2488-2490 3RD AVENUE

BRONX, NEW YORK

Remedial Investigation Report

NYC VCP Site Number: N/A

OER Project Number: 12EHAZ522X

Prepared for:

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Bronx, New York

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October 2015

REMEDIAL INVESTIGATION REPORT

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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 VCP	New York City Voluntary 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 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 2488-2490 3rd Avenue, Bronx, (OER Project Number 12EHAZ522X). 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	12.14.2015	
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 2488-2490 3rd Avenue in the Mott Haven section in Bronx, New York and is identified as Block 2318 and Lots 18 and 19 on the New York City Tax Map. The Site is 7,443-square feet and is bounded by a 3-story commercial building to the north, 136th Street to the south, Lincoln Avenue to the east, and a 1-story commercial building to the west. A map of the site boundary is shown in **Figure 1**. Currently, the Site is used for construction vehicle staging in the northern portion and contains an asphalt lot used for parking backhoes and other vehicles. A 1-story commercial building with a basement in the western portion of the Site is currently undergoing renovations and is currently vacant. A 1-story deli with a basement located in the southeastern corner is currently open and active and has full basement. A carwash located between the asphalt lot and the 1-story commercial building is closed and is currently vacant.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 5-story residential and commercial mixed use building. The first floor of the building will be used as a retail store and the remaining 4 floors will be used as residential space. Layout of the proposed site development is presented in **Figure 3**. The current zoning designation is M1-4/R7A. The proposed use is consistent with existing zoning for the property. The retail store will be built at grade and there will be no basement as part of this development. The existing basement at the southern portion of the Site will be backfilled as part of the development. The maximum building height for this development will be 80 feet including the bulkhead. This project is a full build-out and will extend to the property boundaries. Excavation to approximately 7 feet below grade is anticipated in the northeastern portion of the site to house the elevator pits.

Summary of Past Uses of Site and Areas of Concern

Based upon the review of the Fire Insurance Maps and Regulatory Agency documents from the Phase I Environmental Site Assessment (ESA) Report prepared by Hydro Tech Environmental Corp. on September 28, 2015 a site history was established. The site was developed prior to 1891 as a storage yard. The site was noted as a filling station and auto repair facility between 1935 and 1951 with gasoline tanks identified on Sanborn Maps. The use was then changed to the existing carwash and commercial building in 1977 to which it remains today.

The AOCs identified for this site include:

1. The historical use of the property as a filling station and auto repair;
2. The listing of the property as an E-Designation;

Summary of the Work Performed under the Remedial Investigation

The scope of work implemented by Hydro Tech included:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a Ground Penetrating Radar (GPR) survey over all accessible portions of the Site.
3. 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;
4. 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;
5. Installed two (2) soil vapor probes and two (2) sub slab soil vapor probes around the Site and collected four (4) samples for chemical analysis.
6. Collected one (1) indoor and one (1) outdoor ambient air sample.

Summary of Environmental Findings

1. Elevation of the property ranges is approximately 17 feet above sea level.
2. Depth to groundwater ranges from 2.50 to 10.15 feet at the Site.

3. Groundwater flow is generally from the southeast to the northwest beneath the Site.

4. Bedrock was not encountered during the excavation.

5. The stratigraphy of the Site, from surface down, consists of historic fill with variable thickness ranging between zero and 8 feet (brown coarse grained sand with varying amounts of bricks and pebbles).

6. No anomalies were encountered during the GPR survey.

7. Soil/fill samples collected during the remedial investigation were compared to the NYSDEC 6NYCRR Part 375 Section 6.8 Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) as well as to Track 2 Restricted Residential Use SCOs. One VOC, Acetone (0.052 mg/kg) was identified in the deep soil sample at a concentration exceeding its Unrestricted Use SCOs but less than its Restricted Residential SCOs. Two other VOCs, specifically 2-Butanone (maximum 0.017mg/kg), and Tetrachloroethylene (maximum 0.012 mg/kg) were detected in the soil samples at trace concentrations. Six (6) SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) that are typically linked with the presence of historic fill material were identified in the shallow soil in SP-2 and SP-3 and the deep soil in SP-2 at concentrations exceeding Restricted Residential SCOs (RSCOs) and included Benzo(a)anthracene (maximum 4.36 mg/kg), Benzo(a)pyrene (maximum 4.08 mg/kg), Benzo(b)fluoranthene (maximum 4.49 mg/kg), Chrysene (maximum 6.1 mg/kg), and Dibenzo(a,h)anthracene (0.584mg/kg). Benzo(k)fluoranthene (maximum 3.59mg/kg) was also detected at concentrations exceeding Unrestricted Use SCOs. Three (3) pesticides including 4,4'-DDD (maximum 0.0514 mg/kg), 4,4'-DDE (0.0539 mg/kg), and 4,4'-DDT (maximum 0.184 mg/kg) were detected in three shallow soil samples and two deep soil samples at concentrations exceeding Unrestricted Use SCOs but less than Restricted Residential SCOs. One PCB, Aroclor 1260 (maximum 0.111 mg/kg) was detected at trace concentrations. Three (3) metals including Lead (maximum 883 mg/kg), Mercury (maximum 2.96 mg/kg) and Barium (maximum 911 mg/kg) were detected in the shallow soil samples at concentrations exceeding Restricted Residential SCOs. Cadmium (max 2.76 ppm), Copper (maximum 2.76 mg/kg), and Zinc (maximum 1,100 mg/kg) also exceeded their respective Unrestricted Use SCOs. Overall, soil chemistry is unremarkable and is similar to sites with historic fill material.

8. Groundwater samples collected during the RI were compared to New York State 6NYCRR Part 703.5 Groundwater Quality Standards (GQS). Groundwater results showed no VOCs, SVOCs, Pesticides, or PCBs at concentrations exceeding their GQSs. Five VOCs specifically: 2-Butanone (maximum 1.5 ug/L), Acetone (maximum 3.5 ug/L), Bromomethane (maximum 0.33ug/L), Methyl tert-butyl ether (MTBE) (maximum 2 ug/L), and Toluene (maximum 1.7 ug/L) were detected at trace concentrations. Several metals were identified, but only Magnesium (max 52,900 ug/L), Manganese (max 2,030 ug/L), Sodium (max 360,000 ug/L), and Lead (max 56 ug/L) were detected at concentrations exceeding their GQSs.

9. 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 dated October 2006. Petroleum related (BTEX) componds were detected at low concentrations. Highest concentrations were detected for n-heptane (13,000 ug/m^3), n-hexane (12,000 ug/m^3). Chlorinated compounds including 1,1,1-trichloroethane was detected in one sub-slab sample at 6.90 ug/m^3. Tetrachloroethylene (maximum 2,100 ug/m^3) was detected in both soil vapor and sub-slab samples and trichloroethylene was detected in one soil vapor sample at 56 ug/m^3. No compounds were noted in the indoor air sample at concentrations exceeding NYSDOH guidance values. The VOC 4-methyl-2-pentanone (3.50 ug/m^3) was the only compound detected in the ambient outdoor air sample at a concentration exceeding its NYSDOH guidance value. Concentrations of tetrachloroethylene and trichloroethene are above the mitigation level ranges established within the NYSDOH soil vapor guidance matrix.

REMEDIAL INVESTIGATION REPORT

1.0 SITE BACKGROUND

Markland Lincoln JV LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 7,443 square foot site located at 2488-2490 3rd Avenue in the Mott Haven section of Bronx, New York. Mixed use is proposed for the property. The RI work was performed between October 8, 2015 and October 12, 2015. 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 2488-2490 3rd Avenue in the Mott Haven section in Bronx, New York and is identified as Block 2318 and Lots 18 and 19 on the New York City Tax Map. The Site is 7,443-square feet and is bounded by a 3-story commercial building to the north, 136th Street to the south, Lincoln Avenue to the east, and a 1-story commercial building to the west. A map of the site boundary is shown in **Figure 1**. Currently, the Site is used for construction vehicle staging in the northern portion and contains an asphalt lot used for parking backhoes and other vehicles. A 1-story commercial building with a basement in the western portion of the Site is currently undergoing renovations and is currently vacant. A 1-story deli with a basement located in the southeastern corner is currently open and active. A carwash located between the asphalt lot and the 1-story commercial building is closed and is currently vacant.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 5-story residential and commercial mixed use building. The first floor of the building will be used as a retail store and the remaining 4 floors will be used as residential space. Layout of the proposed site development is presented in Figure 3. The current zoning designation is M1-4/R7A. The proposed use is consistent with existing zoning for the property. The retail store will be built at grade and there will be no basement as part of this development. The existing basements at the Site will be backfilled as part of the development and brought to grade. The maximum building height for this development will be 80 feet including the bulkhead. This project is a full build-out and will

extend to the property boundaries. Excavation to approximately 7 feet below grade is anticipated in the northeastern portion of the site to house the elevator pits.

1.3 Description of Surrounding Property

The site is located in a mixed use area that is zoned M1-4/R7A. The site is bounded by a 3-story commercial building to the north, 136th Street to the south, Lincoln Avenue to the east, and a 1-story commercial building to the west. There are no sensitive receptors such as schools, hospitals and day care facilities within a 500-foot radius of the site.

Figure 2 shows the surrounding land usage.

2.0 SITE HISTORY

2.1 Past Uses and Ownership

Based upon the review of the Fire Insurance Maps and Regulatory Agency documents from the Phase I Environmental Site Assessment (ESA) Report prepared by Hydro Tech Environmental Corp. on September 28, 2015 a site history was established. The site was developed prior to 1891 as a storage yard. The site was noted as a filling station and auto repair facility between 1935 and 1951 with gasoline tanks identified on Sanborn Maps. The use was then changed to the existing carwash and commercial building in 1977 to which it remains today.

2.2 Previous Investigations

Previous investigations performed at the Site include the following:

- Phase I Environmental Site Assessment, September 28, 2015, Hydro Tech Environmental, Corp.

2.3 Site Inspection

Erica Johnston of Hydro Tech performed the site inspection on September 18, 2015. The reconnaissance included a visual inspection of the Site. At the time of inspection, the Site contained vehicle staging, a vacant 1-story store, a vacant car wash and an active deli.

2.4 Areas of Concern

The AOCs identified for this site include:

1. The historical use of the property as a filling station and auto repair;
2. The listing of the property as an E-Designation;

Phase I ESA Report is presented in Appendix A. A map showing areas of concern is presented in Figure 4.

3.0 PROJECT MANAGEMENT

3.1 Project Organization

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

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

The scope of work implemented by Hydro Tech included:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a Ground Penetrating Radar (GPR) survey over all accessible portions of the Site.
3. 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;
4. 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;
5. Installed two (2) soil vapor probes and two (2) sub slab soil vapor probes around the Site and collected four (4) samples for chemical analysis.
6. Collected one (1) indoor and one (1) outdoor ambient air sample.

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

4.1 Geophysical Investigation

The survey was performed over a grid pattern that was determined immediately prior to the survey. The GPR operator wheeled the antenna over the predetermined grid. The GPR takes one "scan" per set unit. The number of scans per unit is based upon the estimated size of targets. As each scan is performed, the antenna emits specific radar amplitude into the subsurface. The amplitude of the radar reflected back to the antenna is based upon the differences in the dielectric constants of the subsurface materials. The differences in amplitude obtained during each scan are graphically displayed on the Control Unit, which are then interpreted by the GPR operator. Additional interpretations are then conducted in the office using computer software.

The GPR survey was performed successfully over 75 percent of the property due to the presence of parked vehicles and inaccessibility of the commercial units. No anomalies indicative

of suspect USTs were identified during the GPR survey**. Appendix C** includes the GPR summary report.

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 and sampled at the Site. All soil probes were installed to 8 feet bgs utilizing Hydro Tech's fleet of Geoprobe® fitted with Geoprobe® tooling and sampling equipment. Soil samples were collected utilizing a 4-foot long Macro Core sampler fitted with dedicated acetate liners. 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 geologist and are attached in **Appendix D**. A map showing the location of soil borings is shown in Figure 5.

Groundwater Monitoring Well Construction

Three (3) monitoring wells designated MW-1 to MW-3 were installed at the Site. All monitoring wells were installed to 20 feet bgs and were constructed of 1-inch diameter PVC. The well screens consist of 0.010-inch slots extending up 15 feet from the bottom of each well. The remaining portion of each of these wells consists of a solid riser.

Monitoring wells construction logs are attached in **Appendix E**. Groundwater sampling log with information on purging and sampling of groundwater monitor well is included in **Appendix F**. A map showing the location of monitoring wells is shown in Figure 5.

Survey

Land survey was used to identify the location of all monitor wells. The elevation of all installed monitoring were surveyed relative to a permanent surface benchmark.

Water Level Measurement

One round of static water levels was obtained prior to groundwater purging and sampling from monitoring wells to determine groundwater elevation and groundwater flow direction. Groundwater head measurements were collected utilizing a Solinst® 122 Oil/Water Interface

Probe (Interface Probe). The Interface Probe can measure depths to water to 0.01 inch. The depth to water was measured in each well from the northern portion of the casing top. Water level data is included in Table 10.

Soil Vapor Boring Construction

Two soil (2) soil vapor probes designated SV-1 and SV-2 and two sub slab soil vapor probes designated SSB-3 and SSB-4 were installed during the remedial investigation. All soil vapor probes were installed to 5 feet bgs. 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 consisted of a 1½-inch diameter stainless steel screen, or implant, fitted with dedicated polyethylene tubing. 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 borings is shown in Figure 5.

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 from the soil borings on-Site for laboratory analysis; these included six (6) shallow soil samples from zero to 2 feet bgs, four (4) deep soil samples from 10 to 12 feet bgs, one (1) sample from 4 to 6 feet bgs and one deep sample from 6 to 8 feet bgs. The samples that were taken from shallower depths were located in the basement of the building on the site and were collected right above the water table. Samples were collected utilizing a 4-foot long Macro Core sampler fitted with dedicated acetate liners.

All samples were properly handled and placed into the appropriately labeled containers. One field blank sample and one trip blank were collected 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.

The data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Table 2. Figure 5 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 monitoring wells were collected using the low stress (low flow) purging and sampling procedure. The low flow was accomplished with a Geopump peristaltic pump and the continuous flow was monitored with a Horiba U50 series flow cell until water quality readings had stabilized.

All 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 Table 3. Figure 5 shows the location of groundwater sampling locations. Laboratories and analytical methods are shown below.

Soil Vapor Sampling

Four (4) soil vapor samples, one (1) indoor air and one (1) ambient outdoor air were collected for chemical analysis during this RI. Soil vapor sampling locations are shown in Figure 5. Soil vapor sample collection data is reported in Table 4. The soil vapor sampling log is included in **Appendix G**. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

A soil vapor sample from each vapor probe was collected utilizing 6 liter pre-cleaned, passivated, evacuated whole air Summa® Canister. In order to insure 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.

One (1) outdoor air sample AO-1 and one (1) indoor air sample IA-1 were collected at the same time as the soil vapor samples utilizing 6-liter Summa Canisters.

The Summa Canisters were calibrated for 4 hours and the soil vapor sampling was run on each canister for the duration of 4 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 Benjamin Gulizia (Laboratory Director).
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the RI is NYS ELAP certified and were York Analytical Laboratories.
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 Table 1-9, respectively. Laboratory data deliverables for all samples evaluated in this RIR are provided in digital form in **Appendix H**.

5.0 ENVIRONMENTAL EVALUATION

5.1 Geological and Hydrogeological Conditions

The Subject Property is located in the southwestern portion of the Borough of Bronx, New York. The elevation of the Subject Property is approximately 17 feet above mean sea level (USGS 7.5-Minute Central Park, New York Quadrangle, 1995).

Stratigraphy

The stratigraphy of the Site, from surface down, consists of historic fill with variable thickness ranging between zero and 8 feet (brown coarse grained sand with varying amounts of bricks and pebbles). Boring logs describing surface conditions are presented in Appendix D.

Hydrogeology

A table of water level data for all monitor wells is included in Table 10. The average depth to groundwater is 7.46 feet and the range in depth is 2.50 to 10.15 feet. A map of groundwater level elevations with groundwater contours and inferred flow lines is shown in Figure 6. Groundwater flow is from southeast to northwest.

5.2 Soil Chemistry

Soil/fill samples collected during the remedial investigation were compared to the 6NYCRR Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) as well as to Track 2 Restricted Residential Use SCOs. One VOC, specifically Acetone (0.052 mg/kg) was identified in the deep soil sample from SP-1at a concentration exceeding its Unrestricted Use SCOs but less than its Restricted Residential SCOs. Acetone was also detected at a concentration less than its Unrestricted Use SCO in two other deep soil samples. Two VOCs, specifically 2-Butanone (maximum 0.017mg/kg), and Tetrachloroethylene (maximum 0.012 mg/kg) were detected in the soil samples at concentrations exceeding their respective monitoring detection limits (MDLs) but below their respective SCOs.

Six (6) SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) that are typically linked with the presence of historic fill material were identified in the shallow soil in SP-2 and SP-3 and the deep soil in SP-2 at concentrations exceeding Restricted Residential SCOs (RSCOs). These include Benzo(a)anthracene (maximum 4.36 mg/kg), Benzo(a)pyrene (maximum 4.08 mg/kg), Benzo(b)fluoranthene (maximum 4.49 mg/kg), Chrysene (maximum 6.1 mg/kg), and Dibenzo(a,h)anthracene (0.584mg/kg). Chrysene was also detected in the shallow samples from SP-2 and SP-3 at concentrations exceeding Unrestricted Use SCOs but less than

their respective Restricted Residential SCOs. Benzo(k)fluoranthene (maximum 3.59mg/kg) was detected in the deep sample from SP-2 and shallow sample from SP-3 at concentrations exceeding Unrestricted Use SCOs but less than Restricted Residential SCOs. Thirteen (13) SVOCs, specifically: Acenaphthene (maximum 1.34 mg/kg), Anthracene (3.85 mg/kg), Benzo(g,h,i)perylene (1.57 mg/kg), Bis(2-ethylhexyl)phthalate (0.269 mg/kg), Dibenzofuran (maximum 1.06 mg/kg), Diethyl phthalate (maximum 0.0821 mg/kg), Di-n-octyl phthalate (maximum 0.176 mg/kg), Fluoranthene (maximum 11.4 mg/kg), Fluorene (maximum 1.2 mg/kg), Naphthalene (maximum .559 mg/kg), Nitrobenzene (maximum .31 mg/kg), Phenanthrene (maximum 11.4 mg/kg), and Pyrene (maximum 11.4 mg/kg) were detected in the soil samples at concentrations exceeding their respective MDLs but less than their respective SCOs.

Three (3) pesticides including 4,4'-DDD (maximum 0.0514 mg/kg), 4,4'-DDE (0.0539 mg/kg), and 4,4'-DDT (maximum 0.184 mg/kg) were detected in three shallow soil samples and two deep soil samples at concentrations exceeding Unrestricted Use SCOs but less than Restricted Residential SCOs. Three (3) pesticides including alpha-Chlordane (maximum 0.024 mg.kg), and gamma-Chlordane (maximum 0.025 mg/kg) were detected in the shallow sample from SP-2 at concentrations exceeding their respective MDLs but less than their respective SCOs. One PCB, specifically Aroclor 1260 (maximum 0.111 mg/kg) was detected in the shallow sample from SP-2 at a concentration exceeding its MDL but less than its SCO.

Three (3) metals including Lead (maximum 883 mg/kg, Mercury (maximum 2.96 mg/kg) and Barium (maximum 911 mg/kg) were detected in the shallow soil samples from SP-1, SP-2 and SP-3 at concentrations exceeding Restricted Residential SCOs. Three (3) metals including Cadmium (max 2.76 ppm), Copper (maximum 2.76 mg/kg), and Zinc (maximum 1,100 mg/kg) were detected in the shallow soil samples at concentrations exceeding their respective Unrestricted Use SCOs, but below their respective Restricted Residential SCOs..

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 1-4. Figures 7-9 show the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 1 and Track 2 Soil Cleanup Objectives.

5.3 Groundwater Chemistry

Groundwater samples collected during the RI show no VOCs, SVOCs, Pesticides, or PCBs at concentrations exceeding Groundwater Quality Standards (GQS). Five VOCs specifically: 2-

Butanone (maximum 1.5 ug/L), Acetone (maximum 3.5 ug/L), Bromomethane (maximum 0.33ug/L), Methyl tert-butyl ether (MTBE) (maximum 2 ug/L), and Toluene (maximum 1.7 ug/L) were detected at concentrations exceeding MDLs, but less than GQS.

Four metals including Magnesium (max 52,900 ug/L), Manganese (max 2,030 ug/L), Sodium (max 360,000 ug/L), and Lead (max 56 ug/L) were detected at concentrations exceeding the New York State 6NYCRR Part 703.5 Groundwater Quality Standards (GQS).

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 5-8. Exceedances of applicable groundwater standards are shown.

Figure 9 shows 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 results 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 dated October 2006. Ten (10) VOCs including 1,1,1-trichloroethane (maximum 6.90 ug/m3), 4-methy-2-pentanone (maximum 3.5 ug/m3), chloroform (maximum 33 ug/m3), methylene chloride (maximum 20 ug/m3), n-heptane (13,000 ug/m3), n-hexane (12,000 ug/m3), xylenes (maximum 27.30 ug/m3), tetrachloroethylene (maximum 2,100 ug/m3) and trichloroethylene (56 ug/m3) were detected at concentrations exceeding the NYSDOH soil vapor intrusion guidelines. Tetrachloroethylene was detected in all four (4) soil vapor samples at concentrations exceeding NYSDOH guidance values. The highest concentrations of gasoline related compounds (BTEX) were noted in the northeastern portion of the property. No compounds were noted in the indoor air sample at concentrations exceeding NYSDOH guidance values. The VOC 4-methyl-2-pentanone (3.50 ug/m3) was the only compound detected in the ambient outdoor air sample at a concentration exceeding its NYSDOH guidance value.

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 10 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.