66 AINSLIE STREET

BROOKLYN, NEW YORK

Remedial Investigation Report

NYC BCP Site Number: ------
E-Designation Site Number: 14EHAZ565K

Prepared for:

Slate Property Group
850 Third Avenue – Suite 16B
New York, New York 10022

Prepared by:

Hydro Tech Environmental, Corp
15 Ocean Avenue, 2nd Floor, Brooklyn, New York
(718) 636-0800

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC BCP	New York City Brownfield Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

CERTIFICATION

I, Mark E. Robbins, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 66 Ainslie Street Site OER project Number 14EHAZ565K. I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Mark E. Robbins 9/8/14

Qualified Environmental Professional Date Signature

EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

Site Location and Current Usage

The Site is located at 66 Ainslie Street in the East Williamsburg section in Brooklyn, New York and is identified as Block 2375 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 7,500-square feet and is bounded by Keap Street to the northwest, a 2-story warehouse to the southwest, a 1-story warehouse to the southeast, and Ainslie Street to the northwest. A map of the site boundary is shown in Figure 2. Currently, the Site is used as a boiler repair shop and contains a 1-story brick building with a partial mezzanine is located on the property. The mezzanine is used as office space. The building does not have a basement.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 7-story building with a height of 70 feet over a parking garage in the cellar of residential and commercial use on the first floor only on a 75’ x 100’ lot. The cellar will include a parking garage with 23 parking spaces, mechanical rooms, elevator and stairs, ramp into the parking garage, compactor room and storage. The first floor will include commercial space, parking ramp entry, lobby, elevator, egress stairs, mail room and recreation area for tenants. The second through seventh floors will include refuse rooms, elevators, egress stairs and fifty apartments. The roof will include stairs, an elevator and a common tenant recreation area. An excavation to 10 feet bgs across the entire site will be required to build the parking garage. Excavation is not anticipated below the water table. Depth to groundwater is approximately 11 feet below grade surface. Layout of the proposed site development is presented in Figure 3. The current zoning designation is M1-2/R6A/MX-8. Lot 5 has been designated with Hazardous Materials “E”-designation due to the boiler repair shop onsite as part of the May 11, 2005 Greenpoint-Williamsburg Rezoning (CEQR #04DCP003K).The proposed use is consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

Based upon the review of Sanborn Fire Rate Insurance Maps, Property Shark, the City Directory and the NYC Automated City Register Information System (ACRIS) database for the Subject Property and its vicinity and the Phase I Environmental Site Assessment (ESA) Report prepared by Hydro Tech Environmental, Corp. in September 2013 a Site history was established. According to a Phase I ESA prepared by Hydro Tech Environmental dated September 27, 2013, the Site has no record of property use until 1887. According to Sanborn Fire Rate Insurance Maps, the Subject property was used as two 3-story dwellings, one 3-story store, two 1-story buildings, one 1-story and one 3-story stables in 1887; three 3-story dwellings, one 3-story store, three 1-story buildings and one 2-story stable in 1905; four 3-story stores, one 3-story dwelling, four 1-story buildings, one 1-story wood shed, one 2-story stable and two 2-story buildings in 1916; unlisted in 1942; parking with one 1-story office building in 1951; and one 1-story manufacturing building with automatic sprinklers from 1965 to 2007. The historical use of the Subject Property as a boiler repair shop and a manufacturing facility in addition to the presence of a Little “E” designation listing as HAZMAT and the presence of an unregistered AST potentially has an adverse impact upon the environmental quality of the Subject Property. According to Property Shark, previous owners of the Subject Property include Cable Wines Inc. in 1967, Helen Tavolario in 1985 and Tavolario & Meszarosr/Cp. in 1990 to 2013. According to the City Directory and Sanborn Fire Rate Insurance Maps, a dry cleaning fluid and fabric flame proofing supplier and/or manufacturer was located in the northwest adjacent property at 463 Keap Street from between 1916 the earliest and 1934 the latest to 1965 the earliest and 1978 the latest.

The AOCs identified for this site include:

1. The current and historical use of the Subject Property as a boiler repair shop;
2. The historical use of the Subject Property as a manufacturing facility;
3. The presence of a Little “E” designation listing of the Subject Property as HAZMAT;
4. The presence of an unregistered AST

Summary of the Work Performed under the Remedial Investigation

Hydro Tech Environmental, Corp. performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed six (6) soil borings across the entire project Site, and collected twelve (12) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three (3)groundwater monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed four (4) soil vapor probes throughout the Site and collected four (4) samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property ranges from 14 to 16 feet.
2. Depth to groundwater ranges from 11 to 11.5 feet at the Site.
3. Groundwater flow is generally from northeast to southwest beneath the Site.
4. Depth to bedrock is greater than 15 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of 8 feet of fill material underlain by medium to coarse grained sand.
6. Soil sample results were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Residential Use (Track 2) Soil Cleanup Objectives (SCOs). Soil samples showed that VOCs, PCBs or Pesticides were not detected above Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs). Trace levels of two (2) VOCs, including acetone (max. 0.005 ppm) and methylene chloride (max. 0.005 ppm) were detected in soil samples. Seven (7) SVOCs, including Benzo(a)anthracene (max. 10.6 ppm), Benzo(a)pyrene (max. 11.2 ppm), Benzo(b)fluoranthene (max. 12.8 ppm), Chrysene (max. 10.3 ppm), Dibenzo(a,h)anthracene (max. 0.458 ppm) and Indeno(1,2,3-cd)pyrene (max. 0.949 ppm) were detected in all shallow soil samples at concentrations exceeding Track 2 Restricted Residential SCOs. These SVOCs were also detected in deeper soils at

one location. Five (5) metals, including barium (max. 1,040 ppm), cadmium (max. 3.09 ppm), copper (max. 882 ppm), lead (max. 3,400 ppm) and mercury (max. 1.95 ppm) were detected in shallow soil samples at concentrations exceeding Track 2 Restricted Residential SCOs. Lead and mercury were also detected in one deep soil sampling location. High lead samples were also analyzed for Lead Toxicity Characteristic Leaching Procedures (TCLP) and indicated no hazardous waste levels. Overall soil chemistry is unremarkable with shallow historic fill except for elevated metals and SVOCs in one deeper soil sampling location.

7. Groundwater samples collected were compared to NYSDEC 6NYCRR Part 703.5 Groundwater Quality Standards (GQS). Groundwater results showed no detectable concentrations of PCBs or Pesticides. One VOC, naphthalene (max. 11 ppb) was detected in all groundwater samples and exceeded its GQS in one sample. Trace levels of methyl tert-butyl ether (MTBE) (max. 4.2 ppb) was detected in groundwater samples. Six (6) SVOCs were detected in groundwater samples at concentrations exceeding their respective GQSs. Several metals were identified in groundwater but only manganese and sodium were detected at concentrations exceeding their respective GQSs.

Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. Soil vapor results showed a wide range of VOCs at low to moderate concentrations. Most compounds were detected at less than 20 $\mu g/m^3$ except for acetone (max. of 97 $\mu g/m^3$) and Chloroform (max. 42 $\mu g/m^3$). Chlorinated VOCs were detected at elevated levels and included 1,1,1-Trichloroethane (max. 100 $\mu g/m^3$), tetrachloroethylene (max. 620 $\mu g/m^3$) and Trichloroethylene (max. 26 $\mu g/m^3$). Concentrations of TCA, TCE and PCE are elevated and within the monitoring ranges established by NYSDOH matrix and require monitoring/mitigation.

REMEDIAL INVESTIGATION REPORT

1.0 SITE BACKGROUND

Slate Property Group has applied to enroll in the New York City Voluntary Cleanup Program (NYC BCP) to investigate and remediate a 0.17-acre site located at 66 Ainslie Street in the East Williamsburg section of Brooklyn, New York. Mixed commercial residential use is proposed for the property. The RI work was performed between October 28, 2013 and June 29th 2014. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 66 Ainslie Street in the East Williamsburg section in Brooklyn, New York and is identified as Block 2375 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 7,500-square feet and is bounded by Keap Street to the northwest, a 2-story warehouse to the southwest, a 1-story warehouse to the southeast, and Ainslie Street to the northwest. A map of the site boundary is shown in Figure 2. Currently, the Site is used as a boiler repair shop and contains a 1-story brick building with a partial mezzanine is located on the property. The mezzanine is used as office space. The building does not have a basement.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 7-story building with a height of 70 feet over a parking garage in the cellar of residential and commercial use on the first floor only on a 75’ x 100’ lot. The cellar will include a parking garage with 23 parking spaces, mechanical rooms, elevator and stairs, ramp into the parking garage, compactor room and storage. The first floor will include commercial space, parking ramp entry, lobby, elevator, egress stairs, mail room and recreation area for tenants. The second through seventh floors will include refuse rooms, elevators, egress stairs and fifty apartments. The roof will include stairs, an elevator and a common tenant recreation area. An excavation to 10 feet bgs will be required to build the

parking garage. The bottom of footings will be approximately 12 feet from the first floor and the bottom of the elevator footing will be about 17 feet from the first floor. Excavation is not anticipated below the water table. Depth to groundwater is approximately 11 feet below grade surface. Layout of the proposed site development is presented in Figure 3. The current zoning designation is M1-2/R6A/MX-8. Lot 5 has been designated with Hazardous Materials "E"-designation due to the boiler repair shop onsite as part of the May 11, 2005 Greenpoint-Williamsburg Rezoning (CEQR #04DCP003K).The proposed use is consistent with existing zoning for the property.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Subject Property is located on the south side of Ainslie Street, between Keap Street to the west, Union Avenue to the east and Hope Street to the south. The vicinity of the Subject Property consists of commercial and residential properties. The ground surface in the vicinity of the Site consists of asphalt and concrete. The results of the Site inspection and an evaluation of the United States Geological Survey (USGS) 7-½ Minute Topographic Map containing the property indicates there are no sensitive receptors present within a 0.125-mile radius of the Subject Property.

Figure 4 shows the surrounding land usage.

2.0 SITE HISTORY

2.1 PAST USES AND OWNERSHIP

Based upon the review of Sanborn Fire Rate Insurance Maps, Property Shark, the City Directory and the NYC Automated City Register Information System (ACRIS) database for the Subject Property and its vicinity and the Phase I Environmental Site Assessment (ESA) Report prepared by Hydro Tech Environmental, Corp. in September 2013 a Site history was established. According to a Phase I ESA prepared by Hydro Tech Environmental dated September 27, 2013, the Site has no record of property use until 1887. According to Sanborn Fire Rate Insurance Maps, the Subject property was used as two 3-story dwellings, one 3-story store, two 1-story buildings, one 1-story and one 3-story stables in 1887; three 3-story dwellings, one 3-story store, three 1-story buildings and one 2-story stable in 1905; four 3-story stores, one 3-story dwelling, four 1-story buildings, one 1-story wood shed, one 2-story stable and two 2-story buildings in 1916; unlisted in 1942; parking with one 1-story office building in 1951; and one 1-story manufacturing building with automatic sprinklers from 1965 to 2007. The historical use of the Subject Property as a boiler repair shop and a manufacturing facility in addition to the presence of a Little “E” designation listing as HAZMAT and the presence of an unregistered AST potentially has an adverse impact upon the environmental quality of the Subject Property. According to Property Shark, previous owners of the Subject Property include Cable Wines Inc. in 1967, Helen Tavolario in 1985 and Tavolario & Meszarosr/Cp. in 1990 to 2013. According to the City Directory and Sanborn Fire Rate Insurance Maps, a dry cleaning fluid and fabric flame proofing supplier and/or manufacturer was located in the northwest adjacent property at 463 Keap Street from between 1916 the earliest and 1934 the latest to 1965 the earliest and 1978 the latest.

2.2 PREVIOUS INVESTIGATIONS

Previous investigations performed at the Site include the following:

- Phase I Environmental Site Assessment, September 2013, Hydro Tech Environmental, Corp.

- Phase II Environmental Site Assessment, November 2013, Hydro Tech Environmental, Corp.

The scope of work for the Phase II included the installation and sampling of six (6) soil probes and three (3) groundwater monitoring wells on October 29, 2013, all sampled for E-designation parameters. The scope of work and conclusions of the field investigation will be detailed as part of this Remedial Investigation Report.

2.3 SITE INSPECTION

Ms. Ezgi Karayel of Hydro Tech Environmental, Corp. performed the site inspection for the Phase I Assessment on September 11, 2013. The reconnaissance included a visual inspection of the Site. At the time of the inspection, a 1-story warehouse utilized as a boiler repair shop with a partial mezzanine used as office space occupied the Site. Ms. Karayel observed numerous 55-gallon drums in good condition containing mobile oil and anti-freeze at the Subject Property but were not identified as impacting upon the environmental quality of the Subject Property.

2.4 AREAS OF CONCERN

The AOCs identified for this site include:

1. The current and historical use of the Subject Property as a boiler repair shop;
2. The historical use of the Subject Property as a manufacturing facility;
3. The presence of a Little “E” designation listing of the Subject Property as HAZMAT;
4. The presence of an unregistered AST

Phase I and Phase II Reports are presented in Appendix A. A map showing areas of concern is presented in Figure 5.

3.0 PROJECT MANAGEMENT

3.1 PROJECT ORGANIZATION

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Mark E. Robbins.

3.2 HEALTH AND SAFETY

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

3.3 MATERIALS MANAGEMENT

All material encountered during the RI was managed in accordance with applicable laws and regulations.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

Hydro Tech Environmental, Corp. performed the following scope of work:

5. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
6. Installed six (6) soil borings across the entire project Site, and collected twelve (12) soil samples for chemical analysis from the soil borings to evaluate soil quality;
7. Installed three (3)groundwater monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples for chemical analysis to evaluate groundwater quality;
8. Installed four (4) soil vapor probes throughout the Site and collected four (4) samples for chemical analysis.

Photographs were taken during RI activities and are provided in Appendix B.

4.1 GEOPHYSICAL INVESTIGATION

A geophysical survey was not conducted at the Subject Property prior to the remedial investigation.

4.2 BORINGS AND MONITORING WELLS

Drilling and Soil Logging

A total of six (6) soil probes, designated SP-1 to SP-6, were installed. SP-1 and SP-2 were installed to 15 feet bgs and SP-3 through SP-6 were installed to 10 feet bgs. All soil probes were installed utilizing Hydro Tech's tractor mounted Geoprobe® 6620DT with Geoprobe® tooling and sampling equipment. Soil samples were collected utilizing a 5-foot long Macro Core sampler fitted with dedicated acetate liners. Each sampler was installed with 1 ½-inch diameter drill rods. Each Macro Core was cut open and immediately screened with a Photo Ionization Detector (PID) for VOCs, prior to collecting the required samples for laboratory analysis. The soil was screened and characterized at two-foot intervals. Continuous soil samples were collected during soil probe installation.

Boring logs were prepared by a geotechnical engineer are attached in Appendix C A map showing the location of soil borings and monitor wells is shown in Figure 6.

Groundwater Monitoring Well Construction

Three (3) monitoring wells, designated MW-1 through MW-3, were installed within the consecutive locations of SP-1, SP-4 and SP-6, respectively. The total depth of the monitoring wells is 20 feet bgs and each well is constructed of 1-inch diameter PVC. The well screens consist of 0.020-inch slots and extend 15 feet from the bottom of the well. The remaining portions of the wells consist of solid riser.

Monitoring well construction logs are attached in Appendix D. Monitor well locations are shown in Figure 6.

Survey

A land survey was conducted to identify the locations of all soil borings and monitoring wells in addition to establishing groundwater flow direction.

Land survey data is included in Table 10.

Water Level Measurement

Prior to groundwater purging and sampling of the monitoring wells, the wells were gauged for the presence of Light, Non-Aqueous Phase Liquid (LNAPL) and also monitored to determine the depth to water. The well gauging and monitoring was performed utilizing a Solinst® 122 Oil/Water Interface Probe (Interface Probe). The Interface Probe can measure depths to water to 0.01 inch. Well gauging and monitoring was performed in the wells from the northern portion of the casing top. LNAPL was not identified in the monitoring wells during the well gauging exercise.

Water level data is included in Table 10.

Soil Vapor

Four (4) soil vapor probes, designated SV-1 through SV-4, were installed beneath the slab. The soil vapor probes were installed in accordance with the NYSDOH guidance for evaluating soil vapor intrusion dated October 2006. Each soil vapor sampling point consists of a

stainless steel screen, or implant, fitted with dedicated polyethylene tubing. Each of the implants is of 1 ½-inch diameter. Glass beads were poured into the hole to fully encompass the screen implant and the hole was sealed with bentonite and quick dry-lock non-VOC quick set cement. A map showing the locations of soil vapor probes is shown in Figure 6.

4.3 SAMPLE COLLECTION AND CHEMICAL ANALYSIS

Sampling performed as part of the field investigation was conducted for all Areas of Concern and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. All media including soil, groundwater and soil vapor have been sampled and evaluated in the RIR. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in this RIR provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

Soil Sampling

Twelve (12) soil samples were collected for chemical analysis during this RI; these include the zero to 2 foot samples from all soil probes, one (1) sample from 7 to 9 feet from SP-1; and four (4) samples from 8 to 10 feet from SP-2, SP-4, SP-5 and SP-6.

All samples were properly handled and placed into the appropriately labeled containers and submitted to the laboratory as specified in the work plan. The samples were placed in a cooler filled with ice and maintained at a maximum 4 degrees Celsius. All samples were transmitted under proper chain of custody procedures to a State-certified (ELAP) laboratory for confirmatory laboratory analyses. All holding times were met. The laboratory did not report any irregularities with respect to their internal Quality Assurance/Quality Control.

Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Tables 1 through 4. Figure 6 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

Groundwater Sampling

Three (3) groundwater samples were collected for chemical analysis during this RI. Groundwater samples from the monitoring wells were collected using the low stress (low flow) purging and sampling procedure following the purge of each well 3-5 well volumes. The low flow was accomplished with a Solinst Bladder Pump and the continuous flow was monitored with a Horiba U-52 water quality monitor until the readings had stabilized.

The water samples were collected in laboratory-supplied jars, properly labeled with the sample number, the date and time of sampling, the analytical requirements, and then placed on ice for the duration of the sampling and transport to the laboratory. A chain of custody form was completed at the time of sampling and maintained until disposition of the samples at the laboratory.

Groundwater sample collection data is reported in Tables 5 through 8. Sampling logs with information on purging and sampling of groundwater monitor wells is included in Appendix E. Figure 6 shows the location of groundwater sampling. Laboratories and analytical methods are shown below.

Soil Vapor Sampling

Four (4) soil vapor probes were installed and four (4) soil vapor samples were collected for chemical analysis during this RI. Soil vapor sampling locations are shown in Figure 6. Soil vapor sample collection data is reported in Table 9. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

A soil vapor sample was collected from each vapor probe utilizing 6 liter pre-cleaned, passivated, evacuated whole air Summa® Canister. In order to ensure the integrity of the borehole seal and to verify that ambient air is not inadvertently drawn into the sample, a tracer gas, Helium, was used to enrich the atmosphere in the immediate vicinity of the sampling location. Plastic sheeting was used to keep the tracer gas in contact with the soil vapor probe during the sampling while continuously monitoring air drawn from the implant with a Helium detector (Dielectric Model MGD-2002, Multi-gas Detector). Helium Detector readings did not exceed zero ppm indicating Helium was not detected. Following verification that the surface seal was tight and prior to soil vapor sampling, approximately 0.3 ml of air was purged out of all vapor points utilizing a syringe.

The Summa Canisters were calibrated for 2 hours and the soil vapor sampling was run on each canister for the duration of 2 hours. The initial vacuum (inches of mercury) and start time was recorded immediately after opening each Summa Canister. After the sampling was complete, the final vacuum and top time was recorded. After the soil vapor sampling, each Summa was labeled and sent to a laboratory certified to perform air analysis in New York State.

Chemical Analysis

Chemical analytical work presented in this RIR has been performed in the following manner:

Factor	Description
Quality Assurance Officer	The chemical analytical quality assurance is directed by Mark E. Robbins
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the RI is NYS ELAP certified and was York Analytical Laboratories, Inc.
Chemical Analytical Methods	Soil analytical methods: • TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Groundwater analytical methods: • TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Soil vapor analytical methods:

	• VOCs by TO-15 VOC parameters..

Results of Chemical Analyses

Laboratory data for soil, groundwater and soil vapor are summarized in Tables 1 through 9.. Laboratory data deliverables for all samples evaluated in this RIR are provided in digital form in Appendix E through G.

5.0 ENVIRONMENTAL EVALUATION

5.1 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

The Site is located in the northwestern portion of Kings County, New York. The elevation of the Subject Property is approximately 14 feet above mean sea level (USGS 7 ½-Minute Brooklyn, New York Quadrangle, 1995, Photo revised 2011).

Stratigraphy

The stratigraphy of the Site, from the surface down to about 8 feet bgs, is classified as fill consisting of a mixture of gravel, sand, silt, bricks and concrete. This fill material is underlain by medium to coarse grained sand to 15 feet bgs. Drilling did not occur deeper than 15 feet bgs.

Hydrogeology

A table of water level data for all monitor wells is included in Table 10. The depth to water ranges from 11.08 feet to 11.10 feet. The survey conducted onsite indicates groundwater flow is southwesterly. A map of groundwater level elevations with groundwater contours and inferred flow lines is shown in Figure 7. Groundwater flow is from northeast to southwest.

5.2 SOIL CHEMISTRY

Soil/fill samples collected during the RI showed no VOCs, PCBs or Pesticides above 6 NYCRR Part 375-6.8 Track 1 Unrestricted Soil Cleanup Objectives (SCOs). Seven (7) SVOCs, including Benzo(a)anthracene (max. 10.6 ppm), Benzo(a)pyrene (max. 11.2 ppm), Benzo(b)fluoranthene (max. 12.8 ppm), Chrysene (max. 10.3 ppm), Dibenzo(a,h)anthracene (max. 0.458 ppm) and Indeno(1,2,3-cd)pyrene (max. 0.949 ppm) were detected in soil samples at concentrations exceeding Track 2 Restricted Residential SCOs. Most SVOC exceedances were in shallow soils except for one soil boring SB-2, which detected SVOCs at 8 to 10 feet depths. Five (5) metals, including Barium (max. 1,040 ppm), Cadmium (at 3.09 ppm), Copper (max. 882 ppm), Lead (max. 3,400 ppm) and Mercury (max. 1.95 ppm) were detected in soil samples at concentrations exceeding Track 2 Restricted Residential SCOs. Lead and mercy were also detected in one deeper soil sample. Four (4) metals, including Selenium (max. 4.37 ppm), Silver (max. 7.26 ppm), Zinc (max. 1,390 ppm) and Chromium Hexavalent (max. 2.63 ppm) were also

detected in soil samples at concentrations exceeding Track 1 Unrestricted SCOs. Trace levels of two (2) VOCs, including Acetone (max. 0.005 ppm) and Methylene Chloride (max. 0.005 ppm) were detected in soil samples. Trace levels of eight (8) SVOCs, including Acenaphthene, Acenaphthylene, Anthracene, Benzo(g,h,i)perylene, Fluoranthene, Fluorene, Phenanthrene and Pyrene were detected in soil samples. Trace levels of thirteen (13) metals, including Aluminum (max. 11,500 ppm), Antimony (max. 125 ppm), Arsenic (max. 12.7 ppm), Calcium (max. 58,100 ppm), Cobalt (max. 20.2 ppm), Iron (max. 28,400 ppm), Magnesium (max. 3,110 ppm), Nickel (max. 24.4 ppm) Potassium (max. 1,440 ppm), Sodium (max. 703 ppm), Vanadium (max. 32.4 ppm) and Chromium Trivalent (max. 24.5 ppm) were detected in soil samples. Due to high levels of lead in SP-2 (0-2'), SP-2 (8-10') and SP-6 (0-2'), these three samples were analyzed for Lead Toxicity Characteristic Leaching Procedures (TCLP) (max. 2.80 ppm). Data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. A summary table of data for chemical analyses performed on soil samples is included in Tables 1 through 4. Figures 8 and 9 show the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 Soil Cleanup Objectives.

5.3 GROUNDWATER CHEMISTRY

Groundwater samples collected during the RI showed no PCBs or Pesticides above NYSDEC TOGS Groundwater Quality Standards (GQSs). Naphthalene (max. 11 ppb) was detected in groundwater samples and their respective batch blanks at concentrations exceeding its GQS. Six (6) SVOCs, including 2-Chlorophenol (max. 9.51 ppb), Benzo(a)anthracene (max. 4.21 ppb), Benzo(a)pyrene (max. 3.69 ppb), Benzo(b)fluoranthene (max. 5.14 ppb), Benzo(k)fluoranthene (max. 3.77 ppb) and Chrysene (max. 3.62 ppb) were detected in groundwater samples at concentrations exceeding their respective GQSs. Thirteen (13) Metals, including Antimony (max. 13 ppb), Arsenic (max. 39 ppb), Barium (max. 17,100 ppb), Beryllium (max. 5 ppb), Cadmium (max. 17 ppb), Chromium (max. 776 ppb), Copper (max. 2,880 ppb), Lead (max. 17,500 ppb), Magnesium (max. 77,300 ppb), Manganese (max. 19,800 ppb), Nickel (max. 434 ppb), Sodium (max. 146,000 ppb) and Zinc (max. 9,540 ppb) were detected in groundwater samples at concentrations exceeding their respective GQSs. Two (2) Dissolved Metals, including Manganese (max. 728 ppb) and Sodium (max. 149,000 ppb) were detected in groundwater samples at concentrations exceeding their respective GQSs. Trace levels of one (1)

VOC, Methyl tert-butyl ether (MTBE) (max. 4.2 ppb) was detected in groundwater samples. Trace levels of four (4) SVOCs, including Fluoranthene, Naphthalene, Phenanthrene and Pyrene were detected in groundwater samples. Trace levels of six (6) Metals, including Aluminum (max. 168,000 ppb), Calcium (max. 505,000 ppb), Cobalt (max. 318 ppb), Iron (max. 322,000), Potassium (max. 44,800 ppb) and Vanadium (max. 572) were detected in groundwater samples. Trace levels of seven (7) Dissolved Metals, including Aluminum (max. 62 ppb), Barium (max. 56 ppb), Calcium (max. 150,000 ppb), Iron (max. 76 ppb), Potassium (max. 20,300 ppb) and Chromium Trivalent (max. 776 ppb) were detected in groundwater samples.

Data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site. A summary table of data for chemical analyses performed on groundwater samples is included in Tables 5 through 8. Exceedence of applicable groundwater standards are shown.

Figures 10 and 11 show the location and posts the values for groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

5.4 SOIL VAPOR CHEMISTRY

Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. Eleven (11) VOCs, including 1,1,1-Trichloroethane (max. 100 µg/m³), 1,2,4-Trimethylbenzene (max. 28 µg/m³), 2-Butanone (max. 19 µg/m³), Chloroform (max. 42 µg/m³), Methylene Chloride (max. 20 µg/m³), n-Hexane (max. 19 µg/m³), o-Xylene (max. 13 µg/m³), p-&m-Xylenes (max. 27 µg/m³), Tetrachloroethylene (max. 620 µg/m³), Tetrahydrofuran (max. 21 µg/m³), Toluene (max. 30 µg/m³), and Trichloroethylene (max. 26 µg/m³) were detected in the soil vapor samples.

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in Table 9.

Figure 12 shows the location and posts the values for soil vapor samples with detected concentrations.

5.5 PRIOR ACTIVITY

Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

5.6 IMPEDIMENTS TO REMEDIAL ACTION

There are no known impediments to remedial action at this property.