.7 J	1.3 J	0.59 J	2.6 J	0.66 J	0.38 J	0.46 J	1.8 U	1.8 U	1.8 U
Silver, Total	2	180	0.78 U	0.9 U	0.87 U	0.71 J	0.52 J	0.48 J	1.5 J	1.7 U	0.33 J	0.2 J	0.88 U	0.9 U	0.92 U
Sodium, Total	~	~	400	1200	470	5200	2400	860	7000	4700	1500	960	360	350	110 J
Vanadium, Total	~	~	33	24	14	30	86	34	200	45	66	24	26	16	36
Zinc, Total	109	10000	**310**	**110**	39	**380** J	**220**	64	**1400**	**200**	**280**	26	93	35	53
General Chemistry															
Cyanide, Total (mg/kg)	27	27	0.98 U	1.1 U	0.3 J	1.9 U	0.61 J	1.1 U	1.4 J	2.1 U	0.97 J	1.2 U	1.1 U	1.1 U	1.1 U
Solids, Total (%)	~	~	96.1	85.3	88.1	50.2	78.6	84.2	43.8	46.4	81.2	81.2	87.3	87.3	83.2

Notes:
1. Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the official compilation of New York Codes, Rules and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use Restricted-Residential SCOs.
2. Only compounds with detections are shown in the table.
3. NYSDEC Part 375 Unrestricted Use SCO exceedances are highlighted and bolded.
4. NYSDEC Part 375 Restricted Use Restricted-Residential SCO exceedances are bolded and in red.
5. Reporting limits (RL) above NYSDEC Part 375 Unrestricted Use SCO standards are italicized.
6. mg/kg = milligrams per kilogram
7. ~ = No regulatory limit has been established for this analyte
8. ND = Not Detected
9. DUP01_111514 is a duplicate sample of SB09_2-4

Qualifiers:
J = analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit). Result is an estimated concentration
U = analyte not detected at or above the level indicated
P = The Relative Percent Difference (RPD) between the results for the two columns exceeds the method-specified criteria.
B - The analyte was detected above the reporting limit in the associated method blank.

Table 4
Soil Sample Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Location Client Sample ID Sampling Date Lab Sample ID Sample Depth (feet)	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Use Restricted-Residential SCO	SB07 SB07_2.5-4 11/15/2014 L1427637-04 2.5 to 4		SB07 SB07_8-10 11/15/2014 L1427637-05 8 to 10		SB07 SB07_13-14 11/15/2014 L1427637-06 13 to 14		SB08 SB08_0-2 11/16/2014 L1427645-04 0 to 2		SB08 SB08_4-6 11/16/2014 L1427645-06 4 to 6		SB08 SB08_11-13 11/16/2014 L1427645-05 11 to 13		SB09 SB09_0-1.5 11/15/2014 L1427637-09 0 to 1.5		SB09 SB09_2-4 11/15/2014 L1427637-10 2 to 4		SB09 DUP01_111514 11/15/2014 L1427637-14 2 to 4		SB10 SB10_0-2 11/15/2014 L1427637-11 0 to 2		SB10 SB10_5-6.5 11/15/2014 L1427637-13 5 to 6.5		SB10 SB10_7-8 11/15/2014 L1427637-12 7 to 8	
Volatile Organic Compounds (mg/kg)																												
1,2,4,5-Tetramethylbenzene	~	~	0.0043	U	0.005	U	0.0042	U	0.0045	U	0.004	U	0.0041	U	0.0039	U	0.005	U	0.004	U	0.0052	U	0.0072	U	0.0043	U
1,2,4-Trimethylbenzene	3.6	52	0.0054	U	0.0062	U	0.0053	U	0.0057	U	0.0049	U	0.0051	U	0.0049	U	0.0062	U	0.005	U	0.0064	U	0.009	U	0.0053	U
1,3,5-Trimethylbenzene	8.4	52	0.0054	U	0.0062	U	0.0053	U	0.0057	U	0.0049	U	0.0051	U	0.0049	U	0.0062	U	0.005	U	0.0064	U	0.009	U	0.0053	U
1,4-Diethylbenzene	~	~	0.0043	U	0.005	U	0.0042	U	0.0045	U	0.004	U	0.0041	U	0.0039	U	0.005	U	0.004	U	0.0052	U	0.0072	U	0.0043	U
2-Butanone	0.12	100	0.011	U	0.012	U	0.01	U	0.011	U	0.0099	U	0.01	U	0.0098	U	0.012	U	0.01	U	0.013	U	0.018	U	0.011	U
4-Ethyltoluene	~	~	0.0043	U	0.005	U	0.0042	U	0.0045	U	0.004	U	0.0041	U	0.0039	U	0.005	U	0.004	U	0.0052	U	0.0072	U	0.0043	U
Acetone	0.05	100	0.011	U	0.012	U	0.01	U	0.011	U	0.0099	U	0.01	U	0.0098	U	0.012	U	0.01	U	0.013	U	0.018	U	0.011	U
Benzene	0.06	4.8	0.0011	U	0.0012		0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
Carbon disulfide	~	~	0.011	U	0.012	U	0.01	U	0.011	U	0.0099	U	0.01	U	0.0098	U	0.012	U	0.01	U	0.013	U	0.018	U	0.011	U
Chlorobenzene	1.1	100	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
Ethylbenzene	1	41	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
Isopropylbenzene	~	~	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
Methylene chloride	0.05	100	0.011	U	0.012	U	0.01	U	0.011	U	0.0099	U	0.01	U	0.0098	U	0.012	U	0.01	U	0.013	U	0.018	U	0.011	U
Naphthalene	12	100	0.0054	U	0.00084	J	0.0053	U	0.0057	U	0.0049	U	0.0051	U	0.0049	U	0.0062	U	0.005	U	0.0064	U	0.009	U	0.0053	U
n-Butylbenzene	12	100	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
n-Propylbenzene	3.9	100	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
o-Xylene	~	~	0.0022	U	0.0025	U	0.0021	U	0.0023	U	0.002	U	0.002	U	0.002	U	0.0025	U	0.002	U	0.0026	U	0.0036	U	0.0021	U
p/m-Xylene	~	~	0.0022	U	0.0025	U	0.0021	U	0.0023	U	0.002	U	0.002	U	0.002	U	0.0025	U	0.002	U	0.0026	U	0.0036	U	0.0021	U
p-Isopropyltoluene	~	~	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
sec-Butylbenzene	11	100	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
tert-Butylbenzene	5.9	100	0.0054	U	0.0062	U	0.0053	U	0.0057	U	0.0049	U	0.0051	U	0.0049	U	0.0062	U	0.005	U	0.0064	U	0.009	U	0.0053	U
Tetrachloroethene	1.3	19	0.0011	U	0.0012	U	0.001	U	0.0011	U	0.00099	U	0.001	U	0.00098	U	0.0012	U	0.001	U	0.0013	U	0.0018	U	0.0011	U
Toluene	0.7	100	0.0016	U	0.0019	U	0.0016	U	0.0017	U	0.0015	U	0.0015	U	0.0015	U	0.0019	U	0.0015	U	0.0019	U	0.0027	U	0.0016	U
Xylene (Total)	0.26	100	0.0022	U	0.0025	U	0.0021	U	0.0023	U	0.002	U	0.002	U	0.002	U	0.0025	U	0.002	U	0.0026	U	0.0036	U	0.0021	U
Semivolatile Organic Compounds (mg/kg)																												
2-Methylnaphthalene	~	~	0.22	U	0.22	U	0.23	U	0.2	J	0.22	U	0.23	U	1.1	U	0.21	U	0.2	U	0.081	J	0.21	U	0.23	U
3-Methylphenol/4-Methylphenol	0.33	100	0.27	U	0.27	U	0.27	U	0.26	U	0.27	U	0.28	U	*1.3*	U	0.25	U	0.25	U	0.26	U	0.26	U	0.27	U
Acenaphthene	20	100	0.25		0.2		0.15	U	0.71		0.15	U	0.16	U	0.72	U	0.14	U	0.14	U	0.2		0.14	U	0.15	U
Acenaphthylene	100	100	0.11	J	0.098	J	0.15	U	0.29		0.15	U	0.16	U	0.72	U	0.14	U	0.14	U	0.35		0.042	J	0.15	U
Anthracene	100	100	0.62		0.43		0.11	U	1.7		0.11	U	0.12	U	0.54	U	0.1	U	0.1	U	0.68		0.079	J	0.11	U
Benzo(a)anthracene	1	1	**1.3**		1		0.11	U	**3.2**		0.11	U	0.12	U	0.35	J	0.1	U	0.1	U	**2.1**		0.29		0.11	U
Benzo(a)pyrene	1	1	**1.1**		0.86		0.15	U	**3**		0.15	U	0.16	U	0.38	J	0.14	U	0.14	U	**2**		0.3		0.15	U
Benzo(b)fluoranthene	1	1	0.87		0.8		0.11	U	**2.9**		0.11	U	0.12	U	0.32	J	0.1	U	0.1	U	**1.7**		0.33		0.11	U
Benzo(ghi)perylene	100	100	0.53		0.4		0.15	U	1.7		0.15	U	0.16	U	0.28	J	0.14	U	0.14	U	1.1		0.21		0.15	U
Benzo(k)fluoranthene	0.8	3.9	**1**		0.72		0.11	U	**2.1**		0.11	U	0.12	U	0.32	J	0.1	U	0.1	U	**1.6**		0.25		0.11	U
Biphenyl	~	~	0.42	U	0.42	U	0.44	U	0.067	J	0.42	U	0.44	U	2	U	0.4	U	0.39	U	0.41	U	0.41	U	0.43	U
Bis(2-Ethylhexyl)phthalate	~	~	0.18	U	0.18	U	0.19	U	0.18	U	0.18	U	0.19	U	0.9	U	0.17	U	0.17	U	0.18	U	0.18	U	0.19	U
Carbazole	~	~	0.22		0.16	J	0.19	U	0.58		0.18	U	0.19	U	0.9	U	0.17	U	0.17	U	0.17	J	0.061	J	0.19	U
Chrysene	1	3.9	**1.3**		0.99		0.11	U	**3**		0.11	U	0.12	U	0.37	J	0.1	U	0.1	U	**2.2**		0.31		0.11	U
Dibenzo(a,h)anthracene	0.33	0.33	0.16		0.12		0.11	U	**0.52**		0.11	U	0.12	U	*0.54*	U	0.1	U	0.1	U	0.3		0.058	J	0.11	U
Dibenzofuran	7	59	0.12	J	0.096	J	0.19	U	0.44		0.18	U	0.19	U	0.9	U	0.17	U	0.17	U	0.15	J	0.18	U	0.19	U
Fluoranthene	100	100	2.8		2.4		0.11	U	6.6		0.051	J	0.12	U	0.65		0.1	U	0.1	U	4		0.67		0.11	U
Fluorene	30	100	0.23		0.17	J	0.19	U	0.66		0.18	U	0.19	U	0.9	U	0.17	U	0.17	U	0.21		0.18	U	0.19	U
Indeno(1,2,3-cd)Pyrene	0.5	0.5	**0.61**		0.46		0.15	U	**2**		0.15	U	0.16	U	0.27	J	0.14	U	0.14	U	**1.2**		0.23		0.15	U
Naphthalene	12	100	0.18	U	0.18	U	0.19	U	0.21		0.18	U	0.19	U	0.9	U	0.17	U	0.17	U	0.15	J	0.18	U	0.19	U
Phenanthrene	100	100	2.2		2		0.11	U	5.8		0.11	U	0.12	U	0.34	J	0.1	U	0.1	U	2.3		0.21		0.11	U
Pyrene	100	100	2.4		2		0.11	U	5.7		0.059	J	0.12	U	0.6		0.1	U	0.1	U	3.5		0.57		0.11	U
Polychlorinated Biphenyls (mg/kg)																												
Aroclor 1254	~	~	0.0367	U	0.0367	U	0.0376	U	0.035	U	0.0321	U	0.0186	U	0.0353	U	0.0339	U	0.034	U	0.0358	U	0.0355	U	0.0374	U
Aroclor 1260	~	~	0.0367	U	0.0367	U	0.0376	U	0.0131	U	0.0372	U	0.038	U	0.0353	U	0.0339	U	0.034	U	0.0358	U	0.0355	U	0.0374	U
Total Polychlorinated Biphenyls	0.1	1	0.0367	U	0.0367	U	0.0376	U	0.0131	J	0.0321	JB	0.0186	JB	0.0353	U	0.0339	U	0.034	U	0.0358	U	0.0355	U	0.0374	U
Pesticides (mg/kg)																												
4,4'-DDD	0.0033	13	0.00169	U	0.00169	U	0.00178	U	0.00165	U	0.00175	U	0.00184	U	0.00173	U	0.00168	U	0.00163	U	0.00225	P	**0.0327**		0.00176	U
4,4'-DDE	0.0033	8.9	0.00169	U	0.00169	U	0.00178	U	0.00232		0.00175	U	0.00184	U	0.00173	U	0.00168	U	0.00163	U	0.00172	U	0.00167	U	0.00176	U
4,4'-DDT	0.0033	7.9	0.00317	U	0.00316	U	*0.00334*	U	**0.00787**		0.00328	U	*0.00345*	U	0.00325	U	0.00314	U	0.00306	U	0.00322	U	0.00312	U	0.00329	U
Dieldrin	0.005	0.2	0.00106	U	0.00105	U	0.00111	U	0.00103	U	0.00109	U	0.00115	U	0.00108	U	0.00105	U	0.00102	U	0.00107	U	**0.0068**		0.0011	U
Herbicides (mg/kg)																												
Total Herbicides	~	~	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND			
Total Metals (mg/kg)																												
Aluminum, Total	~	~	5100		3400		11000		4700		10000		12000		6000		5200		5100		4200		3300		9700	J		
Antimony, Total	~	~	58		1.1	J	4.6	U	2.2	J	4.4	U	4.6	U	1.4	J	4.2	U	3.9	U	2.6	J	2.9	J	0.79	J		
Arsenic, Total	13	16	6.9		11		5.2		**15**		3.8		5.1		8.2		3.1		2.8		13		10		4.7			
Barium, Total	350	400	60		47		38		140		43		44		73		30		29		140		72		36			
Beryllium, Total	7.2	72	0.3	J	0.2	J	0.43	J	0.32	J	0.48		0.49		0.3	J	0.26	J	0.24	J	0.38	J	0.22	J	0.46			
Cadmium, Total	2.5	4.3	0.87	U	0.86	U	0.92	U	1.4		0.87	U	0.91	U	0.22	J	0.85	U	0.78	U	0.28	J	0.23	J	0.91	U		
Calcium, Total	~	~	2200		14000		990		5700		1200		1100		7700		1200		1100		93000		2200		620	J		
Chromium, Total	~	~	12		9.9		16		24		21		23		22		13		13		24		10		18	J		
Chromium, Hexavalent	1	110	0.9	U	0.9	U	0.92	U	0.87	U	0.9	U	0.94	U	0.79	J	0.26	J	0.37	J	0.86	U	0.86	U	0.76	J		
Chromium, Trivalent	30	180	12		9.9		16		24		21		23		22		13		13		24		10		18			
Cobalt, Total	~	~	5.3		4.6		6.8		6.7		8.9		10		6.3		5.1		5.5		4.9		5.6		7.2			
Copper, Total	50	270	**64**		**70**		9.7		**140**		**73**		13		**73**		16		16		**120**		**58**		14			
Iron, Total	~	~	18000		15000		19000		14000		24000		26000		19000		15000		15000		16000		29000		22000	J		
Lead, Total	63	400	**240**		**470**		11		**360**		32		10		**200**		3.9	J	3.6	J	**630**		**440**		11			
Magnesium, Total	~	~	1200		1400		2100		1500		2100		2200		5700		1700		1800		43000		1900		2400	J		
Manganese, Total	1600	2000	260		210		250		210		460		370		340		300		270		270		100		370	J		
Mercury, Total	0.18	0.81	**1.6**		**1.5**		0.04	J	**1.5**		**0.48**		0.07		**1.1**		0.07	U	0.07	U	**0.72**		**0.46**		0.04	J		
Nickel, Total	30	310	10		12		11		17		14		13		16		10		10		12		26		12			
Potassium, Total	~	~	680		510		620		620		860		900		960		1000		1100		670		1000		1100	J		
Selenium, Total	3.9	180	1.7	U	1.6	J	1.8	U	0.82	J	0.5	J	0.39	J	1.7	U	1.7	U	1.6	U	1.6	U	0.26	J	1.8	U		
Silver, Total	2	180	0.87	U	0.86	U	0.92	U	0.82	J	0.87	U	0.91	U	0.86	U	0.85	U	0.78	U	0.16	J	0.24	J	0.91	U		
Sodium, Total	~	~	220		220		77	J	150	J	110	J	91	J	180		75	J	74	J	140	J	400		76	J		
Vanadium, Total	~	~	17		14		21		30		32		34		27		16		16		20		19		25			
Zinc, Total	109	10000	71		100		33		**330**		57		34		**160**		33		29		**370**		**510**		32			
General Chemistry																												
Cyanide, Total (mg/kg)	27	27	0.38	J	1.1	U	1.2	U	0.47	J	1.1	U	1.2	U	1.1	U	1	U	1	U	1	U	1	U	1.1	U		
Solids, Total (%)	~	~	89.3		89.1		86.4		91.8		88.7		84.9		90.6		93.3		95.6		92.4		93		86.8			

Notes:
1. Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the official compilation of New York Codes, Rules and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use Restricted-Residential SCOs.
2. Only compounds with detections are shown in the table.
3. NYSDEC Part 375 Unrestricted Use SCO exceedances are highlighted and bolded.
4. NYSDEC Part 375 Restricted Use Restricted-Residential SCO exceedances are bolded and in red.
5. Reporting limits (RL) above NYSDEC Part 375 Unrestricted Use SCO standards are italicized.
6. mg/kg = milligrams per kilogram
7. ~ = No regulatory limit has been established for this analyte
8. ND = Not Detected
9. DUP01_111514 is a duplicate sample of SB09_2-4

Qualifiers:
J = analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit). Result is an estimated concentration
U = analyte not detected at or above the level indicated
P = The Relative Percent Difference (RPD) between the results for the two columns exceeds the method-specified criteria.
B - The analyte was detected above the reporting limit in the associated method blank.

Table 4
Soil Sample Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Location Client Sample ID Sampling Date Lab Sample ID Sample Depth (feet)	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Use Restricted-Residential SCO	EB125 EB125_3-4 2/4/2015 L1502253-16 3-4		EB127/D05W1 EB127_5-6 2/4/2015 L1502253-15 5-6		EB127/D05W1 D05W1_11-12 2/4/2015 L1502253-20 11-12		EB127/D05W1 D05W1_14-15 2/4/2015 L1502253-21 14-15		D05E2A D05E2A_8-9 2/6/2015 L1502482-01 8-9		D05E2A D05E2A_12-13 2/6/2015 L1502482-02 12-13		D05E3A D05E3A_9-10 2/6/2015 L1502482-03 9-10		D05E3A D05E3A_10-11 2/6/2015 L1502482-04 10-11	
Volatile Organic Compounds (mg/kg)																		
1,2,4,5-Tetramethylbenzene	~	~	0.24	U	0.0041	U	1.8		0.0018	J	1.9		0.00026	J	0.25	U	0.0038	U
1,2,4-Trimethylbenzene	3.6	52	0.042	J	0.0052	U	0.11	J	0.0068	U	1.4	U	0.00027	J	0.31	U	0.0048	U
1,3,5-Trimethylbenzene	8.4	52	0.02	J	0.0052	U	0.62	U	0.0068	U	1.4	U	0.006	U	0.31	U	0.0048	U
1,4-Diethylbenzene	~	~																
2-Butanone	0.12	100	*0.6*	U	0.01	U	*1.2*	U	0.0034	J	*2.9*	U	0.0059	J	*0.62*	U	0.0095	U
4-Ethyltoluene	~	~																
Acetone	0.05	100	**0.12**	J	0.01	U	*1.2*	U	0.021		*2.9*	U	0.027		*0.62*	U	0.0093	J
Benzene	0.06	4.8	0.028	J	0.001	U	*0.12*	U	0.0014	U	**0.1**	J	0.0012	U	*0.062*	U	0.00095	U
Carbon disulfide	~	~	0.6	U	0.01	U	1.2	U	0.0084	J	2.9	U	0.012	U	0.62	U	0.0095	U
Chlorobenzene	1.1	100	0.06	U	0.001	U	0.12	U	0.0014	U	0.29	U	0.0012	U	0.062	U	0.00095	U
Ethylbenzene	1	41	0.023	J	0.001	U	0.034	J	0.0014	U	0.72		0.0012	U	0.062	U	0.00095	U
Isopropylbenzene	~	~	0.06	U	0.001	U	0.025	J	0.0014	U	1.3		0.00031	J	0.015	J	0.00095	U
Methylene chloride	0.05	100	*0.6*	U	0.01	U	*1.2*	U	0.014	U	*2.9*	U	0.012	U	*0.62*	U	0.0095	U
Naphthalene	12	100	0.76		0.002	J	0.36	J	0.00054	J	1.5		0.00039	J	0.31	U	0.0048	U
n-Butylbenzene	12	100	0.06	U	0.001	U	0.12	U	0.0014	U	0.95		0.0012	U	0.062	U	0.00095	U
n-Propylbenzene	3.9	100	0.06	U	0.001	U	0.047	J	0.0014	U	1.7		0.00026	J	0.062	U	0.00095	U
o-Xylene	~	~	0.061	J	0.0021	U	0.25	U	0.0027	U	0.12	J	0.0024	U	0.12	U	0.0019	U
p/m-Xylene	~	~	0.12		0.0021	U	0.064	J	0.0027	U	0.34	J	0.0024	U	0.014	J	0.0019	U
p-Isopropyltoluene	~	~	0.06	U	0.001	U	0.12	U	0.0014	U	0.44		0.0012	U	0.062	U	0.00095	U
sec-Butylbenzene	11	100	0.06	U	0.001	U	0.083	J	0.0014	U	1		0.0012	U	0.062	U	0.00095	U
tert-Butylbenzene	5.9	100	0.3	U	0.0052	U	0.072	J	0.0068	U	0.21	J	0.006	U	0.31	U	0.0048	U
Tetrachloroethene	1.3	19	0.06	U	0.00064	J	0.12	U	0.0014	U	0.29	U	0.0012	U	0.062	U	0.00095	U
Toluene	0.7	100	0.1		0.0016	U	0.18	U	0.002	U	0.43	U	0.0018	U	0.015	J	0.0014	U
Xylene (Total)	0.26	100	0.181		0.0042	U	0.064	J	0.0054	U	**0.46**	J	0.0048	U	0.014	J	0.0038	U
Semivolatile Organic Compounds (mg/kg)																		
2-Methylnaphthalene	~	~	NA		NA		0.074	J	0.23	U	3.5		0.23	U	0.23	U	0.24	U
3-Methylphenol/4-Methylphenol	0.33	100	NA		NA		0.3	U	0.27	U	*1.4*	U	0.28	U	0.28	U	0.29	U
Acenaphthene	20	100	NA		NA		0.16	U	0.15	U	0.8	U	0.15	U	0.16	U	0.16	U
Acenaphthylene	100	100	NA		NA		0.16	U	0.15	U	0.8	U	0.15	U	0.16	U	0.16	U
Anthracene	100	100	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Benzo(a)anthracene	1	1	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Benzo(a)pyrene	1	1	NA		NA		0.16	U	0.15	U	0.8	U	0.15	U	0.16	U	0.16	U
Benzo(b)fluoranthene	1	1	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Benzo(ghi)perylene	100	100	NA		NA		0.16	U	0.15	U	0.8	U	0.15	U	0.16	U	0.16	U
Benzo(k)fluoranthene	0.8	3.9	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Biphenyl	~	~	NA		NA		0.47	U	0.43	U	2.3	U	0.44	U	0.44	U	0.45	U
Bis(2-Ethylhexyl)phthalate	~	~	NA		NA		0.2	U	0.19	U	0.99	U	0.19	U	0.19	U	0.2	U
Carbazole	~	~	NA		NA		0.2	U	0.19	U	0.99	U	0.19	U	0.19	U	0.2	U
Chrysene	1	3.9	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Dibenzo(a,h)anthracene	0.33	0.33	NA		NA		0.12	U	0.11	U	*0.6*	U	0.12	U	0.12	U	0.12	U
Dibenzofuran	7	59	NA		NA		0.2	U	0.19	U	0.99	U	0.19	U	0.19	U	0.2	U
Fluoranthene	100	100	NA		NA		0.12	U	0.11	U	0.6	U	0.12	U	0.12	U	0.12	U
Fluorene	30	100	NA		NA		0.2	U	0.19	U	1.7		0.19	U	0.19	U	0.2	U
Indeno(1,2,3-cd)Pyrene	0.5	0.5	NA		NA		0.16	U	0.15	U	*0.8*	U	0.15	U	0.16	U	0.16	U
Naphthalene	12	100	NA		NA		0.2	U	0.19	U	1.3		0.19	U	0.19	U	0.2	U
Phenanthrene	100	100	NA		NA		0.095	J	0.11	U	2.8		0.12	U	0.12	U	0.12	U
Pyrene	100	100	NA		NA		0.053	J	0.11	U	0.24	J	0.12	U	0.12	U	0.12	U
Polychlorinated Biphenyls (mg/kg)																		
Aroclor 1254	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Aroclor 1260	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Total Polychlorinated Biphenyls	0.1	1	NA		NA		NA		NA		NA		NA		NA		NA	
Pesticides (mg/kg)																		
4,4'-DDD	0.0033	13	NA		NA		NA		NA		NA		NA		NA		NA	
4,4'-DDE	0.0033	8.9	NA		NA		NA		NA		NA		NA		NA		NA	
4,4'-DDT	0.0033	7.9	NA		NA		NA		NA		NA		NA		NA		NA	
Dieldrin	0.005	0.2	NA		NA		NA		NA		NA		NA		NA		NA	
Herbicides (mg/kg)																		
Total Herbicides	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Total Metals (mg/kg)																		
Aluminum, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Antimony, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Arsenic, Total	13	16	NA		NA		NA		NA		NA		NA		NA		NA	
Barium, Total	350	400	NA		NA		NA		NA		NA		NA		NA		NA	
Beryllium, Total	7.2	72	NA		NA		NA		NA		NA		NA		NA		NA	
Cadmium, Total	2.5	4.3	NA		NA		NA		NA		NA		NA		NA		NA	
Calcium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Chromium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	NA		NA		NA		NA		NA		NA		NA		NA	
Chromium, Trivalent	30	180	NA		NA		NA		NA		NA		NA		NA		NA	
Cobalt, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Copper, Total	50	270	NA		NA		NA		NA		NA		NA		NA		NA	
Iron, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Lead, Total	63	400	NA		NA		NA		NA		NA		NA		NA		NA	
Magnesium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Manganese, Total	1600	2000	NA		NA		NA		NA		NA		NA		NA		NA	
Mercury, Total	0.18	0.81	NA		NA		NA		NA		NA		NA		NA		NA	
Nickel, Total	30	310	NA		NA		NA		NA		NA		NA		NA		NA	
Potassium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Selenium, Total	3.9	180	NA		NA		NA		NA		NA		NA		NA		NA	
Silver, Total	2	180	NA		NA		NA		NA		NA		NA		NA		NA	
Sodium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Vanadium, Total	~	~	NA		NA		NA		NA		NA		NA		NA		NA	
Zinc, Total	109	10000	NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry																		
Cyanide, Total (mg/kg)	27	27	NA		NA		NA		NA		NA		NA		NA		NA	
Solids, Total (%)	~	~	NA		NA		NA		NA		NA		NA		NA		NA	

Notes:
1. Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the official compilation of New York Codes, Rules and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use Restricted-Residential SCOs.
2. Only compounds with detections are shown in the table.
3. NYSDEC Part 375 Unrestricted Use SCO exceedances are highlighted and bolded.
4. NYSDEC Part 375 Restricted Use Restricted-Residential SCO exceedances are bolded and in red.
5. Reporting limits (RL) above NYSDEC Part 375 Unrestricted Use SCO standards are italicized.
6. mg/kg = milligrams per kilogram
7. ~ = No regulatory limit has been established for this analyte
8. ND = Not Detected
9. DUP01_111514 is a duplicate sample of SB09_2-4

Qualifiers:
J = analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit). Result is an estimated concentration
U = analyte not detected at or above the level indicated
P = The Relative Percent Difference (RPD) between the results for the two columns exceeds the method-specified criteria.
B - The analyte was detected above the reporting limit in the associated method blank.

Table 5
Soil Sample TCLP Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue,
Brooklyn, New York
Langan Project No. 170332901

Location	USEPA RCRA TCLP	D05E1		D05E1		D05E2		D05E2		D05E3		D05E3		DUP01		SB04		SB04		SB05		SB05		SB06		SB06	
Sample ID		D05E1_6.5-7.5		D05E1_15-16		D05E2_8-9		D05E2_12-13		D05E3_7.5-9		D05E3_12-13		DUP01_111514		SB04_0-2		SB04_9-10		SB05_7-8		SB05_18-20		SB06_0-2		SB06_10-12	
Lab Sample ID		L1429423-18		L1429423-19		L1429423-23		L1429423-24		L1429423-26		L1429423-25		L1429423-14		L1429423-07		L1429423-08		L1429423-15		L1429423-17		L1429423-01		L1429423-02	
Sampling Date		11/16/2014		11/16/2014		11/16/2014		11/16/2014		11/16/2014		11/16/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/16/2014		11/15/2014		11/15/2014	
Sample Depth (feet)		6.5-7.5		15-16		8-9		12-13		7.5-9		12-13		12-13		0-2		9-10		7-8		18-20		0-2		10-12	
TCLP Metals (mg/L)																											
Arsenic	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.03	J	0.03	J	1	U
Barium	100	0.78		0.25	J	0.27	J	0.23	J	0.51		0.24	J	0.29	J	0.44	J	0.17	J	0.53		0.22	J	0.42	J	0.55	
Cadmium	1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chromium	5	0.2	U	0.2	U	0.03	J	0.02	J	0.04	J	0.02	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Lead	5	0.19	J	0.29	J	0.5	U	1.4		0.5	U	0.05	J	0.5	U	0.19	J	0.03	J	0.5	U	1.8		0.03	J	0.25	J
Silver	5	0.1	U	0.1	U	0.04	J	0.03	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Location	USEPA RCRA TCLP	SB06		SB07		SB07		SB07		SB08		SB08		SB08		SB09		SB09		SB10		SB10		SB10		SBIG	
Sample ID		SB06_12-14		SB07_2.5-4		SB07_8-10		SB07_13-14		SB08_0-2		SB08_4-6		SB08_11-13		SB09_0-1.5		SB09_2-4		SB10_0-2		SB10_5-6.5		SB10_7-8		SBIG_25-27	
Lab Sample ID		L1429423-03		L1429423-04		L1429423-05		L1429423-06		L1429423-20		L1429423-22		L1429423-21		L1429423-09		L1429423-10		L1429423-11		L1429423-13		L1429423-12		L1429423-16	
Sampling Date		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/16/2014		11/16/2014		11/16/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014	
Sample Depth (feet)		12-14		2.5-4		8-10		13-14		0-2		4-6		11-13		0-1.5		2-4		0-2		5-6.5		7-8		25-27	
TCLP Metals (mg/L)																											
Arsenic	5	1	U	1	U	1	U	1	U	0.02	J	1	U	1	U	1	U	0.03	J	0.04	J	0.02	J	1	U	1	U
Barium	100	0.31	J	0.4	J	0.56		0.21	J	0.62		0.26	J	0.27	J	0.45	J	0.21	J	1.2		0.59		0.26	J	0.16	J
Cadmium	1	0.1	U	0.1	U	0.1	U	0.1	U	0.01	J	0.1	U	0.1	U	0.1	U	0.1	U	0.01	J	0.01	J	0.1	U	0.1	U
Chromium	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.03	J	0.02	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.02	J
Lead	5	0.5	U	0.41	J	**13**		0.5	U	0.21	J	0.5	U	0.5	U	0.11	J	0.5	U	1.5		1.5		0.5	U	0.5	U
Silver	5	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.03	J	0.04	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Notes:
1. Soil sample analytical results are compared to Resource Conservation Recovery Act (RCRA) Maximum Concentration of Contaminants for the Toxicity Characteristic.
2. Only compounds with detections are shown in table.
3. Results above United States Environmental Protection Agency (USEPA) RCRA Toxicity Characteristic Leaching Procedure (TCLP) criteria are highlighted and bolded.
4. mg/L = milligrams per liter
5. DUP01_111514 parent sample is SB09_2-4.

Qualifiers:
J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL or the sample concentration for results impacted by blank contamination.

Table 6
Groundwater Sample Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Location Client Sample ID Lab Sample ID Sampling Date	NYSDEC TOGS Standards and Guidance Values	MW-4 MW-4_112114 L1428271-09 11/21/2014		MW-5 MW-5_112114 L1428271-10 11/21/2014		MW-6 MW-6_112114 L1428271-07 11/21/2014		MW-6 DUP-01_112114 L1428271-04 11/21/2014		MW-7 MW-7_112114 L1428271-08 11/21/2014		MW-8 MW-8_112114 L1428271-06 11/21/2014		MW-9 MW-9_112114 L1428271-02 11/21/2014		MW-10 MW-10_112114 L1428271-01 11/21/2014	
Volatile Organic Compounds (µg/l)																	
1,2,4,5-Tetramethylbenzene	~	2	U	5.9		2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	**9.1**		2.5	U	2.5	U	2.5	U
1,4-Dioxane	~	250	U	250	U	250	U	84	J	250	U	250	U	250	U	250	U
Acetone	50	6.3		5	U	1.6	J	5	U	5	U	5	U	5	U	5	U
Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	0.5	U
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U	**9.2**		2.5	U	3.2		4.4	
Tetrachloroethene	5	**38**		3		**8**		**8.2**		0.61		**8.7**		**15**		**11**	
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.36	J	0.78		0.93	
Semivolatile Organic Compounds (µg/l)																	
1,2-Dichlorobenzene	3	2	U	2	U	2	U	2	U	**5.3**		2	U	2	U	2	U
2-Methylnaphthalene	~	0.4	U	0.21		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Acenaphthene	20	0.44		1.7		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Anthracene	50	0.32	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(a)anthracene	0.002	**0.75**		**0.06**	J	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Benzo(a)pyrene	0	**0.74**		*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Benzo(b)fluoranthene	0.002	**0.84**		*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Benzo(ghi)perylene	~	0.64		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(k)fluoranthene	0.002	**0.38**	J	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Bis(2-Ethylhexyl)phthalate	5	3	U	3	U	4.7		2.5	J	3	U	3	U	3	U	3	U
Chrysene	0.002	**0.7**		*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Fluoranthene	50	1.7		0.27		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Fluorene	50	0.22	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Indeno(1,2,3-cd)Pyrene	0.002	**0.58**		*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U	*0.2*	U
Phenanthrene	50	1.1		0.54		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Pyrene	50	1.5		0.32		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Polychlorinated Biphenyls (µg/l)																	
Total Polychlorinated Biphenyls	0.09	ND		ND		ND		ND		ND		ND		ND		ND	
Pesticides (µg/l)																	
Total Pesticides	~	ND		ND		ND		ND		ND		ND		ND		ND	
Herbicides (µg/l)																	
Total Herbicides	~	ND		ND		ND		ND		ND		ND		ND		ND	
Dissolved Metals (µg/l)																	
Aluminum	~	66.9		6.3	J	3.24	J	18.9		7.1	J	3.95	J	4.88	J	3.63	J
Antimony	3	**4.08**		**6.87**		0.52	J	1.06	J	1.43	J	0.74	J	1.5	J	1.35	J
Arsenic	25	1.01		2.12		1.71		1.83		0.17	J	0.16	J	0.16	J	0.31	J
Barium	1000	205.7		336.2		308.2		314.1		75.47		15.05		104.9		8.03	
Cadmium	5	0.13	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	~	259000		NA		316000		314000		130000		53700		48500		21100	
Chromium	50	1.1		2		1.09	J	1	J	1.22	J	1.3	J	1.42	J	1.16	J
Cobalt	~	1.98		0.09	J	5.1		5.1		0.73		0.63		0.29		0.36	
Copper	200	0.98	J	0.27	J	1	U	0.36	J	1.33		0.62	J	1.3		0.97	J
Iron	300	235		181		**9260**		**9090**		80.4		35.7	J	50	U	50	U
Lead	25	0.17	J	0.17	J	1	U	1	U	0.22	J	1	U	1	U	1	U
Magnesium	35000	**204000**		**238000**		23300		23100		20100		8110		5930	J	10200	
Manganese	300	**1769**		**1002**		**9284**		**9380**		**361.7**		**350.6**		232.1		**1025**	
Nickel	100	4.29		0.99		4.5		4.34		1.67		1.23		1.84		1.59	
Potassium	~	82300		227000		27200		27600		13600		4400		4490		6080	J
Selenium	10	1.18	J	5	U	5	U	5	U	**27.1**		5	U	1.6	J	2.7	J
Sodium	20000	**1400000**		**4060000**		**364000**		**366000**		**77000**		**85000**		**84900**		**66300**	
Vanadium	~	5	U	2.28	J	5	U	5	U	5	U	5	U	5	U	0.66	J
Zinc	2000	7.98	J	2.57	J	4.71	J	5.16	J	6.11	J	5.04	J	2.96	J	10	U
Total Metals (µg/l)																	
Aluminum	~	2050		195	J	412		186		26.1		74.8		63.8		30.3	
Antimony	3	2.1	J	*60*	U	0.25	J	0.44	J	0.31	J	0.21	J	1.07	J	0.61	J
Arsenic	25	1.95		10	U	2.49		2.76		0.27	J	0.27	J	0.16	J	0.34	J
Barium	1000	318.6		384.2		337.8		340		76.45		16.64		106.1		8.91	
Beryllium	3	0.29	J	*10*	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cadmium	5	0.11	J	4	U	0.2	U	0.2	U	0.2	U	0.2	U	0.07	J	0.2	U
Calcium	~	246000		327000		281000		265000		110000		51600		49800		21300	
Chromium	50	2.9		30	U	1.93		1.42	J	1.54		1.05	J	1.62		1.15	J
Cobalt	~	2.01		4	U	5.59		5.34		0.79		0.71		0.4		0.48	
Copper	200	4.53		20	U	1.55		0.79	J	1.19		0.58	J	3.02		0.8	J
Iron	300	**4640**		**1380**		**13000**		**12700**		220		148		109		65.9	
Lead	25	6.5	J	3.98	J	1.04		0.7	J	0.28	J	0.55	J	0.14	J	1	U
Magnesium	35000	**188000**		**210000**		20400		20500		19800		8420		5870	J	9740	
Manganese	300	**1509**		**927.6**		**8192**		**7828**		**376**		**344.3**		247.3		**856.2**	
Nickel	100	4.35		1.76	J	4.91		5.22		2.1		1.12		2.17		1.51	
Potassium	~	77800		212000		29100		28900		14300		4360		4420	J	6610	
Selenium	10	5	U	*100*	U	5	U	5	U	**26.5**		5	U	5	U	1.74	J
Sodium	20000	**2030000**		**4800000**		**324000**		**311000**		**70300**		**84000**		**88300**		**69200**	
Vanadium	~	1.82	J	100	U	1.48	J	0.6	J	5	U	5	U	5	U	0.86	J
Zinc	2000	14.18		200	U	4.52	J	7.33	J	7.55	J	2.93	J	11.28		10	U

Notes and Qualifiers:

1. Groundwater samples analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) and guidance values for drinking water (Class GA) .
2. Only compounds with detections are shown in the table.
3. Results above NYSDEC TOGS standards and guidance values are highlighted and bolded.
4. µg/L = micrograms per liter
5. ~ = No regulatory limit has been established for this analyte.
6. Sample DUP01_112114 is a duplicate sample of MW-6_112114.
7. J =The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
8. U =The analyte was analyzed, but was not detected at a level greater than or equal to the level of the Reporting Limit (RL) or the sample concentration for results impacted by blank contamination.

Table 7
Soil Vapor and Ambient Air Sample Analytical Results Summary
Remedial Investigation Report
416 Kent Avenue
Brooklyn, New York
Langan Project No. 170332901

Location	SV-14		SV-15		SV-16		SV-17		SV-18		SV-19		SV-20		SV-21		SV-22		SV-22		AA01	
Client Sample ID	SV-14_111514		SV-15_111514		SV-16_111514		SV-17_111514		SV-18_111514		SV-19_111514		SV-20_111514		SV-21_111514		SV-22_111514		SVDUP01_111514		AA01_111614	
Lab Sample ID	L1427643-09		L1427643-07		L1427643-06		L1427649-06		L1427649-01		L1427643-08		L1427649-05		L1427649-02		L1427649-04		L1427649-03		L1427643-01	
Sampling Date	11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/15/2014		11/16/2014	
Volatile Organic Compounds (µg/m³)																						
1,1,1-Trichloroethane	8.84		5.46	U	2.18	U	5.45		4.85		6.44		16.8		1.13		1.09	U	1.09	U	1.09	U
1,1-Dichloroethane	0.809	U	4.05	U	1.62	U	0.809	U	0.809	U	0.809	U	0.809	U	0.809	U	0.809	U	0.809	U	0.809	U
1,2,4-Trimethylbenzene	7.03		9.78		7.08		7.42		7.13		9.09		2.21		11.2		0.983	U	8.95	J	0.983	U
1,3,5-Trimethylbenzene	2.29		4.92	U	2.19		2.28		2.32		2.75		0.983	U	3.64		0.983	U	2.6	J	0.983	U
1,3-Butadiene	8.67		6.95		32.3		9.36		17.4		0.442	U	2.28		0.783		0.442	U	0.442	U	0.442	U
2,2,4-Trimethylpentane	0.934	U	4.67	U	1.87	U	0.934	U	0.934	U	1.73		0.934	R	0.934	R	0.934	U	1.13		0.934	U
2-Butanone	36.3		18.4		33.3		9.26		29.8		5.04		19.1		24.1		0.59	U	1.45	J	0.59	U
2-Hexanone	2.05		4.1	U	3.02		0.82	U	0.82	U	1.61		1.35		1.39		0.82	U	0.82	U	0.82	U
4-Ethyltoluene	2.27		4.92	U	2.41		2.38		2.47		4.45		0.983	U	3.54		0.983	U	2.52	J	0.983	U
4-Methyl-2-pentanone	5.53		4.1	U	11.9		0.82	U	6.72		2.89		3.67		35.8		0.82	U	0.82	U	0.82	U
Acetone	128		11.9	R	90.7		151		146		43.2		82		75.5		10		33.3		5.23	
Benzene	11.9		57.8		11.8		3.23		16.3		1.68		2.68		2.25		0.639	U	0.962		0.639	U
Carbon disulfide	12.3		241		15.8		26		10.3		3.74		5.08		2.57		0.623	U	0.623	U	0.623	U
Chloroethane	0.528	U	2.64	U	1.06	U	0.528	U	0.881		0.528	U	0.528	U	0.528	U	0.528	U	0.528	U	0.528	U
Chloroform	10.1		4.88	U	5.96		1.03		0.977	U	2.6		1.28		2.4		0.977	U	0.977	U	0.977	U
Chloromethane	0.413	U	2.07	U	1.88		0.966		0.541		0.413	U	0.413	U	0.413	U	1.38		1.34		0.913	
Cyclohexane	7.4		230		23.6		13.4		8.81		0.909		6.3		2.14		0.688	U	0.688	U	0.688	U
Dichlorodifluoromethane	1.28		4.94	U	1.98	U	2.68		0.989	U	2.11		1.25		0.989	U	1.78		1.57		1.71	
Ethanol	9.2		27.1		9.42	U	8.4		7.52		4.71	U	6.16		80.8		7.74		8.91		4.75	
Ethyl Acetate	1.8	U	9.01	U	3.6	U	1.8	U	2.14		1.8	U	1.8	U	1.98		1.8	U	1.8	U	1.8	U
Ethylbenzene	15.7		9.9		8.25		11.8		16.1		5.21		3.1		8.86		0.869	U	3.26	J	0.869	U
Heptane	13.9		356		19.9		12.9		19.4		2.94		4.84		4.67		0.82	U	1.18		0.82	U
Isopropanol	2.56		6.15	U	2.46	U	1.23	U	2.24		1.23	U	1.75		6.86		1.23	U	1.23	U	1.23	U
n-Hexane	15.3		1060		32.8		16.2		24.8		2.34		5.04		3.91		0.705	U	1.28		0.705	U
o-Xylene	19		13.3		11.6		18.3		19.6		9.43		4.65		14.7		0.869	U	6.47	J	0.869	U
p/m-Xylene	45.2		33		29.3		42.1		46.5		21.4		11.9		33.7		1.74	U	15.3	J	1.74	U
Styrene	13.2		15		19.6		13.7		15		15.5		6.26		19.2		0.852	U	10.3	J	0.852	U
Tertiary butyl Alcohol	9.25		9.19		15		8.43		11.8		12.2		12.7		21.1		1.52	U	3.46	J	1.52	U
Tetrachloroethene	65.7		6.78		2.71	U	4.94		1.36	U	25.9		4.32		23.9		1.36	U	1.36	U	1.36	U
Tetrahydrofuran	1.14		5.9		2.31		1.23		1.57		0.723		0.959		6.05		0.59	U	0.59	U	0.59	U
Toluene	20.2		56.9		24.6		10.5		22		10.9		8.89		18		0.773		6.63		0.754	U
Trichloroethene	1.88		5.37	U	2.15	U	1.07	U	1.07	U	1.07	U	1.07	U	5.08		1.07	U	1.07	U	1.07	U
Trichlorofluoromethane	35.3		5.62	U	4.78		71.9		23.4		25		31.9		16.1		1.78		1.59		1.41	

Notes:
1. Soil vapor samples analytical results are compared to the New York State Department of Health (NYSDOH) Soil Vapor Decision Matrices
2. Only compounds with detections are shown in table.
3. µg/m³ = micrograms per cubic meter
4. SVDUP01_111514 parent sample is SV22_111514.

Qualifiers:
U = Analyte not detected at or above the level indicated

R = The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

J = The analyte was positvely identified and the associated numerical value is the approximate concentration of the analyte in the sample.

Table 8
Field Blank and Trip Blank Analytical Results Summary
Remedial Investigation Report
416 Kent Ave
Brooklyn, New York
Langan Project No. 170332901

	FIELD BLANKS				TRIP BLANKS			
Location	**FB01_111614**		**FB01_112114**		**TB01_111614**		**TB_112114**	
Lab Sample ID	**L1427645-12**		**L1428271-03**		**L1427645-11**		**L1428271-05**	
Sampling Date	**11/16/2014**		**11/21/2014**		**11/14/2014**		**11/21/2014**	
QA/QC Matrix	**Soil**		**Groundwater**		**Soil**		**Groundwater**	
Volatile Organic Compounds (µg/L)								
Acetone	2.8	J	5	U	5	U	5	U
Semivolatile Organic Compounds (SVOCs) (µg/L)								
Total SVOCs	ND		ND		NT		NT	
Polychlorinated Biphenyls (PCBs) (µg/L)								
Total PCBs	ND		ND		NT		NT	
Pesticides (µg/L)								
Pesticides	ND		ND		NT		NT	
Herbicides (µg/L)								
Herbicides	ND		ND		NT		NT	
Dissolved Metals (µg/L)								
Aluminum	NT		2.81	J	NT		NT	
Antimony	NT		2.15	J	NT		NT	
Barium	NT		0.18	J	NT		NT	
Calcium	NT		159		NT		NT	
Chromium	NT		1.12	J	NT		NT	
Copper	NT		0.99	J	NT		NT	
Manganese	NT		0.39	J	NT		NT	
Nickel	NT		0.71		NT		NT	
Potassium	NT		282		NT		NT	
Sodium	NT		235		NT		NT	
Zinc	NT		6.53	J	NT		NT	
Total Metals (µg/L)								
Aluminum	10	U	4.49	J	NT		NT	
Antimony	0.4	J	0.58	J	NT		NT	
Barium	0.1	J	0.3	J	NT		NT	
Calcium	33	J	539		NT		NT	
Chromium	1.3	J	0.82	J	NT		NT	
Copper	1	U	0.32	J	NT		NT	
Manganese	0.5	U	0.73		NT		NT	
Nickel	0.8	J	0.21	J	NT		NT	
Potassium	100	U	210		NT		NT	
Sodium	43	J	292		NT		NT	
Zinc	10	U	12.64		NT		NT	
General Chemistry (µg/L)								
Cyanide, Total	6		NT		NT		NT	

Notes:
1. Only detected compounds are shown in the table.
2. µg/L = micrograms per liter
3. QA/QC Matrix = Corresponding sample matrix/rationale for each quality control sample
4. NT = Not Tested
5. ND = Not Detected

Qualifiers:
U = Not detected at the reported detection limit for the sample
J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.