REMEDIAL ACTION WORK PLAN

for

Former Designs for Leisure
NYSDEC BCP Site No. C360163

41 Kensico Drive
Mount Kisco, New York

Prepared For:

NY Luxury Motors of Mt. Kisco, Inc.
41 Kensico Drive
Mount Kisco, New York 10549

Prepared By:

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December 18, 2020
Langan Project No. 190046301

LANGAN

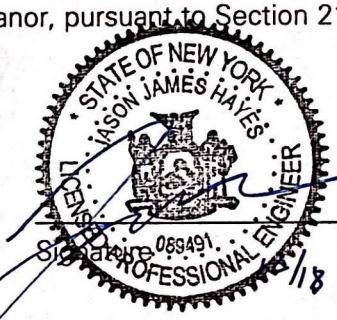
CERTIFICATION

I, Jason J. Hayes, certify that I am currently a New York State (NYS) registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

JASON HAYES
NYS Professional Engineer #089491

12/18/2020
Date



Signature

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Acronym	Definition
AOC	Area of Concern
ASP	Analytical Services Protocol
AST	Aboveground Storage Tank
ASTM	ASTM International
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below ground surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
CFR	Code of Federal Regulations
COC	Contaminants of Concern
CQAP	Construction Quality Assurance Plan
CSM	Conceptual Site Model
CU SCO	Commercial Use Soil Cleanup Objective
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
ECL	Environmental Conservation Law
EDD	Electronic Data Deliverable
el	Elevation
ELAP	Environmental Laboratory Approval Program
ERD	Enhanced Reductive Dechlorination
ESCP	Erosion and Sediment Control Plan
eV	Electron Volt
FER	Final Engineering Report
FEMA	Federal Emergency Management Agency
FWRIA	Fish and Wildlife Resources Impact Analysis
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
IRMWP	Interim Remedial Measures Work Plan
ISCO	In-Site Chemical Oxidation
L/min	liters per minute
LIRR	Long Island Railroad
MIL	Millimeter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NYCRR	New York Codes, Rules and Regulations

Acronym	Definition
NYCDEP	New York City Department of Environmental Protection
NYPD	New York Police Department
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PBS	Petroleum Bulk Storage
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene/Tetrachloroethylene
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RE	Remediation Engineer
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SDS	Safety Data Sheets
SGV	Standards and Guidance Values
SEQRA	State Environmental Quality Review Act
SMDS	Sub-Membrane Depressurization System
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SOE	Support of Excavation
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOC	Semivolatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TCL	Target Compound List
TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency

Acronym	Definition
USGS	United States Geological Survey
UST	Underground Storage Tank
UU SCO	Unrestricted Use Soil Cleanup Objective
VOC	Volatile Organic Compound
$\mu g/m^3$	micrograms per cubic meter

EXECUTIVE SUMMARY

NY Luxury Motors of Mt. Kisco, Inc. is a Volunteer in the New York State Brownfield Cleanup Program (BCP) and is responsible for the investigation, remediation, and redevelopment of the Former Designs for Leisure site at 41 Kensico Drive, Mt. Kisco, New York (the Site). The effective date of the Brownfield Cleanup Agreement (BCA) is November 13, 2018. Commercial use is proposed for the Site, and when complete, the existing one-story, approximately 13,000-square-foot commercial building will be renovated to accommodate office uses.

This RAWP identifies and evaluates remedial action alternatives, and recommends a Track 2 Commercial Use remedy to address lead-impacted soil and chlorinated volatile organic compound (CVOC)-impacted soil vapor within the Site boundary. The proposed remedy was developed based on data gathered for the December 14, 2016 Phase II Environmental Site Assessment by URS Corporation (URS), March 8, 2017 Limited Site Assessment by AECOM Technical Services, Inc. (AECOM), August and September 2018 Remedial Investigation (RI) by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan), and May 2019 Supplemental Remedial Investigation (SRI) by Langan. The remedy described in this document is consistent with the procedures defined in the NYSDEC Program Policy DER-10: Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable federal, state, and local laws, regulations, and requirements. Based on review of the November 6, 2017 dated Wetland Delineation Report prepared by Ecological Solutions LLC, no NYSDEC-regulated wetlands are located on the site or adjoining properties.

Site Description/Physical Setting/Site History

The Site is located at 41 Kensico Drive in the Village/Town of Mount Kisco, New York and is identified as Westchester County Tax Map No. 17258 Section 69.50, Block 1, Lot 2 (69.50-1-2). The Site is a 1.73-acre lot with a 13,000-square-foot vacant commercial building with a slab-on-grade foundation, an asphalt-paved parking lot, landscaped areas around the building and parking lot and a wooded area along Branch Brook, a surface water body. The Site is located in a commercial office park and is bound by a 2-story commercial office building with multiple tenants (45 Kensico Drive) to the north; Branch Brook and a raised, railway embankment with stone ballast utilized by Metro-North Railroad to the east; a propane supplier (Suburban Propane, 25 Kensico Drive) to the south; and, a hotel (Holiday Inn, 1 Holiday Inn Drive) and a car dealership (Lexus of Mt. Kisco, 265-281 Kisco Avenue) to the west. Site topography slopes to the east towards a wooded area along Branch Brook. A raised, railway embankment with stone ballast is located on the opposite side of Branch Brook and roughly parallels the course of the brook and

the site's eastern property boundary. The railway embankment includes northbound and southbound tracks and is utilized by the Metro North Railroad.

The existing building on the Site was constructed as a commercial office building in 1976 and was used as a veterinary hospital (1976 to 1982), manufacturing facility for pool tables and bar stools (1982 to 1998), and offices for a commercial and movie production company (1998 to 2017). The Site and northern, southern, and western adjoining properties were undeveloped until about 1955, after which time they were developed into commercial properties. The railroad embankment to the east of the Site was constructed circa 1892.

Historical documentation revealed two steel heating oil underground storage tanks (UST) were located east of the existing building. Both USTs were closed and removed from the site in 1998 and replaced by a 1,000-gallon fiberglass heating oil UST, which was subsequently removed in 2008. After removal of the UST, post-excavation endpoint soil samples were collected, and the data indicated no constituents of concern above Unrestricted Use Soil Cleanup Objectives (UU SCOs).

Summary of the Remedial Investigation

The findings and conclusions of the subsurface investigations and the RI are as follows:

1. Stratigraphy: The Site's stratigraphy comprises a historic fill layer of variable thickness underlain by native soil and then bedrock. The historic fill consists of brown, fine-grained sand with varying amounts of fine gravel, medium and coarse sand, silt, clay, brick, concrete, asphalt, timber, rubber, plastic, and glass and generally extends from ground surface to about 9 feet below ground surface (bgs). The historic fill is present at most boring locations across the Site, but was not observed in borings completed in the southern-central and southwestern parts of the Site. Native soil underlying the historic fill consists of an organic clay layer consisting of soft to medium-dense silt and clay or by a fine-grained sand layer with varying amounts of silt and clay. The organic clay layer (about 1.5 to 4 feet thick) was observed in only two borings. The fine-grained sand layer is present below surface cover (where historic fill was not identified) or the historic fill layer to the top of bedrock; thickness of this unit ranges from about 25 feet to 65 feet. Intermittent clay lenses (about 0.5 to 5 feet thick) were observed in this unit at depths ranging from between 2 and 50 feet bgs. Bedrock was encountered at depths ranging from 24 feet bgs at boring LB11 near the southwest corner of the site to 71 feet bgs at boring LB08 near the east-central part of the Site. The bedrock is metamorphic in nature, consistent with the USGS reference map, and appears to slope from west to east.

2. Hydrogeology: Depth to groundwater was measured between about 0.05 feet to 5.48 feet below top of well casing with corresponding groundwater elevations from about el. 284.31 to 288.21 feet NAVD88. The groundwater elevations indicate the site has two distinct groundwater systems with a zone of transitional permeability located in the central part of the site that trends north-south. The shallow monitoring wells cluster about a head elevation of el. 285 feet NAVD88 on the eastern half of the Site and about el. 287 and 288 feet NAVD88 on the western half of the Site. The groundwater elevation is highest in the southwestern part of the Site and groundwater flows from the southwest to the northeast toward Branch Brook.

3. Historic Fill: Historic fill was identified through field observations and review of analytical data indicating the presence of semivolatile organic compounds (SVOCs), pesticides and metals from surface grade to depths up to 9 feet bgs. SVOCs, pesticides, and metals exceeded the UU SCOs in one or more soil samples collected within the historic fill layer. The SVOC, benzo(a)pyrene, and lead were the only contaminants that exceeded the Commercial Use (CU) SCOs. Characteristic hazardous levels of lead were identified in historic fill in one of area of the Site (near boring LB23).

4. CVOC-Impacted Soil, Groundwater, and Soil Vapor: The chlorinated volatile organic compounds (CVOCs), including tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA) and/or their breakdown products, were detected in soil, groundwater, and soil vapor at the Site and are attributed to a hydraulically, upgradient off-site source. TCE was detected at concentrations (ranging from 0.57 milligrams per kilogram [mg/kg] to 13 mg/kg) above the UU SCO in soil samples from 12 borings, at depths ranging from about 11 feet to 63 feet bgs. The presence of TCE in soil samples is attributed to the presence of TCE in water molecules entrained in soil pore space and/or adsorbed to soil particles. CVOCs, including PCE, TCE, 1,1,1-TCA and/or their breakdown products, were detected in all 21 on-site monitoring wells above the 6 NYCRR Part 703.5 Water Quality Standards for Class GA waters and the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water (collectively referred to as SGVs). The maximum concentrations of PCE, TCE and 1,1,1 TCA were 14.2 micrograms per liter (µg/L) (LMW19S), 15,800 µg/L (LMW12S), and 13.1 µg/L (LMW19S), respectively. PCE and TCE were also detected in soil vapor at low-level concentrations in the only soil vapor sample collected at the Site (LSV22).

5. Residual Petroleum Impacts in Groundwater: Three petroleum-related volatile organic compounds (VOCs) marginally exceeded the NYSDEC Class GA SGVs in one groundwater sample collected from well LMW19S. No potential source area around LMW19S was

identified. No petroleum-related VOCs were detected in the monitoring wells installed along the northern Site boundary indicating dissolved-phase petroleum constituents are not migrating off-site. The petroleum-related VOCs in LMW19S may be attributed to incidental historical on-Site releases.

6. Off-Site Surface Water Quality of Branch Brook: Surface water samples exhibited concentrations of one SVOC (bis[2-ethylhexyl] phthalate) and two metals (dissolved aluminum and iron) exceeding the NYSDEC Class C SGV. This SVOC is considered a lab or sampling contaminant. The two metals are characteristic of naturally-occurring conditions. The surface water data indicates that groundwater contaminants of concern (TCE and other metals) are not migrating into Branch Brook. The obligation of the Volunteer with respect to off-site investigations per DER-10 has been met and no further action is warranted.

7. Off-Site Sediment Quality in Branch Brook: Sediment samples exhibited concentrations of metals (including cadmium, chromium, copper, lead, nickel, and zinc) exceeding the minimum NYSDEC Class B guidance values. Lead exceeded the NYSDEC Class C guidance value in the two downstream sediment samples, SED2 and SED3. The analytical data and the spatial distribution of exceedances show that the concentrations of metals exhibited an increasing trend upstream to downstream. The highest metal concentrations appeared in the downstream sample (SED3). The concentrations of metals (i.e., lead and zinc) found in both surface soil samples closest to Branch Brook and sediment samples from the stream are generally higher in sediment than surface soil suggesting other sources of metals are likely impacting the sediment of Branch Brook. The obligation of the Volunteer with respect to off-site investigations per DER-10 has been met and no further action is warranted.

8. Remedial Design Investigation (RDI) Results: The RDI identified two CVOCs, TCE and cis-1,2-dichloroethene (cis-1,2-DCE), in sub-slab vapor and co-located indoor air samples at concentrations for which mitigation is recommended when evaluated using the NYSDOH Decision Matrices. TCE was also detected at concentrations exceeding the New York State Department of Health (NYSDOH) Air Guideline Values (AGV) in all three indoor air samples.

Qualitative Human Health Exposure Assessment

Based on the conceptual Site model and review of environmental data, in the absence of remediation, a Construction Health and Safety Plan (CHASP), and Community Air Monitoring Plan (CAMP), complete on-site exposure pathways have the potential to be present based on current, construction/ remediation, and future Site conditions.

A complete exposure pathway indicates there is a risk of exposure to humans from Site contaminants via exposure to soil, groundwater, and soil vapor if not addressed by protective measures and remediation. 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.

Current Conditions

Contaminant release and transport mechanisms include contaminated soil transported as dust (dermal, ingestion, inhalation), contaminated groundwater flow (dermal and ingestion), and volatilization of contaminants from groundwater media to the soil vapor phase (inhalation).

Under current conditions, the likelihood of human exposure is limited, as the Site surface cover, including a concrete building slab and paved surfaces, prevents contact with the underlying fill material and soil; Site structures are vacant; and, groundwater is not being used on-site or is only disturbed by investigation activities. Where impervious surfaces are not present and surface soil is exposed, the surface soil does not exceed the CU SCOs. The existing building is secured and locked and activity is limited to investigation workers and authorized guests. The five elements of a complete exposure pathway would exist for any action resulting in potential contact with soil or groundwater. However, the risk can be avoided or minimized by applying appropriate health and safety measures during investigations, 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).

In accordance with a CHASP and CAMP, measures such as conducting an air-monitoring program, wearing PPE, managing investigation-derived waste (IDW), and applying vapor and dust suppression measures to prevent off-site migration of contaminants during investigations will be implemented. These measures would prevent completion of these potential migration pathways.

Construction/Remediation Activities

During development and remediation activities, the contaminant sources are the same as for current conditions. Points of exposure include disturbed and exposed contaminated soil during excavation, contaminated dust and organic vapors arising from the excavation activities, and contaminated groundwater that may be encountered during excavation. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of organic vapors arising from contaminated 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 five elements of a complete exposure pathway would exist during construction and remediation activities. However, the risk can be avoided by applying appropriate health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, instituting protocols for the management of groundwater (if necessary), maintaining Site security, and wearing the appropriate PPE. In accordance with a CHASP, a RAWP, and a CAMP, measures such as conducting an air monitoring program, wearing PPE, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. These measures would prevent completion of these potential migration pathways.

Proposed Future Conditions

Under the proposed future conditions, residual soil and groundwater contamination (originating from an off-site source) will remain at the Site (Track 2 cleanup). Contaminant release and transport mechanisms may include volatilization of contaminants from the groundwater to the soil vapor phase. Points of exposure would include permeation of vapors through the building slab. Routes of exposure would include inhalation of vapors entering the building. The receptor population includes the building tenants, employees, and visitors. The five elements of a complete exposure pathway would exist under future conditions; however, the remedy would address on-site sources of contamination, restricting the use of groundwater, installing measures to mitigate soil vapor intrusion (e.g., a RetroCoat™ vapor barrier), and implementing a Site Management Plan (SMP).

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

1. Under current conditions, there is a marginal risk for exposure because the Site is vacant. The primary exposure pathways are dermal contact and ingestion and inhalation of soil, soil vapor, or groundwater to investigation workers and Site visitors.

2. In the absence of a community air monitoring program (CAMP) and construction health and safety plan (CHASP), there is a moderate risk of exposure during the construction and remediation activities. The primary exposure pathways are:

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

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

These pathways can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety, vapor and dust suppression, and Site security measures outlined in a Site-specific CHASP.

3. The existence of a complete exposure pathway for Site contaminants to human receptors under future conditions is unlikely because potential exposures to residual soil and groundwater contamination will be prevented by the composite cover system, which includes a concrete building slab with a surface-applied vapor barrier system and impervious asphalt pavement in outdoor vehicle parking areas. The cover soil in landscaped areas meets the Site's end use criteria, Commercial Use SCOs; therefore, no additional work is required to establish a protective cover system. Groundwater in the village/town of Mount Kisco is sourced from the Byram Lake Reservoir and supplemented by the Leonard Park Wells since 2001. The Byram Lake Reservoir is located approximately 3.5 miles southeast of the Site, and the Leonard Park Well Field are located approximately 2 miles south of the Site. Based on the location and distance of the reservoir and wells, groundwater from the Site is not expected to affect municipal water supply wells or recharge areas. A potential exposure pathway exists during construction and remediation, which would be addressed through the implementation of a CHASP.

4. CVOC-impacted groundwater originates from an off-site source. An evaluation of the off-site source is beyond the scope of the remedial investigation completed by the Volunteer and a determination of whether a complete exposure pathway exists for the migration of Site contaminants to off-site human receptors for current, construction phase, or future conditions was not performed. Under future conditions, the Site will be remediated and on-Site exposure pathways will be controlled, but the source of CVOCs in groundwater will not be addressed. Complete off-site exposure pathways to human receptors may exist and, if necessary, engineering controls should be implemented by others to prevent complete exposure pathways.

Summary of the Remedy

It is anticipated that the Site will be remediated to Track 2 Commercial Use standards. The proposed Track 2 remedy consists of the following actions:

1. Development and implementation of a CHASP and CAMP for the protection of on-site workers, visitors, and the environment during remediation and construction activities;
2. Implementation of stormwater and soil erosion and control measures in compliance with applicable laws and regulations;
3. Screening contamination (by visual means, odor, and monitoring with a PID) of excavated soil/fill during any ground intrusive Site work;
4. Completion of a waste characterization study before commencement of or concurrent with excavation activities; waste characterization soil samples would be collected and analyzed in accordance with typical waste disposal facility requirements.
5. Additional delineation of soil and/or historic fill that exceeds characteristic hazardous lead waste limits in the northwestern part of the Site as identified by the RI/SRI. The additional delineation would consist of field screening, soil sample collection, and laboratory analysis of soil samples.
6. Collection and analysis of post-excavation documentation endpoint soil samples in accordance with DER-10 to evaluate the performance of the remedy with respect to attainment of CU SCOs and to document the concentrations of residual contamination that may remain on-Site, if necessary. Soil samples would be analyzed for total lead and lead by the Toxicity Characteristic Leaching Procedure (TCLP).
7. Removal of soil and/or fill material exceeding the CU SCOs excavated for remedial purposes. The excavation activities would include the removal of characteristic hazardous lead soil in the northwestern part of the Site. The estimated volume of lead-impacted soil and/or fill material to be excavated at the Site is about 100 cubic yards. No hazardous lead soil will be reused on-site. No additional excavation or disposal is anticipated at the Site.
8. Decommissioning and removal of any unknown underground storage tanks (USTs) encountered during excavation and construction activities in accordance with 6 NYCRR Part 613.9, NYSDEC Commissioner's Policy (CP)-51, and other applicable NYSDEC tank closure requirements, including DER-10. Endpoint soil samples will be collected to document the removal of any petroleum-impacted material in accordance with DER-10.
9. Transportation and off-site disposal of excavated soil/fill material at permitted facilities in accordance with the RAWP and applicable federal, state, and local laws and regulations for handling, transport, and disposal.
10. Import of materials to be used for backfill and/or Site cover in compliance with: 1) CU SCOs or Protection of Groundwater (PGW) SCOs, whichever is more stringent; 2) 6

NYCRR Part 360 regulations; and 3) federal, state, and local laws and regulations for handling and transport of material.

11. Improving the existing concrete building slab with a surface-applied vapor barrier system compatible with chlorinated solvents (RetroCoat™, or equivalent) to mitigate potential soil vapor intrusion. The exterior cover systems (asphalt-paved parking lot and landscaped areas) provide a protective cover system in their existing conditions and will not be altered as part of the remedy.
12. Establishment of use restrictions including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, including residential and restricted-residential uses, farming, and vegetable gardening, to eliminate future exposure pathways;
13. Establishment of an approved SMP to ensure long-term management of engineering and institutional controls, including the performance of periodic inspections and certification that the controls are performing as they were intended; and
14. Recording of an Environmental Easement (EE) to memorialize the remedial action and the engineering and institutional controls to ensure that future owners of the Site continue to maintain these controls, as required.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

NY Luxury Motors of Mt. Kisco, Inc. is a Volunteer in the New York State Brownfield Cleanup Program (BCP) and is responsible for the investigation, remediation, and redevelopment of the Former Designs for Leisure Site at 41 Kensico Drive, Mt. Kisco, New York (the Site). The effective date of the Brownfield Cleanup Agreement (BCA) is November 13, 2018. Commercial use is proposed for the property, and when complete, the existing approximately 13,000 square foot commercial building will be renovated to accommodate office uses.

This RAWP identifies and evaluates remedial action alternatives, and recommends a Track 2 remedy to address lead-impacted soil and chlorinated volatile organic compound (CVOC)-impacted soil vapor within the Site boundary. This recommendation is informed by data gathered during the previous subsurface investigations, including:

- December 14, 2016 Phase II Environmental Site Investigation (ESI) completed by URS Corporation (URS)
- May 8, 2017 Limited Site Assessment completed by AECOM Technical Services, Inc. (AECOM)
- August and September 2018 Remedial Investigation (RI) completed by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology D.P.C. (Langan)
- May 2018 Supplemental RI (SRI) completed by Langan

The remedy described in this document is consistent with the procedures defined in the NYSDEC Program Policy DER-10: Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable federal, state, and local laws, regulations, and requirements. Based on review of the November 6, 2017 dated Wetland Delineation Report prepared by Ecological Solutions LLC, no NYSDEC-regulated wetlands are located on the Site or adjoining properties.

1.1 Site Location and Description

The Site, owned by NY Luxury Motors of Mt. Kisco, Inc. (Volunteer), is a 1.73-acre lot with a 13,000-square-foot vacant commercial building with a slab-on-grade foundation, an asphalt-paved parking lot, landscaped areas around the building and parking lot and a wooded area along Branch Brook, a surface water body. The Site is located in the Village/Town of Mount Kisco, New York and is identified as Westchester County Tax Map No. 17258 Section 69.50, Block 1, Lot 2 (69.50-1-2). The Site is located in a commercial office park and is bound by a 2-story commercial office

building with multiple tenants (45 Kensico Drive) to the north; Branch Brook and a raised, railway embankment with stone ballast utilized by Metro-North Railroad to the east; a propane supplier (Suburban Propane, 25 Kensico Drive) to the south; and, a hotel (Holiday Inn, 1 Holiday Inn Drive) and a car dealership (Lexus of Mt. Kisco, 265-281 Kisco Avenue) to the west. Site topography slopes to the east towards a wooded area along Branch Brook. A raised, railway embankment with stone ballast is located on the opposite side of Branch Brook and roughly parallels the course of the brook and the Site's eastern property boundary. The railway embankment includes northbound and southbound tracks and is utilized by the Metro North Railroad. A Site Location Map and Site Plan are provided as Figures 1 and 2, respectively, and an Existing Conditions Map is provided in Appendix A.

The existing building on the Site was constructed as a commercial office building in 1976 and was used as a veterinary hospital (1976 to 1982), manufacturing facility for pool tables and bar stools (1982 to 1998), and offices for a commercial and movie production company (1998 to 2017). The Site and northern, southern, and western adjoining properties were undeveloped until about 1955, after which time they were developed into commercial properties. The railroad embankment to the east of the Site was constructed circa 1892

1.2 Redevelopment Plan

The remedy proposed in this RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use are described here to provide the basis for this assessment; however, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan in the event that the redevelopment plan should change.

The contemplated use for the purposes of the BCP would be commercial. The proposed commercial development includes renovation of the existing one-story, approximately 13,000-square-foot commercial-use office building. The existing asphalt-paved vehicle parking lot and landscaped areas provide a protective cover system in their current condition and will not be altered.

1.3 Description of Surrounding Property

The Site is located in a suburban setting characterized by residential, commercial and industrial buildings. The following is a summary of surrounding property usage:

Direction	Adjoining Properties				Surrounding Properties
	Section	Block No.	Lot No.	Description	
North	69.50	1	1	Westchester EMS Ambulance Service (45 Kensico Drive)	Commercial buildings, parking lots, warehouses, shopping center, automobile dealerships
		1	1	Commercial Buildings (43 Kensico Drive)	
East	Part of 69.58	1	1	Railway embankment / Metro-North Railroad	
	N/A	N/A	N/A	Branch Brook	
South	69.50	1	3	Suburban Propane (25 Kensico Drive)	
West	69.42	1	1	Holiday Inn (1 Holiday Inn Drive)	
	69.49	3	1	Lexus dealership (265-281 Kisco Avenue)	

Land use within a half mile of the Site is suburban and characterized by mixed-use buildings, retail, preservation and conservation areas with associated infrastructure, including underground utility lines, storm drains, and sewers. A railroad corridor utilized by the MetroNorth Railroad adjoins the Site to the east.

The nearest ecological receptor is the Branch Brook, which adjoins the Site to the east and is a tributary to the Kisco River, which feeds the New Croton Reservoir, a part of New York City's drinking water supply system. There are no sensitive human receptors (e.g., schools and/or daycare centers) within a half mile of the Site.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The RI was completed between August 7 and September 7, 2018 to investigate and characterize the nature and extent of contamination at the Site. An SRI was completed in May 2019 at the request of the NYSDEC to evaluate data gaps identified by the agency and supplement the RI data set.

- The RI conducted between August 7 to September 7, 2018 was completed to supplement the data collected during URS's December 14, 2016 Phase II and AECOM's May 8, 2017 Limited Site Assessment, and included performance of a geophysical survey, advancement of soil borings, installation of groundwater monitoring wells and a soil vapor probe, and collection and laboratory analysis of soil, groundwater, and soil vapor samples.

- The May 2019 SRI was conducted to evaluate surface soil quality, offsite impacts in surface water and sediment of Branch Brook, and to further evaluate groundwater quality along the northern Site boundary. The investigation included advancement of soil borings, installation of groundwater monitoring wells, and collection and laboratory analysis of soil, groundwater, surface water, and sediment samples.

The investigations were conducted in accordance with:

1. Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 (6 NYCRR Part 375)
2. NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010)
3. NYSDEC Draft Brownfield Cleanup Program Guide (May 2004), and
4. New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006).

2.1 Summary of the Remedial Investigation

The following sections summarize the work conducted during the August and September 2018 RI and May 2019 SRI. This work is documented in the Remedial Investigation Report (RIR) dated November 14, 2019, prepared by Langan.

2.1.1 Borings, Monitoring Wells and Soil Vapor Probes

<u>August 7 to September 7, 2018 Remedial Investigation</u>

In August 2018, twenty soil borings (LB01, LB07 through LB17, and LB19 through LB26) were completed during the RI by AARCO Environmental Services (AARCO) of Lindenhurst, New York. Borings were advanced using direct-push or rotary sonic drilling rigs to depths ranging from 15

to 71 feet below ground surface (bgs). Discrete soil samples were collected from various depth intervals at each boring and were visually classified for soil type, grain size, texture, and moisture content. Samples were collected in 3-foot and 4-foot long Macro-Core® (open and closed point) and dual-tube sample barrels with dedicated acetate liners. Soil was screened for visual, olfactory, and instrumental evidence of a chemical or petroleum release. Instrument screening for the presence of volatile organic compounds (VOCs) was performed with a photoionization detector (PID) equipped with a 10.6 electron volt (eV) lamp. In addition, soil samples exhibiting the highest PID readings or where non-aqueous phase liquid (NAPL) was suspected were subject to hydrophobic dye testing (using pre-packaged Sudan Red III dye test kits) during the RI to evaluate the presence of sorbed NAPL.

AARCO converted eleven borings into permanent, two-inch diameter groundwater monitoring wells (LMW01D, LMW08S, LMW08D, LMW11, LMW12S, LMW12D, LMW15, LMW19S, LMW19D, LMW20S, and LMW20D). Monitoring wells with an "S" or "D" suffix denote shallow and deep monitoring well screens, respectively. AARCO also installed one sub-slab vapor probe (LSV22). Monitoring wells were screened across the groundwater table, which was observed at a depth of about 0 to 5.5 feet bgs, and the soil vapor probe was installed at a depth of about 2-inches below the existing building slab.

May 2019 Supplemental Remedial Investigation

Between May 2 to 9, 2019, nine soil borings (LB18, LB23, LB27, and LB28 and five delineation borings around LB23) were completed by Eastern Environmental Solutions, Inc. (Eastern) of Manorville, New York. Borings were advanced using direct-push drilling rigs to depths ranging from 8 to 12 feet bgs. Soil was recovered continuously from surface grade to the bottom depth of each boring and samples were collected into 4-foot or 3-foot long acetate liners using a 2-inch diameter Macro-Core® (open and closed point) sampler with dedicated acetate liners. The soil 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 organic vapors was performed using a PID equipped with a 10.6 electron volt (eV) lamp.

Eastern installed three groundwater monitoring wells along the north property boundary (GWG01, GWG02, and GWG02). Eastern used a hang auger at seven soil locations (SS1 through SS7) to facilitate the collection of 14 surface soil samples. Samples were collected from the 0 to 2-inch and 10 to 12-inch depth intervals at each location. Soil was screened for visual, olfactory, and instrumental evidence of a chemical or petroleum release. Three co-located sediment and surface water samples were collected from Branch Brook.

2.1.2 Samples Collected

August 7 to September 7 2018 Remedial Investigation

At least one grab soil sample was collected for laboratory analysis from each boring location to investigate the areas of concern (AOCs) and vertically delineate identified VOC impacts. Fifty-seven grab soil samples, including quality assurance/quality control (QA/QC) samples, were collected in laboratory-supplied glassware for laboratory analysis. The soil samples were collected from the historic fill layer, groundwater interface, interval of the greatest observable impact (i.e., staining, odor, maximum PID reading), sand-silt interface and other observed impacted intervals.

Twenty groundwater samples, including one sample from six previously existing wells (MW-1 through MW-6), eleven from newly constructed wells, and QA/QC samples were collected in laboratory-supplied glassware for laboratory analysis.

One sub-slab soil vapor sample was collected into laboratory-supplied, batch-certified, 6-Liter Summa® canister calibrated for a sampling rate of about 0.04215 liters per minute (L/min) over a sampling period of 120 minutes.

Soil, groundwater, and soil vapor samples were picked up and delivered via courier service to York Analytical Laboratories (York) under standard chain-of-custody protocol. York is a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory located in Stratford, Connecticut (ELAP ID#10854).

May 2019 Supplemental Remedial Investigation

Forty-six grab soil samples, consisting of at least one grab soil sample from each boring location to investigate AOCs, and including QA/QC samples, were collected in laboratory-supplied glassware for laboratory analysis. The soil samples were collected from the groundwater interface in borings LB18, LB27, and LB28 and in 2-foot intervals at the lead delineation borings surrounding LB23 for the vertical and horizontal delineation of the identified characteristic hazardous lead soil. Surface samples SS1 through SS7 were collected to evaluate surface soil quality.

Four groundwater samples including QA/AC samples were collected in laboratory-supplied glassware for laboratory analysis. Three, co-located surface water and sediment samples and QA/QC samples were collected from Branch Brook to investigate possible sediment and surface water impacts from on-site sources.

Soil, groundwater, and surface water/sediment samples were picked up and delivered via courier service to York.

2.1.3 Chemical Analysis

The laboratory analyses performed on the soil, groundwater, surface water, sediment and sub-slab soil vapor samples collected during RI and SRI are summarized below by date and media.

August 7 to September 7, 2018 Remedial Investigation

Soil samples were analyzed for one or more of the following parameters:

- Part 375/Target Compound List (TCL) VOCs via United States Environmental Protection Agency (USEPA) Method 8260C;
- Part 375/TCL semivolatile organic compounds (SVOCs) via USEPA Method 8270D;
- Part 375/TCL polychlorinated biphenyls (PCBs) via USEPA Method 8082A;
- Part 375/TCL pesticides via USEPA Method 8081B;
- Part 375/Target Analyte List (TAL) metals (including cyanide and hexavalent chromium) via USEPA Methods 6010C, 7471B, 9010C/9012B, and 7196A.

Groundwater samples were analyzed for one or more of the following parameters:

- TCL VOCs via USEPA Method 8260C;
- TCL SVOCs via USEPA Method 8270D;
- TCL PCBs via USEPA Method 8082A; and
- TAL metals (filtered and unfiltered) via USEPA Methods 6020A and 7470A.

The majority of the deeper soil samples were analyzed for VOCs and SVOCs only. In addition, for treatability analysis, 12 soil samples from borings LB01 and LB12 ranging from depths of 18 to 54 feet bgs were analyzed for total organic carbon (TOC), biochemical oxygen demand (BOD), and chemical oxygen demand (COD).

Groundwater samples from existing monitoring wells, MW-2 through MW-6 were analyzed for VOCs and SVOCs only. Groundwater samples from MW-1, LMW08S, and LMW12S were also analyzed for the following treatability parameters: nitrite, nitrate, methane, ethane, ethene, sulfate, TOC, COD, BOD, alkalinity, iron and manganese (total and dissolved), and *dehalococcoides* (DHC). Groundwater samples from MW-1, LMW08S, and LMW12S were also

analyzed for emerging contaminants, including 1,4-dioxane (via USEPA Method 8270 SIM) and NYSDEC's list of twenty-one per- and polyfluoroalkyl substances (PFAS) (via USEPA Method 537).

The sub-slab soil vapor sample was analyzed for VOCs via USEPA Method TO-15.

May 2019 Supplemental Remedial Investigation

Soil samples from borings LB18, LB27, and LB28 were analyzed for one or more the following parameters:

- Part 375/TCL VOCs via USEPA Method 8260C;
- Part 375/TCL SVOCs via USEPA Method 8270D;
- 1,4-dioxane via USEPA Method 8270 SIM; and
- PFAS via USEPA Method 537 (LB27 and LB28 only).

Surface soil samples (SS1 through SS7) and sediment samples (SED1 through SED3) were analyzed for one or more the following parameters:

- Part 375/TCL VOCs via USEPA Method 8260C;
- Part 375/TCL SVOCs via USEPA Method 8270D;
- Part 375/TCL PCBs via USEPA Method 8082A;
- Part 375/TCL pesticides via USEPA Method 8081B;
- Part 375/TCL herbicides via USEPA Method 8151A;
- Part 375/TAL metals (including cyanide and hexavalent chromium) via USEPA Methods 6010C, 7471B, 9010C/9012B, and 7196A;
- 1,4-dioxane via USEPA Method 8270 SIM (SS1, SS3, SS5, SS7, SED1, and SED3 only); and
- PFAS via USEPA 537 (SS1, SS3, SS5, SS7, SED1, and SED3 only).

Hazardous lead delineation soil samples (LB23 and step-out borings) were analyzed for one or more of the following parameters:

- Total and TCLP lead via USEPA Method 6010;
- PFAS via USEPA Method 537 (LB23_6-8) only.

Groundwater samples were analyzed for one or more of the following parameters:

- TCL VOCs via USEPA Method 8260C;
- TCL SVOCs via USEPA Method 8270D; and
- 1,4-dioxane via USEPA Method 8270 SIM.

Surface water samples were analyzed for one or more of the following parameters:

- TCL VOCs via USEPA Method 8260C;
- TCL SVOCs via USEPA Method 8270D;
- TCL PCBs via USEPA Method 8082A;
- TCL Pesticides via USEPA Method 8081B;
- TAL metals (total and dissolved) via USEPA Methods 6020A and 7470A;
- 1,4-dioxane via USEPA Method 8270 SIM; and
- PFAS (21 compounds) via USEPA Method 537 (SW1 and SW3 only).

2.1.4 Geophysical Investigation

NOVA Geophysical & Environmental, Inc. (NOVA) of Douglaston, New York conducted a geophysical survey of the Site on August 2, 2018 under the supervision of a Langan field engineer/scientist. The survey was conducted using electromagnetic and utility line locator instruments, a magnetometer, and ground-penetrating radar (GPR) to identify potential subsurface utilities, underground storage tanks (USTs), and other buried structures across the Site, and to clear boring, monitoring well, and soil vapor probe locations.

No anomalies indicating the presence of USTs were identified during the geophysical survey. Multiple utilities including electric, gas, sanitary and storm sewers, water, telecommunication lines, and street lighting were identified along the west property boundary. A storm sewer line was also identified along the northern property boundary and east of the building with an outfall terminating at Branch Brook.

2.1.5 Summary of Remedial Investigation Findings

The RI findings and conclusions are presented in the bullets below. Figure 3A depicts compounds detected in soil above the Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 Unrestricted Use (UU) and/or Restricted Use – Commercial Use (CU) Soil Cleanup Objectives (SCOs), and Figure 3B depicts the results for hazardous lead soil area. Figure

4 depicts compounds detected in groundwater above the 6 NYCRR Part 703.5 Water Quality Standards for Class GA waters and the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water (collectively referred to as SGVs). Figure 5 depicts compounds detected in soil vapor. Groundwater elevations and contours are provided in Figures 6A and 6B.

1. Stratigraphy: The Site's stratigraphy comprises a historic fill layer of variable thickness underlain by native soil and then bedrock. The historic fill consists of brown, fine-grained sand with varying amounts of fine gravel, medium and coarse sand, silt, clay, brick, concrete, asphalt, timber, rubber, plastic, and glass and generally extends from ground surface to about 9 feet bgs. The historic fill is present at most boring locations across the Site, but was not observed in borings completed in the southern-central and southwestern parts of the Site. Native soil underlying the historic fill consists of an organic clay layer consisting of soft to medium-dense silt and clay or by a fine-grained sand layer with varying amounts of silt and clay. The organic clay layer (about 1.5 to 4 feet thick) was observed in only two borings. The fine-grained sand layer is present below surface cover (where historic fill was not identified) or the historic fill layer to the top of bedrock; thickness of this unit ranges from about 25 feet to 65 feet. Intermittent clay lenses (about 0.5 to 5 feet thick) were observed in this unit at depths ranging from between 2 and 50 feet bgs. Bedrock was encountered at depths ranging from 24 feet bgs at boring LB11 near the southwest corner of the Site to 71 feet bgs at boring LB08 near the east-central part of the Site. The bedrock is metamorphic in nature, consistent with the USGS reference map, and appears to slope from west to east.
2. Hydrogeology: Depth to groundwater was measured between about 0.05 feet to 5.48 feet below top of well casing with corresponding groundwater elevations from about el. 284.31 to 288.21 feet NAVD88. The groundwater elevations indicate the Site has two distinct groundwater systems with a zone of transitional permeability located in the central part of the Site that trends north-south. The shallow monitoring wells cluster about a head elevation of el. 285 feet NAVD88 on the eastern half of the Site and about el. 287 and 288 feet NAVD88 on the western half of the Site. The groundwater elevation is highest in the southwestern part of the Site and groundwater flows from the southwest to the northeast toward Branch Brook.
3. Historic Fill: Historic fill was identified through field observations and review of analytical data indicating the presence of SVOCs, pesticides and metals from surface grade to depths up to 9 feet bgs. SVOCs, pesticides, and metals exceeded the UU SCOs in one or more soil samples collected within the historic fill layer. The SVOC, benzo(a)pyrene, and lead were the only contaminants that exceeded the CU SCOs. Characteristic

hazardous levels of lead were identified in historic fill in one of area of the Site (near boring LB23).

4. CVOC-Impacted Soil, Groundwater, and Soil Vapor: The chlorinated volatile organic compounds (CVOCs), including tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA) and/or their breakdown products, were detected in soil, groundwater, and soil vapor at the Site and are attributed to a suspected hydraulically, upgradient off-site source. TCE was detected at concentrations (ranging from 0.57 milligrams per kilogram [mg/kg] to 13 mg/kg) above the UU SCO in soil samples from 12 borings, at depths ranging from about 11 feet to 63 feet bgs. The presence of TCE in soil samples is attributed to the presence of TCE in water molecules entrained in soil pore space and/or adsorbed to soil particles. CVOCs, including PCE, TCE, 1,1,1-TCA and/or their breakdown products, were detected in all 21 on-site monitoring wells above the NYSDEC Class GA SGVs. The maximum concentrations of PCE, TCE and 1,1,1 TCA were 14.2 micrograms per liter [µg/L] (LMW19S), 15,800 µg/L (LMW12S), and 13.1 µg/L (LMW19S), respectively. PCE and TCE were also detected in soil vapor at low-level concentrations in the only soil vapor sample collected at the Site (LSV22).

5. Residual Petroleum Impacts in Groundwater: Three petroleum-related VOCs marginally exceeded the NYSDEC Class GA SGVs in one groundwater sample collected from well LMW19S. No potential source area around LMW19S was identified. No petroleum-related VOCs were detected in the monitoring wells installed along the northern Site boundary indicating dissolved-phase petroleum constituents are not migrating off-site. The petroleum-related VOCs in LMW19S may be attributed to incidental historical on-Site releases.

6. Off-Site Surface Water Quality of Branch Brook: Surface water samples exhibited concentrations of one SVOC (bis[2-ethylhexyl] phthalate) and two metals (dissolved aluminum and iron) exceeding the NYSDEC Class C SGV. This SVOC is considered a lab or sampling contaminant. The two metals are characteristic of naturally-occurring conditions. The surface water data indicates that groundwater contaminants of concern (TCE and other metals) are not migrating into Branch Brook. The obligation of the Volunteer with respect to off-site investigations per DER-10 has been met and no further action is warranted.

7. Off-Site Sediment Quality in Branch Brook: Sediment samples exhibited concentrations of metals (including cadmium, chromium, copper, lead, nickel, and zinc) exceeding the minimum NYSDEC Class B guidance values. Lead exceeded the NYSDEC Class C guidance value in the two downstream sediment samples, SED2 and SED3. The analytical data and the spatial distribution of exceedances show that the concentrations of metals

exhibited an increasing trend upstream to downstream. The highest metal concentrations appeared in the downstream sample (SED3). The concentrations of metals (i.e., lead and zinc) found in both surface soil samples closest to Branch Brook and sediment samples from the stream are generally higher in sediment than surface soil suggesting other sources of metals are likely impacting the sediment of Branch Brook. The obligation of the Volunteer with respect to off-site investigations per DER-10 has been met and no further action is warranted

8. Remedial Design Investigation (RDI) Results: The RDI identified two CVOCs, TCE and cis-1,2-dichloroethene (cis-1,2-DCE), in sub-slab vapor and co-located indoor air samples at concentrations for which mitigation is recommended when evaluated using the NYSDOH Decision Matrices. TCE was also detected at concentrations exceeding the NYSDOH Air Guideline Values (AGV) in all three indoor air samples.

2.2 Significant Threat Determination

The NYSDEC and NYSDOH will determine whether the Site poses a significant threat to human health and the environment; such a determination has not yet been made.

2.3 Site History

The existing building on the Site was constructed as a commercial office building in 1976 and was used as a veterinary hospital (1976 to 1982), manufacturing facility for pool tables and bar stools (1982 to 1998), and offices for a commercial and movie production company (1998 to 2017).

The Site and northern, southern, and western adjoining properties were undeveloped until about 1955, after which time they were developed into commercial properties. The railroad embankment to the east of the Site was constructed circa 1892.

Historical documentation revealed two steel heating oil underground storage tanks (UST) were located east of the existing building. Both USTs were closed and removed from the Site in 1998 and replaced by a 1,000-gallon fiberglass heating oil UST, which was subsequently removed in 2008. After removal of the UST, post-excavation endpoint soil samples were collected, and the data indicated no constituents of concern above Unrestricted Use Soil Cleanup Objectives (UU SCOs).

2.3.1 Previous Environmental Reports

Previous environmental reports were reviewed as part of this RAWP and are summarized in chronological order below. Previous environmental reports are included in Appendix B.

Document	Comments
Phase I Environmental Site Assessment, 41 Kensico Drive, Mount Kisco, New York prepared by URS Corporation, dated September 21, 2016	The Site appears to have been undeveloped land from 1892 through 1975. The Site is in its current configuration in the 1984 aerial photograph. The building was constructed in 1976 and was originally occupied by a veterinary hospital. Between 1982 and 1998, Designs for Leisure, a manufacturer of pool tables and bar stools occupied the Site, followed by Human Relations Media. The Phase I ESA identified one Recognized Environmental Condition (REC) associated with historical operation of two steel heating-oil underground storage tanks east of the building, which were upgraded in 1998 to one 1,000-gallon fiberglass heating-oil UST, and subsequently removed in 2008 as part of a conversion to natural gas. Following removal of the USTs in 1998, post-excavation end-point soil samples were collected that indicated no constituents of concern above applicable criteria and the NYSDEC granted a No Further Action (NFA) determination on August 26, 1998.
Phase II Environmental Site Assessment (ESA), 41 Kensico Drive, Mount Kisco, New York prepared by URS Corporation (URS), an AECOM Company, dated December 14, 2016	The Phase II included a limited assessment of soil quality from eleven borings in the vicinity of former USTs on November 14, 2016, collection of two sub-slab soil-vapor samples in the eastern area of the building, and installation of 10 temporary 1-inch-diameter PVC monitoring wells for groundwater sampling. The following is the summary of findings: 1. Soil consisted of a mix of sand and gravel fill to about 8 feet below grade surface, silty sand with some clay to about 10 feet bgs, and silt to about 15 feet bgs. No soil borings extended beyond 15 feet bgs. 2. URS collected two soil samples from depths of 1 to 2 feet bgs and 4 to 5 feet bgs in the vicinity of the former USTs, for laboratory analysis of Volatile Organic Compounds (VOC). Soil results indicated no concentrations of volatile organic halocarbons (VOH) above the New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives (UU SCO). 3. Sub-slab soil-vapor results identified the chlorinated solvent trichloroethene (TCE) above the NYSDOH AGV (2 micrograms per cubic meter [µg/m3]). 4. Two of the 10 temporary wells were installed on October 13, 2016 to 15 feet bgs, and the remaining eight temporary wells were installed on November 14, 2016 to 12 feet bgs. 5. Two groundwater samples collected on October 13, 2016, were analyzed for volatile organic compounds (VOC) by EPA Method 8260

Document	Comments
	and Polycyclic Aromatic Hydrocarbons (PAH) by EPA Method 8270. The eight groundwater samples collected on November 14, 2016, were analyzed for VOHs by EPA Method 8260. The sample results showed chlorinated solvent-related contaminants (primarily cis-1,2-DCE and TCE) at concentrations exceeding Ambient Water Quality Standards (AWQS) in nine locations (maximum cis-1,2-DCE = 333 micrograms per liter [µg/L], maximum TCE = 683 µg/L). One sample near the southeastern perimeter did not have VOHs above the AWQS.

Document	Comments
Limited Site Assessment, Commercial Property, 41 Kensico Drive, Mount Kisco, Westchester County, New York prepared by AECOM, dated May 8, 2017	The Limited Site Assessment was conducted to further evaluate shallow groundwater conditions through the installation of permanent groundwater monitoring wells. The Limited Site Assessment was implemented in March 2017 and consisted of the installation of six, permanent shallow monitoring wells across the Site. Additionally, one groundwater probe was completed within the former UST area to 50 feet bgs. Two groundwater probe grab samples were collected at 30 and 50 feet bgs in this boring. The following is a summary of findings: 6. Shallow groundwater generally flows from the west-southwest to the east-northeast. 7. Soil consisted of brown, fine to coarse sand, and fill with brick fragments and gravel to 5 feet bgs, followed by fine-grained sand to about 10 feet bgs, and gray silt to the end of the boring at 50 feet bgs. One-inch-thick interbedded lenses of clay were noted at 42 and 44 feet bgs. 8. Groundwater samples were analyzed for VOHs by EPA Method 8260. VOH concentrations in the deep groundwater probe and four monitoring wells exceeded the NYSDEC AWQS, with the highest concentration of TCE detected at 2,940 µg/L. The highest concentration of chlorinated solvent-related compounds (cis-1,2-DCE, 1,1-dichloroethane [1,1-DCA], and 1,1-dichloroethene [1,1-DCE]) were detected within the western part of the Site. 9. VOC concentrations were generally higher than in previous sampling events. 10. Groundwater impacts extend deeper than 50 feet bgs and appear to be increasing with depth. AECOM concluded that shallow groundwater flows from west to east and that VOH groundwater impacts are migrating onto the Site from an off-site source to the west-southwest.

Document	Comments
Report on Subsurface Soil and Foundation Investigation, Proposed AutoNation Mt. Kisco, 41 Kensico Drive, Mt. Kisco, NY prepared by Carlin Simpson & Associates, dated May 3, 2018	The investigation was conducted to determine the nature and engineering properties of soil and groundwater conditions for the new construction. Existing fill was encountered from 5 to 10 feet bgs followed by native layers of sand, silt and clay lenses. Soft-/loose and/or organic soil was identified extending from the ground surface to 7 to 30 feet bgs. The report recommendations include the following: existing fill and soft, loose, and organic soil layers are not suitable for support of the proposed building foundations or floor slab; placement of 2 to 4 feet of new fill could cause settlement on the order of 2 to 5 inches in the next 2 to 3 years following construction with additional settlement observed over the next 20 years; new building shall be supported on a pile foundation system; and special subgrade preparation procedures will be required for the retaining wall, utility pipes, and utility structures. At the time of this report, the proposed redevelopment of the Site included demolition of the existing building and construction of a new building and parking lot. Subsequent to the report preparation, redevelopment plans have been altered to the current renovation scope.

2.4 Geological Conditions

2.4.1 Geology

The Site's stratigraphy comprises a historic fill layer of variable thickness underlain by native soil and bedrock. The historic fill consists of brown, fine-grained sand with varying amounts of fine gravel, medium and coarse sand, silt, clay, brick, concrete, asphalt, timber, rubber, plastic, and glass and generally extends from ground surface to about 9 feet bgs. The historic fill is present at most boring locations across the Site (including around the existing building and in the northern and eastern areas of the site), but was not observed in borings completed in the southern-central and southwestern parts of the Site. Native soil underlying the historic fill includes an organic clay layer consisting of soft to medium-dense silt and clay or by a fine-grained sand layer with varying amounts of silt and clay. Continental glaciation at the end of the Pleistocene and beginning of the Holocene epochs and the melting of the Wisconsin ice sheets resulted in the deposition of glacial outwash materials to the region and likely caused the distinctive stratigraphy identified beneath the historic fill. The organic clay layer was observed in boring LB07 (with a thickness of about 4 feet from about 7 to 11 feet bgs) and boring LB08 (with a thickness of 1.5 feet, from about 6 to 7.5 feet bgs); the organic clay layer was not present in any other boring at the Site.

The fine-grained sand layer is present below surface cover (where historic fill was not identified) or the historic fill layer to the top of bedrock; thickness of this unit ranges from about 25 feet to 65 feet. Intermittent clay lenses (about 0.5 to 5 feet thick) were observed in this unit at depths ranging from between 2 and 50 feet bgs. Bedrock was encountered at depths ranging from 24 feet bgs at boring LB11 near the southwest corner of the Site to 71 feet bgs at boring LB08 near the east-central part of the Site. The bedrock is metamorphic in nature, consistent with the USGS reference map, and appears to slope from west to east.

2.4.2 Hydrogeology

Synoptic groundwater-level measurements were collected on September 5, 2018 from all monitoring wells completed during the RI. Depth to groundwater was measured between 0.05 feet (LMW08D) to 5.48 feet (MW-1) below top of well casing with corresponding groundwater elevations from about el. 284.31 to 288.21 feet NAVD88. The groundwater elevations indicate the Site has two distinct groundwater systems with a zone of transitional permeability that trends north-south located in the central part of the Site. The shallow monitoring wells cluster about a head elevation of el. 285 feet NAVD88 on the eastern half of the Site and about el. 287 and 288 feet NAVD88 on the western half of the Site. The groundwater elevation is highest in the southwestern part of the Site and groundwater appears to flow from the southwest to the northeast toward Branch Brook with a hydraulic gradient of about 0.002 feet per foot (ft/ft). Underground utilities and other subsurface structures or previously disturbed areas (i.e., the previous UST excavation and the foundation for the existing building) may locally influence the direction of groundwater flow. Synoptic groundwater-level measurements were also collected on May 9, 2019 during the SRI. Groundwater contour maps with the 2018 and 2019 data are included as Figures 6A and 6B, respectively. A groundwater elevations summary and detailed discussion of the zone of transitional permeability is presented in the RIR.

2.5 Contamination Conditions

2.5.1 Conceptual Model of Site Contamination

A conceptual Site model (CSM) was developed based on the findings of the previous investigations, the RI/SRI to produce a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways, as discussed below.

<u>Potential Sources of Contamination</u>

Potential sources of contamination were identified as 1) suspected hydraulically upgradient off-site sources of CVOCs and incidental historical petroleum releases; 2) historic fill with SVOCs, pesticides and metals at concentrations greater than the applicable SCOs; 3) historical application of pesticides; and 4) metals in sediment from stormwater runoff entering Branch Brook at the outfall near the northeastern corner of the Site and/or erosion of fill material from the raised, railway embankment along the course of the waterway.

Exposure Media and Contaminants of Concern

The contaminated media include soil, groundwater, soil vapor and sediment. The contaminants in the media include: 1) CVOCs in soil, groundwater and soil vapor; 2) petroleum-related VOCs in groundwater; 3) metals in soil, groundwater, and sediment; and 4) pesticides in soil.

Receptor Populations

The Site is vacant and unsecured. The building is vacant, but secured and locked. No potential receptors exist except for occasional visitors to 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 property workers and visitors.

2.5.2 Description of Areas of Concern

AOC 1: Former Tank Area

AOC 1 represented the location of former USTs, immediately east of the existing building. Potential subsurface impacts related to the former tanks were investigated during the RI/ SRI. Contaminants of concern (COC) for this AOC included petroleum-related VOCs. Sampling locations associated with AOC 1 delineation include soil borings LB01, LB16, LB17, LB18, LB19, LB21, LB25, LB27 and LB28, and monitoring wells MW-1, LMW01D, LMW19S, LMW19D, MW20S, MW20D, GWG01, GWG02, and GWG03. A summary of findings and conclusions associated with AOC 1 is presented below.

AOC-1 Findings

- The geophysical survey did not identify anomalies consistent with USTs within AOC 1 or any other area at the Site.
- Petroleum-like impacts, evidenced by odors, staining, or PID readings above background levels, were not observed in soil borings or monitoring wells.

- Petroleum-related VOCs were not detected in any of the soil or groundwater samples, except for LMW19S. Three petroleum-related VOCs, including benzene, m/p xylene and total xylenes exceeded the NYSDEC Class GA SGVs in groundwater in well LMW19S. No potential source area around LMW19S was identified during the SRI. No petroleum-related VOCs were detected in the wells installed along the northern Site boundary. The petroleum-related VOCs in LMW19S may be attributed to incidental historical on-Site releases.

AOC-1 Conclusions

- No petroleum source area was identified on-site during the RI/SRI and no petroleum-related contaminants appear to be migrating off-site.
- The detected concentrations of petroleum-related VOCs identified in LMW19S are considered residual in nature. No further action is warranted in for the former USTs and AOC 1.

AOC 2: Historic Fill Material

AOC 2 represents the near ubiquitous historic fill layer below the existing Site cover systems. AOC 2 is a Site-wide AOC and investigation locations include all borings, surface soil sampling locations, and monitoring wells. Constituents of concern for this AOC include SVOCs and metals (including characteristic hazardous lead). Historic fill is present at most boring locations across the Site (including around the existing building and in the northern and eastern areas of the Site), but was not observed in borings completed in the southern-central and southwestern parts of the Site (LB10, LB11, LB12, LB14, LB15, LB24, and LB26). A summary of findings and conclusions associated with AOC 2 is presented below.

AOC-2 Findings

- Historic fill was identified through field observations and review of analytical data from surface grade to depths up to 9 feet bgs. The vertical extent of historic fill was documented by field observations of the historic fill/native soil contact and one or more samples collected from the native soil interval in borings at the Site.
- Field observations determined the historic fill generally consists of brown, fine-grained sand with varying amounts of fine gravel, medium and coarse sand, silt, clay, brick, concrete, asphalt, timber, rubber, plastic, and glass.
- Several SVOCs, pesticides, and metals exceeded the UU SCOs in one or more soil samples collected within the historic fill layer. Benzo(a)pyrene and lead were the only contaminants that exceeded the CU SCOs. Benzo(a)pyrene exceeded the CU SCO in

boring LB28 (at 3-4 feet bgs) and lead exceeded the CU SCO in boring LB23 and one of the delineation borings (LB23_N1) at depths up to 6 feet bgs. Seven delineation samples contained characteristic hazardous lead concentrations from 0 to 8 feet bgs.

- No SVOCs were detected in groundwater above the NYSDEC Class GA SGV with the exception of bis (2-ethylhexyl) phthalate at one monitoring well, MW-4. No source of bis (2-ethylhexyl) phthalate was identified on-site; the detection is likely related to impurities present in groundwater sampling equipment and tubing.
- Barium, iron, magnesium, manganese, selenium, sodium, and thallium were detected in total and/or dissolved concentrations above the NYSDEC Class GA SGV in most of the groundwater samples. These metals are characteristic of naturally-occurring groundwater conditions.
- Lead was detected in total concentrations above the NYSDEC Class GA SGV in one groundwater sample (LMW19S). This concentration in groundwater at LMW19S is likely attributed to the presence of suspended solids/particles derived from historic fill.

AOC-2 Conclusions

- Historic fill was identified below surface cover to depths up to 9 feet bgs and nearly ubiquitous across the Site. SVOCs and metals present in historic fill were detected at isolated concentrations above the CU SCOs. The RI and SRI characterized the historic fill layer and also defined the native soil horizon through visual observation and analytical data. Surface soil surrounding the existing building and parking lot (with the exception of area of characteristic hazardous lead) meets the CU SCOs and is suitable for cover soil. Hazardous lead soil will be addressed as its own AOC (see AOC-4).
- The presence of metals in groundwater appears to be related to natural occurrence (barium, iron, magnesium, manganese, selenium, sodium, and thallium) or historic fill (lead). Characteristic hazardous concentrations of lead in the vicinity of LB23 do not appear to be have impacted groundwater quality.

AOC 3: Chlorinated Solvents in Soil, Groundwater, and Soil Vapor from Off-Site Sources

AOC 3 represents CVOCs identified in groundwater during previous investigations, the RI and SRI. AOC 3 is a Site-wide AOC and investigation locations include all borings, monitoring wells, and sub-slab vapor sampling locations. Constituents of concern for this AOC include PCE and TCE and their breakdown products (trans-1,2-DCE, cis-1,2-DCE, and vinyl chloride), and 1,1,1-TCA and its breakdown products (1,1-DCA, 1,1-DCE and chloroethane). A summary of findings and conclusions associated with AOC 3 is presented below.

AOC-3 Findings

- TCE was detected at concentrations above the UU SCO in soil samples from 13 borings, including LB01, LB08, LB10, LB11, LB12, LB13, LB14, LB15, LB17, LB19, LB20, LB21, and LB24 at depths ranging from about 11 feet to 63 feet bgs. Although present in these borings, no on-site source of TCE was identified. The presence of TCE in these soil samples is explained by the presence of TCE in water molecules entrained in soil pore space and/or adsorbed to soil particles. No other CVOC was detected in soil above the UU SCO.
- CVOCs, including PCE, TCE, 1,1,1-TCA and/or their breakdown products, were detected in all on-Site monitoring wells above the NYSDEC Class GA SGVs. The maximum concentrations of PCE, TCE and 1,1,1 TCA were 14.2 µg/L (LMW19S), 15,800 µg/L (LMW12S), and 13.1 µg/L (LMW19S), respectively.
- PCE and TCE were detected in the sub-slab vapor at concentrations of 14 micrograms per cubic meter (µg/m^3) and 3.7 µg/m^3, respectively.
- An evaluation of the groundwater elevations indicate the Site has two distinct groundwater systems with a zone of transitional permeability located in the central part of the Site trending north-south. The groundwater elevation is highest in the southwestern part of the Site and groundwater flows from the southwest to the northeast toward Branch Brook.
- The maximum concentration of TCE was detected in the southwestern (hydraulically upgradient) part of the Site. CVOC concentrations to the west of the zone of transitional permeability are generally one to two orders of magnitude higher than CVOC concentrations east of the boundary.

AOC-3 Conclusions

- No on-Site source of CVOCs was identified.
- The analytical results, groundwater system, and conceptual Site model indicate the suspected source of the CVOCs is off-site and may be attributed to a known larger quantity generator (1986 to 1999) of spent halogenated solvent waste. This facility, Toyota North, is located hydraulically upgradient of the Site at 255 Kisco Avenue, Mount Kisco, NY).

AOC 4: Hazardous Lead Soil

AOC 4 represents an area identified to contain RCRA characteristic hazardous lead in soil. AOC 4 is a localized AOC and investigation and delineation locations include borings LB23, LB23_N1,

LB23_N2, LB23_E1, LB23_S1, and LB23_S2. Constituents of concern for this AOC include lead. A summary of findings and conclusions associated with AOC 4 is presented below.

AOC-4 Findings

- Total lead was detected above CU SCOs in a sample collected at 4 to 5 feet bgs from LB23 during the RI. The concentrations indicated the possibility of RCRA characteristic hazardous lead and prompted a delineation during the SRI.
- Total lead was detected above CU SCOs during the SRI delineation in two borings at depths between 0 and 6 feet bgs.
- TCLP lead concentrations exceeded the RCRA Maximum Concentration for the Toxicity Characteristic (5 mg/L) in 7 samples during the SRI delineation at depths between 0 and 8 feet bgs.

AOC-4 Conclusions

- Characteristic hazardous lead in soil was identified in a localized area near the northwest corner of the Site between 0 and 8 feet bgs. The extent of hazardous soil has been vertically delineated and does not extend beyond 8 feet bgs. Additional sampling is needed to fully delineate the southern extent of hazardous lead in soil; the remaining delineation will be completed during waste characterization at a later date.
- Characteristic hazardous concentrations of lead in the vicinity of LB23 are localized and do not appear to have impacted groundwater quality.

AOC 5: Floor Drains

AOC 5 represented floor drains observed in the east-central part of the building. AOC 5 was a localized AOC and investigation and delineation locations included borings LB18, LB19, LB27, LB28 and groundwater monitoring wells LMW19S and LMW19D. COCs associated with this AOC included VOCs, SVOCs and metals. A summary of findings and conclusions associated with AOC 5 is presented below.

AOC-5 Findings

- According to the Phase I ESA (September 2016) prepared by URS September 2016, the drains discharge to the sanitary sewer system. The floor drains appeared to have been filled with concrete before the start of the RI.
- No VOCs were detected above the UU SCOs in shallow soil samples within AOC 5. TCE was detected in boring LB19 in one deep sample (34.5 to 35.5 feet bgs); this detection is representative of groundwater quality and not indicative of an on-site source area.

- While petroleum-related VOCs, including benzene, m/p-xylene and total xylenes, exceeded the NYSDEC Class GA SGV in well LMW19S, no petroleum source area was identified around LMW19S in borings LB18, LB27 or LB28. The petroleum-related VOCs in LMW19S may be attributed to incidental historical on-Site releases.
- The SVOCs detected in boring LB28 and metals detected in boring LB19 above the UU SCOs are attributed to historic fill.
- The CVOCs detected in groundwater in wells LMW19S and LMW19D are attributed to a hydraulically upgradient off-site source (see AOC 3). The metals detected in groundwater at these two wells are attributed to naturally-occurring groundwater conditions and/or historic fill.

AOC-5 Conclusions

- The floor drains do not contribute to the subsurface contamination and do not constitute a source area and preferential pathway for contaminant migration. No further action is warranted in association with the floor drains and AOC 5.

2.5.3 Nature and Extent of Contamination

This section evaluates the nature and extent of soil, groundwater and soil vapor contamination.

2.5.3.1 Soil Contamination

The RI and SRI characterized the historic fill layer and also defined the native soil horizon below the historic fill. The historic fill layer extends from surface grade to depths up to about 9 feet bgs and contains varying concentrations of SVOCs, pesticides, and metals, which are described in further detail in this section. CVOCs, including TCE, were detected in native soil at depths ranging from about 11 feet to 63 feet bgs. This section is divided into the following categories:

1. Historic fill
2. CVOC-impacted soil

Historic Fill

Historic fill was identified through field observations and review of analytical data indicating the presence of SVOCs, pesticides and metals from surface grade to depths up to 9 feet bgs. Historic fill is present at most boring locations across the Site (including around the existing building and in the northern and eastern areas of the Site), but was not observed in borings completed in the southern-central and southwestern parts of the Site (LB10, LB11, LB12, LB14, LB15, LB24, and LB26). The vertical extent of historic fill was documented by field observations of the historic

fill/native soil contact and one or more samples collected from the native soil interval in borings at the Site.

SVOCs {including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene}, pesticides (including 4,4-DDD, 4,4-DDE, and 4,4-DDT), and metals (including trivalent chromium, copper, lead, mercury, nickel and zinc) exceeded the UU SCOs in one or more soil samples collected within the historic fill layer. Benzo(a)pyrene and lead were the only contaminants that exceeded the CU SCOs. Benzo(a)pyrene exceeded the CU SCO in boring LB28 (at 3-4 feet bgs) and lead exceeded the CU SCO in boring LB23 and one of the delineation borings (LB23_N1) at depths up to 6 feet bgs. Seven delineation samples around LB23 contained characteristic hazardous lead concentrations from 0 to 8 feet bgs.

Pesticides are not considered a COC as no pesticides exceeded the CU SCOs and no pesticides were detected in groundwater.

CVOC-Impacted Soil

TCE was detected at concentrations above the UU SCO in soil samples from 13 borings, including LB01, LB08, LB10, LB11, LB12, LB13, LB14, LB15, LB17, LB19, LB20, LB21, and LB24 at depths ranging from about 11 feet to 63 feet bgs. TCE concentrations ranged from 0.57 mg/kg to 13 mg/kg. Although present in these borings, no on-Site source of TCE was identified. The presence of TCE in these soil samples is explained by the presence of TCE in water molecules entrained in soil pore space and/or adsorbed to soil particles. No other CVOC was detected in soil above the UU SCO. TCE did not exceed the CU SCO in any soil sample.

2.5.3.2 Groundwater Contamination

The RI and SRI characterized groundwater quality at the Site and identified petroleum-related VOC, CVOC, SVOC and metals contamination. This section is divided into the following categories:

1. Residual Petroleum Contamination
2. CVOC Contamination
3. SVOC and Metals Contamination

Residual Petroleum Contamination

Two petroleum-related VOCs, including benzene and total xylenes, marginally exceeded the NYSDEC Class GA SGVs in one groundwater sample collected from well LMW19S. No potential

source area around LMW19S was identified during the SRI. No petroleum-related VOCs were detected in the three wells installed along the northern Site boundary during the SRI indicating dissolved-phase petroleum constituents are not migrating off-site. The petroleum-related VOCs in LMW19S may be attributed to incidental historical on-Site releases.

CVOC-Contamination

CVOCs, including PCE, TCE, 1,1,1-TCA and/or their breakdown products, were detected above the NYSDEC Class GA SGVs in all 21 on-Site monitoring wells. The maximum concentrations of PCE, TCE and 1,1,1 TCA were 14.2 µg/L (LMW19S), 15,800 µg/L (LMW12S), and 13.1 µg/L (LMW19S), respectively.

No on-site source of CVOCs was identified by the RI and SRI. The Site has two distinct groundwater systems with a zone of transitional permeability located in the central part of the Site trending north-south. The groundwater at the Site generally flows from southwest to northeast. The maximum concentration of TCE was detected in the southwestern (hydraulically upgradient) part of the Site. CVOC concentrations to the west of the zone of transitional permeability are generally one to two orders of magnitude higher than CVOC concentrations east of the zone. The analytical results and conceptual Site model indicate the suspected source of the CVOCs is off-site and is attributed most likely to a known large quantity generator (1986 to 1999) of spent halogenated solvent waste. This facility, Toyota North, is located hydraulically upgradient of the Site at 255 Kisco Avenue, Mount Kisco, NY.

Metals Contamination

Barium, iron, magnesium, manganese, selenium, sodium, and thallium were detected in total and/or dissolved concentrations above the NYSDEC Class GA SGV in most of the groundwater samples. These metals are characteristic of naturally-occurring groundwater conditions.

Lead was detected in total concentrations above the NYSDEC Class GA SGV in one groundwater sample (LMW19S). This concentration in groundwater at LMW19S is likely attributed to the presence of suspended solids/particles derived from historic fill.

The characteristic hazardous concentrations of lead in the vicinity of LB23 do not appear to be have impacted groundwater quality at the Site.

2.5.3.3 Soil Vapor Contamination

Alcohol, ketone, petroleum, solvent-related compounds (including the PCE and TCE), and refrigerant/propellants (Freon-12) were detected in the sub-slab soil vapor sample (LSV22). The presence of PCE and TCE in soil vapor is related to the presence of these CVOCs in groundwater

from an off-site source. The sub-slab soil vapor results from LSV22 were not compared to any regulatory criteria, as no standard for direct comparison of soil vapor samples currently exists in New York State. The vapor results appear to be biased low, likely a result of a shallow groundwater table.

Three co-located indoor air and sub-slab vapor samples were collected on September 23, 2020 as part of a Remedial Design Investigation (RDI) to evaluate vapor intrusion risk/potential. The sample results identified carbon tetrachloride, cis-1,2-dichloroethene (cis-1,2-DCE), PCE, and TCE in soil vapor beneath the ground floor concrete slab of the building or in indoor air within the building. The indoor air and corresponding sub-slab vapor concentrations of these VOCs were evaluated using the Decision Matrices provided in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Based on NYSDOH Decision Matrix A, mitigation is recommended based on the sub-slab and indoor air concentration of cis-1,2-DCE and TCE.

2.5.3.4 Off-site Surface Water and Sediment Contamination

Off-site surface water samples exhibited concentrations of one SVOC (bis[2-ethylhexyl] phthalate) and two metals (dissolved aluminum and iron) exceeding the NYSDEC Class C SGVs. The SVOC is considered a lab or sampling contaminant. The two metals are characteristic of naturally-occurring conditions. The surface water data indicates that groundwater contaminants of concern (TCE and other metals) are not migrating into Branch Brook.

Off-site sediment samples from Branch Brook exhibited concentrations of metals (including cadmium, chromium, copper, lead, nickel, and zinc) exceeding the NYSDEC Class A guidance values. All six metals exceeded the minimum NYSDEC Class B guidance value. Lead exceeded the NYSDEC Class C guidance value in the two downstream sediment samples, SED2 and SED3. The analytical data and the spatial distribution of exceedances show that the concentrations of most metals exhibited a general increasing trend upstream to downstream. In general, the highest metal concentrations appeared in the downstream sample (SED3).

2.6 Qualitative Human Health Exposure Assessment

Human health exposure risk was evaluated for current, construction and remediation, and future Site and off-site conditions, in accordance with the NYSDEC DER-10. The assessment includes an evaluation of potential Site contaminant sources and migration pathways, potential receptors, exposure media, and receptor intake routes and exposure pathways.

2.6.1 Site Setting

Current Conditions

The Site is a 1.73-acre lot with a 13,000-square-foot vacant commercial building with a slab-on-grade foundation, an asphalt-paved parking lot, landscaped areas around the building and parking lot and a wooded area along Branch Book.

Proposed Conditions (Construction/Remediation and Future Site Use)

The contemplated use for the purposes of the BCP would be commercial. The proposed commercial development includes the renovation of the existing one-story, approximately 13,000-square-foot, commercial-use office building with a slab-on-grade foundation. The asphalt-paved vehicle parking lot area and landscaped areas will not be altered.

Summary of Environmental Conditions

Soil sampling results identified VOCs, SVOCs, pesticides, metals (including hazardous levels of lead) at concentrations exceeding the UU and/or CU SCOs. The suspected source of the VOCs in soil is related to a hydraulically upgradient, off-site source. The source of the SVOCs and metals is historic fill. The source of the pesticides may also be related to historic fill and/or historical application of pesticides for insect and pest control.

Groundwater samples exhibited concentrations of VOCs, SVOCs, and metals exceeding the NYSDEC Class GA SGVs. The CVOCs detected in groundwater are attributed to a suspected hydraulically upgradient, off-Site source. The isolated occurrence of petroleum-related VOCs in groundwater is likely attributed to an incidental historical on-Site release. The metals detected in groundwater are attributed to either naturally-occurring conditions, historic fill and/or an off-site source.

The CVOCs detected in sub-slab soil vapor are attributed to CVOC-impacted groundwater, which originates from the same suspected hydraulically upgradient, off-site source.

Surface water samples exhibited concentrations of one SVOC and two metals exceeding the NYSDEC Class C SGVs; these detections are considered background and/or related to naturally-occurring conditions.

Sediment samples from Branch Brook exhibited concentrations of metals (including cadmium, total chromium, copper, lead, nickel, and zinc) exceeding the NYSDEC Class A guidance values. All six metals exceeded the minimum NYSDEC Class B guidance value. Lead exceeded the NYSDEC Class C guidance value in the two downstream sediment samples, SED2 and SED3. The analytical data and the spatial distribution of exceedances shows that the concentrations of metals are generally increasing in a downstream direction. In general, the highest metal concentrations appeared in the downstream sample, SED3, with the exception of a few outliers.

The source of metals in the sediments is likely attributed to off-site sources, either the settlement/deposition of suspended particles from stormwater runoff entering Branch Brook at the outfall near the northeastern corner of the Site and/or erosion of fill material from the raised, railway embankment along the course of the waterway.

2.6.2 Potential Exposure Pathways – On-Site

Current Conditions

The Site is covered in part with impervious surfaces, including an asphalt-paved parking lot and the concrete slab of the existing building; however, the Site includes landscaped and vegetated areas with isolated occurrence of exposed soil/fill material, though most exterior areas are covered with lawn grass. Since there are no access restrictions to the Site, human exposure to contaminated soil through ingestion or direct contact is possible, but limited.

On-site groundwater is contaminated with CVOCs, SVOCs, and metals. Groundwater at the Site in this area of Mount Kisco is not used as a potable water source. Potable water is derived from the Byram Lake Filtration Plant, which is fed by the Byram Lake Reservoir (located about 3.5 miles southeast of the Site) and the Leonard Park Well Field (located about 2 miles south of the Site) located in Bedford, New York. Because groundwater is not used as a potable water source, no complete exposure pathway to contaminated groundwater through ingestion or direct contact exists under current Site conditions.

CVOCs are present in soil vapor below the building and in indoor air. Vapor intrusion is possible through preferential pathways through the foundation; however, because the building is secured and locked and visits to the building are limited in occurrence and duration, no complete exposure pathway to contaminated soil vapor through inhalation exists under current Site conditions.

Metals are present in sediment samples of Branch Brook at concentrations that are considered contaminated and likely to pose a risk to aquatic life. Since there are no access restrictions to the Site, human exposure through ingestion of or direct contact with contaminated sediment or through ingestion of aquatic life (i.e., fish) is possible, but limited. To the best of our knowledge, Branch Brook is not used for contact recreational activities, including swimming and fishing.

In localized areas where human exposure to contaminated soil, groundwater and soil vapor is possible (i.e., during soil, soil vapor and groundwater sampling associated with Site investigations when the ground surface is penetrated), the potential exposure pathways for dermal absorption, inhalation and ingestion are controlled through implementation of a HASP.

Construction/Remediation Condition

Potential exposure pathways exist for dermal absorption, ingestion, and/or inhalation during construction/remediation. These exposure pathways will be avoided through the implementation of a construction health and safety plan (CHASP), community air monitoring plan (CAMP), and use of vapor and dust suppression techniques.

Proposed Future Conditions

Near-term future conditions include the existence of a vacant, commercial property. Without the use of engineering and institutional controls (ECs/ICs), exposures to future tenants, visitors and workers to residual contaminants are possible.

The Site will be developed with the use of ECs/ICs as necessary, to control exposure to future tenants, visitors and workers to residual contamination. The following ECs/ICs are planned for the proposed development:

- The existing composite cover system, including the concrete floor slab, asphalt parking lot, and other soil covered surfaces with no disturbances or alterations except for the addition of a new surface-applied vapor barrier
- The Site and surrounding areas will continue to obtain drinking water from existing sources, including surface water reservoirs and/or well fields, and not from groundwater, thereby preventing the risk of ingesting contaminants in groundwater.
- Deed restrictions on use of groundwater, allowable uses of the Site, and vegetable farming will be placed on the property as part of remediation.

2.6.3 Potential Exposure Pathways – Off-Site

Currently, no exposure pathways to on-site contamination for the public adjacent to the Site exists because the Site is capped with impervious surfaces and/or protective surface cover (i.e., maintained landscaped areas), groundwater is not potable, and Site investigation work is performed under a HASP with required CAMP implementation.

Were a CHASP and CAMP not implemented, under future remediation/construction conditions, the public may be exposed to soil, dust and vapors generated during construction; however, the following procedures will avoid this exposure:

- 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 before trucks leave 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.

CVOCs in groundwater are suspected to originate from a hydraulically upgradient, off-site source. An evaluation of the off-site source is beyond the scope of the remedial investigation completed by the Volunteer and a determination of whether a complete exposure pathway exists for the migration of Site contaminants to off-site human receptors for current, construction phase, or future conditions was not performed. Under future conditions, the Site will be remediated and on-site exposure pathways will be controlled, but the source of CVOCs in groundwater will not be addressed. Complete off-site exposure pathways to human receptors may exist and, if necessary, engineering controls should be implemented by others to prevent complete exposure pathways.

2.6.4 Evaluation of Human Health Exposure

Based upon the CSM and the exposure evaluation above, complete exposure pathways to subsurface contamination to both on- and off-site receptors:

- Are present under current use conditions, but limited (i.e., Site access is not completely restricted);
- Would be avoided under construction/remediation use conditions through implementation of a CHASP and CAMP and other construction measures (dust suppression, soil/erosion sediment control plan, etc.); and
- Would be mitigated for on-site human receptors through the use of planned IC/ECs under future use conditions.
- May exist for off-site human receptors upon completion of the on-site remedy if the off-site source of CVOCs in groundwater is not controlled and/or remediated

2.7 Remedial Action Objectives

Based on the results of previous investigations and the RI/SRI, the following Remedial Action Objectives (RAO) were identified:

2.7.1 Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater contamination

2.7.2 Groundwater

RAOs for Public Health Protection:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater that originates from an off-site source

RAOs for Environmental Protection:

- Prevent the migration of contaminants to the adjoining watercourse (Branch Brook)

2.7.3 Soil Vapor

RAOs for Public Health Protection:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site

3.0 DESCRIPTION OF REMEDIAL ACTION

This section presents an evaluation of the proposed remedial action. The proposed SCOs will be Part 375 CU SCOs for Alternative I (Track 2) and Part 375 UU SCOs for Alternative II (Track 1). The Track 2 SCOs are provided in Table 1.

The intent of the remedy is to achieve a Track 2 commercial use cleanup; therefore, an environmental easement and a Site Management Plan (SMP) are anticipated.

This section is organized as follows:

- Sections 3.1, 3.2 and 3.3 provide technical descriptions of:
    - Alternative I, a Track 2/Commercial Use remedy
    - Alternative II, a Track 1/Unrestricted Use remedy
- Section 3.4 evaluates the remedial alternatives based on the BCP Remedy Selection Evaluation Criteria
- Section 3.5 summarizes the recommended remedial alternative

3.1 Standards, Criteria, and Guidance

In accordance with ECL § 27-1415 and DER-10, the objectives of the remedial action are to: (1) reduce the concentrations of contaminants of concern at the Site to meet those levels that will protect public health and the environment, and (2) isolate the Site from migration of contaminated groundwater and soil vapor from potential off-site sources. In accordance with DER-10, the Volunteer will have no remedial responsibilities with respect to groundwater contamination migrating under the Site from an off-site source; however, remedial alternatives will be developed for such a case that eliminate or mitigate on-Site environmental impacts or human exposures, to the extent feasible, resulting from the off-site contamination entering the Site. Where identifiable sources of contamination are found on the Site, the sources will be removed or treated to the greatest extent feasible.

Also, in accordance with DER-10, the RAOs for this Site are defined as medium-specific objectives for the protection of public health and the environment and are developed based on contaminant-specific standards, criteria, and guidance (SCGs). The SCGs for the Site include:

- NYSDEC – Brownfield Cleanup Program Guide (draft 2004);
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (2010);

- NYSDEC TAGM No. 4031– Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Waste Sites (1989);
- NYSDEC TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998);
- NYSDEC TOGS 5.1.8 – New York State Stormwater Management Design Manual (2008);
- NYSDEC TOGS 5.1.10 – New York Standards and Specifications for Erosion and Sediment Controls (2005);
- NYSDOH – Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006);
- NYCRR Title 6 Part 360 – General Provisions;
- 6 NYCRR Part 364 – Waste Transporter Permits;
- 6 NYCRR Part 370 – Hazardous Waste Management System;
- 6 NYCRR Part 375 – Environmental Remediation Program (December 2006);
- 6 NYCRR Part 376 – Land Disposal Restrictions;
- 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Regulations;
- Code of Federal Regulations (CFR) Title 29 Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard;
- CFR Title 29 Part 1926 - Safety and Health Regulations for Construction; and
- NYSDEC CP-51 - Soil Cleanup Guidance (2010).

In addition to the SCGs listed above, the RAOs were developed from information derived from the RI/SRI and previous environmental investigations referenced in Section 2.3.1, including identified contaminated media and potential public health and environmental exposure pathways, which were summarized in Sections 2.5 and 2.6. The RAOs for this RAWP are listed in Section 2.7.

3.2 Alternative I – Technical Description

Summary of Alternative I – Track 2 Remedy

Alternative I, a Track 2 remedy, would include implementation of the following remedial elements:

1. Development and implementation of a CHASP and CAMP for the protection of on-Site workers, visitors, and the environment during remediation and construction activities;
2. Implementation of stormwater and soil erosion and control measures in compliance with applicable laws and regulations;
3. Screening contamination (by visual means, odor, and monitoring with a PID) of excavated soil/fill during any ground intrusive Site work;

4. Completion of a waste characterization study before commencement of or concurrent with excavation activities; waste characterization soil samples would be collected and analyzed in accordance with typical waste disposal facility requirements.

5. Additional delineation of soil and/or historic fill that exceeds characteristic hazardous lead waste limits in the northwestern part of the Site as identified by the RI/SRI. The additional delineation would consist of field screening, soil sample collection, and laboratory analysis of soil samples.

6. Collection and analysis of post-excavation documentation endpoint soil samples in accordance with DER-10 to evaluate the performance of the remedy with respect to attainment of CU SCOs and to document the concentrations of residual contamination that may remain on-Site, if necessary. Soil samples would be analyzed for total lead and lead by the Toxicity Characteristic Leaching Procedure (TCLP).

7. Removal of soil and/or fill material exceeding the CU SCOs excavated for remedial purposes. The excavation activities would include the removal of characteristic hazardous lead soil in northwestern part of the Site. The estimated volume of lead-impacted soil and/or fill material to be excavated is about 100 cubic yards. No hazardous lead soil will be reused on-Site. No additional excavation or disposal is anticipated at the Site.

8. Decommissioning and removal of any unknown underground storage tanks (USTs) encountered during excavation and construction activities in accordance with 6 NYCRR Part 613.9, NYSDEC Commissioner's Policy (CP)-51, and other applicable NYSDEC tank closure requirements, including DER-10. Endpoint soil samples will be collected to document the removal of any petroleum-impacted material in accordance with DER-10.

9. Transportation and off-site disposal of excavated soil/fill material at permitted facilities in accordance with the RAWP and applicable federal, state, and local laws and regulations for handling, transport, and disposal.

10. Import of materials to be used for backfill and/or Site cover in compliance with: 1) CU SCOs or Protection of Groundwater (PGW) SCOs, whichever is more stringent; 2) 6 NYCRR Part 360 regulations; and 3) federal, state, and local laws and regulations for handling and transport of material.

11. Improving the existing concrete building slab with a surface-applied vapor barrier system compatible with chlorinated solvents (RetroCoat™, or equivalent) to mitigate potential soil vapor intrusion. The exterior cover systems (asphalt-paved parking lot and landscaped areas) are protective of human health and the environment in their current condition and will not be altered as part of the remedy.

12. Establishment of use restrictions including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, including residential and restricted-residential uses, farming, and vegetable gardening, to eliminate future exposure pathways;
13. Establishment of an approved SMP to ensure long-term management of engineering and institutional controls, including the performance of periodic inspections and certification that the controls are performing as they were intended; and
14. Recording of an Environmental Easement (EE) to memorialize the remedial action and the engineering and institutional controls to ensure that future owners of the Site continue to maintain these controls, as required.

On-Site Worker, Public Health and Environmental Protection

A Site-specific CHASP was developed and will be enforced to protect on-Site workers from accidents and acute and chronic exposures from the identified contaminated media. The Site CHASP is included as Appendix C. Each contractor performing RAWP operations on the Site will have and enforce a HASP that, at a minimum, meets the CHASP criteria. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control as specified in the CAMP. The CAMP includes continuous perimeter monitoring of dust and organic vapor utilizing DustTrak aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors. The environment will be protected by implementing and enforcing the appropriate soil erosion prevention measures.

Fill and Soil Removal

A waste characterization study will be completed before commencement of or concurrent with excavation activities. Waste characterization soil samples would be collected and analyzed in accordance with typical waste disposal facility requirements. The remedial excavation would include the removal of characteristic hazardous lead soil in northwestern part of the Site. The estimated volume of hazardous soil, as delineated in the May 2019 SRI, is about 100 cubic yards. Limited additional delineation of the lead hotspot is required (to the south) and will be completed during the waste characterization or another mobilization. The extents of the remedial excavation area will be surveyed by a surveyor licensed in the state of New York.

UST System Removal

Historic Site operations included a veterinary hospital, commercial warehouse, pool table and bar manufacturer, and movie production; a 1,000-gallon heating oil UST was removed in 2008. There

are no known USTs remaining on the property. Any USTs encountered during remedial excavation will be decommissioned in accordance with 6 NYCRR Part 613.9, NYSDEC Commissioner's Policy (CP)-51, and other applicable tank closure requirements including DER-10 Section 5.5 and any county-level requirements. Confirmation soil samples will be collected in accordance with DER-10. Petroleum-contaminated soil will be characterized and removed in accordance with state and county guidance. USTs and ASTs will be registered with the Westchester County Department of Public Health and its Petroleum Bulk Storage Unit.

Confirmation Soil Sampling

With the exception of required samples within the hazardous lead excavation area, confirmation endpoint soil samples will not be collected. Should plans change and remedial excavations beyond the hazardous lead soil hotspot are necessary, confirmation endpoint soil samples will be collected at a reduced frequency, if so approved by the NYSDEC. Confirmation endpoint samples would be analyzed for 6 NYCRR Part 375 VOCs, SVOCs, pesticides, PCBs, inorganics, and emerging contaminants by a NYSDOH ELAP-certified laboratory. If the waste characterization does not fully delineate the hazardous lead hotspot, documentation endpoint samples will be collected from the bottom and/or sidewalls of the hazardous lead excavation. Documentation endpoint soil samples collected from the hazardous lead excavation area would be analyzed for total lead and TCLP lead, if necessary.

Excavation Backfill

After the lead-impacted soil is excavated, the area will be backfilled and/or graded, where necessary, to bring the Site to existing grade. Import of materials to be used for backfill and/or Site cover will be in compliance with: 1) CU SCOs or Protection of Groundwater (PGW) SCOs, whichever is more stringent; 2) 6 NYCRR Part 360 regulations; and 3) federal, state, and local laws and regulations for handling and transport of material. Backfill material would consist of clean, granular soil/fill material meeting the above criteria, or aggregate-type fill materials, such as virgin, native crushed stone from a mine/quarry or recycled concrete or rock products. The clean, granular soil/ fill material would be sourced from appropriately licensed facilities without a history of environmental contamination. If sampling of the clean, granular soil/fill or aggregate-type fill materials is required, qualified environmental personnel would collect representative samples at a frequency consistent with DER-10. The samples would be analyzed for 6 NYCRR Part 375 VOCs, SVOCs, pesticides, PCBs, inorganics, and emerging contaminants by a NYSDOH ELAP-certified laboratory.

Demarcation

Demarcation will not be necessary if the full extent of the hazardous lead soil and soil with lead above the Commercial Use SCO was removed by the remedial excavation. However, if the remedial excavation cannot be completed because it would compromise the building structure, a physical demarcation barrier will be placed in the excavation between the lead-impacted soil that will be left in place and the clean backfill. In addition, after the excavation is completed and before the placement of backfill, the extents of the excavation area and elevations of lead-impacted soil left in place will be surveyed by a New York State-licensed surveyor. The survey will constitute the record of the top of the material representing the Residual Management Zone that requires adherence to special conditions for disturbance of residual contaminated soil defined in the SMP. A map showing the demarcation barrier extents and the final survey will be included in the Final Engineering Report (FER) and the SMP.

Composite Cover System

The composite cover system will consist of the following components:

1. The existing concrete ground floor slab (6-inch minimum thickness) improved with a surface-applied vapor barrier system compatible with CVOCs across its entire footprint;
2. The existing asphalt pavement of the vehicle parking lot; and
3. The existing soil/fill material meeting the CU SCOs at the surface of all landscaped areas across the remaining parts of the Site.

The vapor barrier system to be installed will be the RetroCoat™ vapor barrier, produced by Land Science Technologies, or an approved equivalent. Any carpeting or flooring systems (laminate, wood, tile, etc.) will be removed to expose the surface of the concrete slab. The slab's surface will be mechanically roughened as required by the manufacturer to prepare the surface for proper adhesion to the vapor barrier coating. After surface preparation, a 6 mil primer coat followed by a 20 mil coat of RetroCoat™ will be rolled onto the concrete slab and allowed to cure. Three permanent vapor pins will be installed in the slab across the building footprint and sealed. After the installation of the vapor barrier and vapor pins, one round of three co-located indoor air and sub-slab vapor samples will be collected to evaluate indoor air quality, confirm there are no VOCs in indoor air exceeding the NYSDOH AGVs, and demonstrate the effectiveness of the installed vapor barrier. Additional sampling rounds may be completed at the discretion of the remedial engineer. The sub-slab and indoor air samples will be collected in accordance with NYSDOH guidance for 8 hours and analyzed for VOCs by USEPA TO-15. If supported by the confirmatory indoor air sampling data, the improved concrete slab would serve as an engineering control for

the protection of human health by establishing an incomplete exposure pathway to CVOC-impacted soil vapor that originates from an off-site source.

Active Vapor Intrusion Mitigation (Contingency Only)

If the confirmatory sub-slab and indoor air samples indicate that the surface-applied vapor barrier is not effective and indoor air continues to exceed the NYSDOH AGVs, the building's heating, ventilation and air conditioning (HVAC) system will be upgraded to be able to create and maintain a positive-pressure environment within occupied spaces of the building and serve as a long-term engineering control for vapor intrusion mitigation. This system, if needed, will be designed and certified by a mechanical, electrical and plumbing (MEP) engineer. After the startup of the upgraded HVAC system, one round of three indoor air samples will be collected to evaluate indoor air quality, confirm there are no VOCs in indoor air exceeding the NYSDOH AGVs, and demonstrate the effectiveness of the positive-pressure HVAC system. Additional sampling rounds may be completed at the discretion of the remedial engineer. If necessary, a positive-pressure HVAC system would serve as an engineering control for the protection of human health by establishing an incomplete exposure pathway to CVOC-impacted soil vapor that originates from an off-Site source.

Site Management and Environmental Easement

An EE would be recorded that references ECs/ICs that are part of the selected remedy, which would be binding upon all subsequent owners and occupants of the property.

The ICs would:

1. Restrict Site use to commercial and industrial uses, although land use is subject to local zoning laws;
2. Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDEC or NYSDOH;
3. Require implementation of an NYSDEC-approved SMP;
4. Require the completion and submission to the NYSDEC a periodic certification of ECs/ICs in accordance with Part 375; and
5. Establish notice-of-use restrictions on Site soil. The ECs would be the engineered composite cover system described in this RAWP and any additional ECs established through the SMP under future Site development (e.g., potential soil vapor intrusion mitigation measures associated with future building construction).

The SMP would identify all use restrictions, ECs, and long-term monitoring and maintenance requirements to ensure the ECs/ICs remain in place and are effective.

The SMP will include, but may not be limited to:

1. An Excavation Work Plan (EWP), which details the provisions for management of future excavations in areas of remaining contamination;
2. Descriptions of the EE provisions, including any land use and/or groundwater use restrictions;
3. Provisions for evaluation of the potential for soil vapor intrusion for any buildings developed on the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion (i.e., sub-membrane depressurization system) under future Site development;
4. Provisions for the management and inspection of the identified ECs;
5. Descriptions for maintaining Site access controls and NYSDEC notification;
6. The steps necessary for the periodic reviews and certification of the ECs/ICs; and
7. A Monitoring Plan to assess the performance and effectiveness of the remedy, which includes, but may not be limited to:
    a. Monitoring for vapor intrusion for any future buildings developed on the Site, as required; and
    b. A schedule of monitoring and frequency of submittals to NYSDEC.

3.3 Alternative II – Technical Description

Alternative II, a Track 1 remedy, would include implementation of all Track 2 remedial elements outlined above, as well as, the following tasks:

1. Excavation and removal of historic fill and/or soil exceeding UU SCOs from the ground surface to a depth of between 4 and 9 feet bgs across the Site;
2. Over-excavation of two soil hotspots containing lead- and chromium-impacted soil above UU SCOs to depths of between 10 and 18 feet bgs;
3. Installation of an emulsified zero-valent iron (EZVI) cutoff wall that extends along the southern and western site Site perimeter to about 50 feet bgs to prevent the continued migration of CVOC-impacted groundwater from an off-site source across the Site;
4. Implementation of a short-term in-situ groundwater treatment of chlorinated solvent through chemical oxidation (ISCO) or enhanced reductive dechlorination (ERD);

5. Installation of monitoring wells to monitor the effectiveness and progress of the groundwater remedy;
6. If a Track 1 cleanup is not achieved before issuance of a Certificate of Completion, a Site Management Plan (SMP) and an Environmental Easement will be required for quarterly performance monitoring and reporting to evaluate the effectiveness of the in-situ groundwater treatment and vapor barrier/waterproofing membrane. Performance monitoring and reporting and the vapor barrier/waterproofing membrane would be considered short-term engineering controls until the Track 1 cleanup is achieved and be in effect for no more than 5 years from the date of the Certificate of Completion.

The requirements for each of the Track 1 tasks are described below.

Fill and Soil Removal

To achieve Track 1, the remedial excavation would include the removal of historic fill and/or soil exceeding the UU SCOs across the Site. The estimated volume of material requiring removal and off-site disposal for a Track 1 cleanup is about 19,500 cubic yards. This estimate is based on the complete removal of historic fill material and/or soil exceeding UU SCOs across the Site.

Confirmation soil samples will be collected from the base of the excavation in accordance with NYSDEC DER-10 to confirm SCOs. Over-excavation may be required as necessary to remove soil that does not comply with the SCOs. If over-excavation is completed, additional confirmation samples would be required.

Groundwater Treatment

Groundwater will be treated through the implementation of an EZVI hydraulic barrier/cutoff wall at the southern and western perimeters of the Site and a short-term ISCO or ERD injection program across the Site. The EZVI wall will be used to prevent continued migration of CVOC-impacted groundwater from an off-site source. Before implementation of the remedy, a bench-scale treatability study would be completed to determine the applicable treatment method and quantities. The ISCO method would be applied over the proposed treatment area using an oxidant (e.g., persulfate, potassium permanganate, hydrogen peroxide). This method uses the oxidant to break apart compound bonds, with resulting reaction by-products that are not regulated. Alternatively, ERD would include application of an electron donor substance (i.e. lactate, emulsified vegetable oil, etc.) as a food source for anaerobic bacteria to enhance anaerobic bioremediation. Conditions currently demonstrate that some intrinsic bioremediation is ongoing, as evidenced by the presence of daughter products (e.g. cis-1,2-dichloroethene). ERD would enhance this process. Regardless of the method employed, a complete description of the

ISCO or ERD application including quantities and substrate information will be provided to NYSDEC in a technical memorandum before implementation.

Institutional Controls/Engineering Controls

If a Track 1 cleanup is not achieved before the Certificate of Completion is issued (Contingent Track 1), an environmental easement would be recorded referencing ECs/ICs that are part of the selected remedy (i.e., groundwater treatment), which would be binding upon all subsequent owners and occupants of the property. The ICs would restrict the use of the Site to commercial and industrial uses, and would require implementation of an SMP. The SMP would identify EC/IC monitoring, maintenance, and certification requirements. If Track 1 cleanup conditions were achieved within 5 years, the EC/ICs, SMP and environmental easement would no longer be required. If Track 1 cleanup conditions are not achieved within 5 years, the Site will revert to a Track 2 remedy.

3.4 Evaluation of Remedial Alternatives

The following is an evaluation of the proposed remedy based on the NYSDEC BCP remedy evaluation criteria listed below. The first two criteria are considered "threshold criteria" and the remaining criteria are "balancing criteria". A remedial alternative must meet the threshold criteria to be considered and evaluated further under the balancing criteria.

A. Protection of human health and the environment;
B. Compliance with standards, criteria, and guidance;
C. Short-term effectiveness and impacts;
D. Long-term effectiveness and permanence;
E. Reduction of toxicity, mobility, or volume of contaminated material;
F. Implementability;
G. Cost effectiveness;
H. Community acceptance; and
I. Land use.

3.4.1 Protection of Public Health and the Environment

Alternative I – A Site remedy achieving Track 2 standards would result in the removal and off-site disposal or management-in-place of soil/fill material exceeding the CU SCOs. A composite cover

system will make exposure pathways to residual soil contamination incomplete. Alternative I would include instituting groundwater use restrictions, but no treatment of CVOC-impacted groundwater from the suspected off-Site source.

Alternative II – The remedy will mitigate exposure pathways to on-Site contaminated media. Remediating the Site to Track 1 standards will result in the removal of on-Site soil exceeding Track 1 UU SCOs. The RAOs for public health and environmental protection will be met through the removal of contaminated soil, which will eliminate any possibility for ingestion, inhalation, or dermal contact, and treatment of CVOC-impacted groundwater from the suspected off-site source. The migration of contaminated groundwater from off-site sources will be eliminated through the installation of an EZVI cutoff wall and residual CVOC-impacted groundwater will be treated in-situ via ISCO or ERD.

Public health will be protected during remediation under each remedial alternative by implementing dust, odor, and organic vapor controls and community air monitoring. The environment will be protected by implementing and enforcing soil erosion and sediment controls when needed.

3.4.2 Compliance with Standards, Criteria, and Guidance

Remediating the Site to Track 1 or Track 2 SCOs would ensure compliance with all applicable SCGs because impacted on-Site material above these criteria will be removed.

3.4.3 Short-Term Effectiveness and Impacts

The most significant short-term adverse impacts and risks to the community will be through the potential migration of contaminants carried in soil and dust generated during excavation and construction activities and construction noise levels. Additional short-term adverse impacts include potential obstructions on roadway and pedestrian traffic associated with construction.

A Track 2 remedy will require about four 25-cubic yard truck trips for soil disposal. A Track 1 remedy will require about 800, 25-cubic yard truck trips, which is a substantial increase in the number of truck trips (compared to the Track 2 remedy) because of required excavation extent and depth.

Truck traffic will be routed on the most direct course using major thoroughfares where possible and flaggers will be used to protect pedestrians at Site entrances and exits. The effects of these potential adverse impacts to the community, workers and the environment will be minimized by implementing appropriate control plans (including the CHASP, CAMP, and dust, odor and vapor control measures).

3.4.4 Long-Term Effectiveness and Impacts

Residual soil contamination left in place under a Track 2 remedy would be addressed with the composite Site cover system, consisting of impervious materials and cover soil systems. Under a Track 2 remedy, potential exposure pathways to groundwater would be eliminated by a groundwater use restriction and potential exposure pathways to soil vapor would be minimized through the improvement of the building foundation with a surface-applied vapor barrier system. The Track 1 remedy would remove all soil exceeding UU SCOs from the Site and require no long-term ECs/ICs.

Because the use of an environmental easement and SMP is prohibited under the Track 1 remedy, Article 141 of the NYSDOH code will be relied upon to prevent ingestion of CVOC-impacted groundwater that originates from an off-site source, which prohibits potable use of groundwater without prior approval. Under a Track 2 remedy, an SMP and environmental easement would restrict the use of groundwater. Therefore, the long-term effectiveness of either remedy would eliminate risks and satisfy the objectives of this criterion.

3.4.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

The Track 1 remedy will permanently and significantly reduce the toxicity, mobility, and volume of contamination through excavation and removal of on-Site contaminated fill, treatment of groundwater by installation of an EZVI barrier wall, and treatment of residual CVOC-impacted groundwater via ISCO or ERD. The Track 2 remedy would reduce the toxicity, mobility, and volume of soil contamination within the hazardous lead soil area to a similar extent to the Track 1 remedy, but to a lesser extent across the remainder of the Site than the Track 1 remedy. The Track 2 remedy would not reduce the toxicity, mobility, and volume of groundwater contamination from off-site sources.

3.4.6 Implementability

Implementing the Track 2 remedy is feasible because the depth of remedial excavation is easily achieved with conventional construction methods and equipment, including the use of standard bucket excavators and support of excavation (if required). Contractors experienced in implementing the described remedies are readily available in the area of the Site. Implementing the Track 1 remedy is less feasible because of the substantial increase in excavation volume and backfill required for the Site-wide remedial excavation, significant dewatering and treatment to reach the excavation depth required to meet Track 1 standards, the installation of an EZVI barrier wall to about 50 feet bgs across the entire southern and western Site perimeter, and on-Site ISCO or ERD injections requiring specialized equipment and contractors. Track 1 remedial

activities will significantly increase construction costs and duration of development, thereby making the proposed development infeasible.

3.4.7 Cost Effectiveness

The estimated remediation cost of each cleanup track is as follows:

- Track 2 remedy: about $500,000
- Track 1 remedy: about $9.3 million

Table 2 (Track 2) and Table 3 (Track 1) provide cost estimates for the implementation of each remedy.

Based on the assumptions detailed for Alternative I, including removal of lead-impacted soil, installation of a surface-applied vapor barrier, and implementation of institutional controls, the estimated remediation cost of a Track 2 cleanup is about $500,000. In this scenario, the hazardous lead soil area would be removed to prevent any future exposure to characteristic hazardous materials. In this scenario, the composite cover system is considered an engineering control and would require operations, maintenance, and monitoring costs.

Based on the assumptions detailed for Alternative II, including removal of all soil and fill exceeding UU SCOs, construction of an EZVI barrier wall, and in-situ groundwater remediation via ISCO or ERD, the estimated remediation cost of a Track 1 cleanup is $9.3 million. As the Site will be remediated to an unrestricted use level, there are no long-term operations, maintenance, or monitoring costs associated with the proposed remedy.

3.4.8 Community Acceptance

The Track 1 remedy should be acceptable to the community because the potential exposure pathways to residual contamination to Site occupants will be eliminated upon completion of the remedial actions. The Track 2 remedy should also be acceptable to the community, as RAOs will be met through removal of contaminated soil/fill in the hazardous lead soil area and the use of ECs/ICs will prevent exposure to residual impacted Site material and/or off-site contamination migrating on-Site. The selected remedy will be subject to a 45-day public comment period. Any substantive public comments received will be addressed before the remedy is approved.

3.4.9 Land Use

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy. The proposed development includes the renovation of the existing one-story, approximately 13,000-square-foot, commercial-use office building and continued use of the asphalt-paved vehicle parking lot. Review of previous environmental and public documents for the Site led to the following conclusions:

1. The current and proposed use of the Site and its surroundings will be compatible with the selected remedy.
2. The proposed Site use conforms to applicable zoning laws and maps.
3. The proposed Site use conforms to historical and/or recent development patterns in the area.
4. The Site does not fall within the boundaries of an existing Brownfield Opportunity Area (BOA).
5. The Site is located in a suburban setting that is characterized by residential, commercial, and mixed-use developments. There are no areas zoned for agricultural use close to the Site.
6. According to NYSDEC resources, the Site is not located in a potential environmental justice area.
7. There are no federal or state land designations.
8. The population growth patterns and projections support the proposed land use.
9. The Site is accessible to existing infrastructure.
10. The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites.
11. The nearest ecological receptor, Branch Brook, adjoins the Site to the east, and no NYSDEC-regulated wetlands are located on the Site or on adjoining properties.
12. The nearest municipal water supply wells are located at the Leonard Park Well Field, approximately 2 miles south of the Site. Groundwater from the Site is not expected to affect municipal water supply wells or recharge areas.
13. According to the most recent Preliminary Flood Insurance Rate Map for the Site published by the Federal Emergency Management Agency (FEMA) (Community Panel No. 36119C015F, dated September 28, 2007), the Site is located within three flood zones, including regulatory floodway, Zone AE, and Zone X. The majority of the Site is within the special flood hazard areas which are within the 1 percent annual chance floodplain.
14. The Site geology is described in Section 2.4.1.

3.5 Summary of the Selected Remedy

The Track 2 (Alternative I) remedy achieves the remedial action goals established for the project, and is effective in the short-term and long-term. The selected remedy effectively reduces mobility, toxicity, and volume of contaminants. The exposure pathways to residual soil contamination and soil vapor would be controlled through the use of an engineered composite cover system and other engineering controls, if needed. Institutional controls would ensure that the remedy would remain protective of human health and the environment in the future. The remedy is considered feasible because the excavation depths do not present significant hardship. A plan depicting the Track 2 alternative is included on Figure 7.

Alternative I can be feasibly and practically implemented, while providing protection to human health and the environment. Therefore, Alternative I is the recommended remedial alternative for this Site.

4.0 REMEDIAL ACTION PROGRAM

4.1 Governing Documents

The primary documents governing the remedial action are summarized in this section. Where referenced, copies of the full plans are provided in the appendices.

4.1.1 Standards, Criteria and Guidance

The following standards, criteria, and guidance are typically applicable to Remedial Action projects in New York State, and will be consulted and adhered to as applicable:

4.1.1.1 Standards and criteria typically applicable to UST closures:

- 6 NYCRR Part 613 - Petroleum Bulk Storage
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Subpart 374-2 - Standards for the Management of Used Oil
- 6 NYCRR Parts 700-706 - Water Quality Standards
- 40 CFR Part 280 - Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks

4.1.1.2 Guidance typically applicable to UST closures:

- STARS #1 - Petroleum-Contaminated Soil Guidance Policy (1992) (Sections III and IV have been replaced CP-51)
- STARS #2 - Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects (1996)
- CP-51- Soil Cleanup Guidance (2010)
- Spill Response Guidance Manual (1995)
- Permanent Closure of Petroleum Storage Tanks (2003)
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations (1998, Addenda 2000 and 2004)

- DAR-1 (formerly Air Guide 1) (1997) - Guidelines for the Control of Toxic Ambient Air Contaminants
- NYSDOH Environmental Health Manual CSFP-530 - "Individual Water Supplies - Activated Carbon Treatment Systems"

4.1.1.3 Standards and criteria typically applicable to Remedial Actions:

- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- 40 CFR Part 144 - Underground Injection Control Program
- 10 NYCRR Part 67 – Lead Poisoning Prevention and Control
- 12 NYCRR Part 56 - Industrial Code Rule 56 (Asbestos)
- 6 NYCRR Part 175 - Special Licenses and Permits--Definitions and Uniform Procedures
- 6 NYCRR Part 361 - Siting of Industrial Hazardous Waste Facilities
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 373-4 - Facility Standards for the Collection of Household Hazardous Waste and Hazardous Waste from Conditionally Exempt Small Quantity Generators
- 6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 6 NYCRR Subpart 374-3 - Standards for Universal Waste
- 6 NYCRR Part 375 - Environmental Remediation Programs
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 19 NYCRR Part 600-603 - Waterfront Revitalization of Coastal Areas and Inland Waterways
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Part 661 - Tidal Wetlands - Land Use Regulations
- 6 NYCRR Part 663 - Freshwater Wetlands - Permit Requirements
- 6 NYCRR Parts 700-706 – Classifications and Standards of Quality and Purity
- 6 NYCRR Part 750 - State Pollutant Discharge Elimination System (SPDES) Permits

- Screening and Assessment of Contaminated Sediment (Division of Fish, Wildlife and Marine Resources, June 2014)

4.1.1.4 Guidance typically applicable to Remedial Actions:

- CP – 51 – Soil Cleanup Guidance (2010)
- DER-2 - Making Changes To Selected Remedies (Revised April, 2008)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy (1992) (Sections III and IV have been replaced CP-51)
- STARS #2 - Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- DER-23 – Citizen Participation Handbook for Remedial Programs (March, 2010)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- TOGS 1.3.8 - New Discharges to Publicly Owned Treatment Works
- TOGS 2.1.2 - Underground Injection/Recirculation (UIR) at Groundwater Remediation Sites
- DAR-1 (formerly Air Guide 1) - Guidelines for the Control of Toxic Ambient Air Contaminants (1997)
- NYSDOS State Coastal Management Program
- U.S. EPA OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (December 1997)
- NYSDOH Environmental Health Manual CSFP-530 - "Individual Water Supplies - Activated Carbon Treatment Systems"
- CP-43 – Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)

4.1.2 Site-specific Construction Health & Safety Plan (CHASP)

The Remedial Engineer (RE) prepared a Site-specific CHASP (Appendix C). The CHASP will apply to all remedial and construction-related work on Site. The CHASP provides a mechanism for

establishing a Site safety office, on-Site safe working conditions, safety organization, procedures, and PPE requirements. The CHASP meets the requirements of 29 CFR 1910 and 29 CFR 1926 (which includes 29 CFR 1910.120 and 29 CFR 1926.65). The CHASP includes, but is not limited to, the following components:

- Organization and identification of key personnel;
- Training requirements;
- Medical surveillance requirements;
- List of Site hazards;
- Excavation safety;
- Work zone descriptions;
- Personal safety equipment and protective clothing requirements;
- Decontamination requirements;
- Standard operating procedures;
- Protective measure plan;
- CAMP; and
- Safety Data Sheets (SDS).

Remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by the federal Occupational Safety and Health Administration (OSHA).

The Volunteer and associated parties preparing the remedial documents and contractors performing the construction work are completely responsible for the preparation of an appropriate CHASP and for the appropriate performance of work according to the CHASP and applicable laws.

The CHASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion. Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gases.

4.1.3 Quality Assurance Project Plan (QAPP)

The RE prepared a Quality Assurance Project Plan (QAPP) that describes the quality control components employed so that the proposed remedy accomplishes the remedial goals, RAOs, and is completed in accordance with the design specifications. The QAPP is provided as Appendix D and includes:

- Responsibilities of key personnel and their organizations for the proposed remedy;
- Qualifications of the quality assurance officer;
- Sampling requirements including methodologies, quantity, volume, locations, frequency, and acceptance and rejection criteria; and
- Description of the reporting requirements for quality assurance activities including weekly quality assurance review reports, periodic quality assurance and quality control audits, and other report and data submissions.

4.1.4 Construction Quality Assurance Plan (CQAP)

The RE prepared a Construction Quality Assurance Plan (CQAP) that describes the quality control components employed so that the proposed remedy accomplishes the remedial goals and RAOs and is completed in accordance with the design specifications. A list of engineering personnel that will be involved in implementation of the CQAP and procedures that will be carried out by the remedial engineering team are identified below.

The following project personnel are anticipated for the RAWP implementation:

Remediation Engineer (RE):	Jason J. Hayes, P.E.
Project Manager:	Gregory C. Wyka, PG
Langan Health & Safety Officer:	Tony Moffa, CHMM
Site Safety Coordinator	William Bohrer, PG
Qualified Environmental Professional	Michael Burke, PG, CHMM
Quality Assurance Officer	Joseph Conboy
Field Team Leader	Elizabeth Burgess, EIT

Project personnel resumes are provided in Appendix E.

The RE will directly supervise field personnel that will be on-Site during the remedial action to monitor particulates and organic vapor in accordance with the CAMP. Daily reports will be

submitted to NYSDEC and NYSDOH and will include reporting of any CAMP results that exceed the specified action levels.

The RE will directly supervise field personnel that will meet with the Construction Superintendent on a daily basis to discuss the plans for that day and schedule upcoming activities. The field personnel will document all remedial activities in daily reports. Daily reports will be forwarded to the Field Team Leader on a daily basis and to the Project Manager and the RE on a weekly basis.

The RE will directly supervise field personnel that will screen the excavation with a PID during ground intrusive activities. PID readings will be recorded in project field books. Elevated readings will be reported to NYSDEC and NYSDOH in the daily reports. If necessary, the field personnel will collect the post-excavation documentation endpoint samples in accordance with this RAWP.

A photograph log will be kept to document construction activities. The photograph log may also be used to record activities recorded in the daily report.

The project field book will be used to document all sampling activities and how they correspond to the RAWP. Observations, field and laboratory tests will be recorded in the project field book or on separate logs. Recorded field observations may take the form of notes, charts, sketches or photographs.

The Field Team Leader will maintain the field books and field paperwork during the performance of work. The Project Manager will maintain the field paperwork and all other project-related files after the completion of the remedy.

4.1.5 Soil/Materials Management Plan (SMMP)

The RE prepared a Soil/Materials Management Plan that includes detailed plans for managing soil/fill materials that are excavated, handled, stored, and/or transported off-site for disposal. It also specifies controls and best management practices that will be applied during soil/fill material excavation and handling to facilitate effective, nuisance-free performance in compliance with applicable federal, state and local laws and regulations (see Section 5.4).

4.1.6 Stormwater Pollution Prevention

Erosion and sediment controls will be used in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control during the remedial excavation of lead-impacted soil. Because of the limited area of disturbance at the Site, the preparation and implemented of a Stormwater Pollution Prevention Plan (SWPPP) is not required.

Silt fencing or hay bales will be installed around the perimeter of the remedial construction area, as required, and inspected once a week and after every storm event; accumulated sediments will be removed as needed and any necessary repairs shall be made in timely manner. The results of inspections will be recorded in a logbook maintained at the Site and available for inspection by the NYSDEC. Undercutting or erosion of the silt fence toe anchor shall be repaired immediately. As the silt fence weathers, it shall be repaired and replaced in accordance with the manufacturer's recommendations. Potential discharge points near Branch Brook shall be inspected daily to ascertain whether erosion control measures are effective in preventing adverse impacts to the surface water body.

4.1.7 Community Air Monitoring Plan (CAMP)

Community air monitoring will be conducted in compliance with the NYSDOH Generic CAMP included in Appendix C.

4.1.8 Contractors Site Operations Plan (SOP)

The RE will review plans and submittals for this remedial project (including those listed above as well as contractor and subcontractor submittals) to verify and document their compliance with this RAWP. Remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and before the start of work.

4.1.9 Citizen Participation Plan

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of the applicable project documents.

No changes will be made to the approved Fact Sheets authorized for release by the NYSDEC without written consent from the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved Citizen Participation Plan (CPP) for this project is included as Appendix F.

A document repository was established at the following location to contain project documents:

Mount Kisco Public Library
100 Main Street
Mount Kisco, NY 10549

Phone: 914-666-8041

4.2 General Remedial Construction Information

4.2.1 Project Organization

This section presents the anticipated project organization and associated roles, including key personnel, descriptions of duties and lines of authority in the management of the RAWP. Information regarding the organization/personnel and their associated responsibilities is provided below.

4.2.2 Remedial Engineer

The RE for this project will be Jason J. Hayes, P.E. The RE is a registered Professional Engineer licensed by the State of New York who will have primary direct responsibility for implementation of the remedial program. The RE will certify in the FER that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 were achieved. Other RE certification requirements are listed later in this RAWP.

The RE will direct field personnel to document the work of other contractors and subcontractors involved in aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, dewatering, air monitoring, emergency spill response services, import of backfill material, and management of waste transport and disposal. The RE will be responsible for communication with the NYSDEC and NYSDOH.

The RE will review pre-remedial plans submitted by contractors and subcontractors for compliance with this RAWP and will certify compliance in the FER. The RE will also provide the certifications listed in Section 8.1 in the FER.

4.2.3 Project/Remediation Schedule

The anticipated project/remediation construction schedule is provided in Appendix G. Proposed changes, delays or deviations will be promptly communicated to the NYSDEC.

4.2.4 Work Hours

The hours of operation for remedial construction will conform to the Mount Kisco Department of Building and Code construction code requirements or according to specific variances issued by that agency. The NYSDEC will be notified by the Volunteer of any variances issued by the Mount

Kisco Department of Building and Code. The NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

The Site perimeter will be secured with gated, signed, plywood fencing with points of entry in accordance with Mount Kisco Department of Building and Code permits and requirements. The purpose of the fencing is to limit Site access to authorized personnel, protect pedestrians from Site activities, and maintain Site security.

4.2.6 Traffic Control

Site traffic will be controlled through designated points of access along Kensico Drive and/or Holiday Inn Drive. Access points will be continuously monitored and if necessary, a flagging system will be used to protect workers, pedestrians, and authorized guests. Traffic will also adhere to applicable local, state, and federal laws.

4.2.7 Contingency Plan

Contingency plans, as described below, were developed to effectively deal with unexpected discoveries of unexpected contaminated media or USTs.

Discovery of Unexpected Contaminated Soil

During remediation and construction activities, the soil will be continuously monitored by field staff under the supervision of the RE using a PID as well as visual and olfactory field screening techniques to identify contaminated soil. This material will be segregated and sampled for lab analysis in accordance with disposal facility requirements. Waste materials will be disposed of off-site at a facility licensed to receive the material based on the characterization data. Identification of unknown or unexpected contaminated media identified by screening during ground intrusive work will be promptly communicated by phone to the NYSDEC Project Manager. These findings will be detailed in daily reports and subsequent monthly BCP progress reports.

Discovery of Additional USTs

Previously unidentified USTs may be discovered during Site-wide excavation. Additional USTs encountered during remedial and/or construction activities will be decommissioned in accordance with 6 NYCRR Parts 612.2 and 613.9 and NYSDEC DER-10 Section 5.5 and any county-level requirements. After the tank, its contents, and associated piping are removed, post-excavation endpoint soil samples will be collected per the requirements of NYSDEC DER-10. If encountered,

petroleum-impacted soils will be excavated, stockpiled separately, and disposed of off-site at a permitted disposal facility in accordance with applicable regulations. UST closure documentation, including contractor affidavits, waste manifests, and tank disposal receipts, will be included as appendices to the FER. USTs will be registered with the NYSDEC PBS, as necessary.

If USTs are encountered during ground intrusive work, the findings will be promptly communicated by phone to the NYSDEC Project Manager and detailed in daily reports and subsequent monthly BCP progress reports.

4.2.8 Worker Training and Monitoring

Worker training and monitoring will be conducted in accordance with the CHASP (Appendix C).

4.2.9 Agency Approvals

Permits or government approvals required for Site remediation will be obtained before the start of work. The proposed project requires approval of a Site Plan application and the approving agency for the application is the Village of Mount Kisco Planning Board (Planning Board). In conjunction with the Planning Board's review of the Site Plan application, The Planning Board is also serving as the Lead Agency for purposes of the required State Environmental Quality Review Act (SEQRA) review. At this time, the applicant has worked with the Planning Board and Village Staff to address comments and concerns pertaining to the Site Plan application. Upon approval of this RAWP, the Planning Board will be in a position to make an environmental determination under SEQRA as required. After SEQRA is complete, the Planning Board will be in a position to issue an approval of the Site Plan application for the project. A Certificate of Completion will not be issued for the project unless conformance with the zoning designation is demonstrated.

Site remediation will adhere to local, regional and national governmental permits, certificates or other approvals or authorizations required for Site remediation, including, but not limited to, those issued by the Mount Kisco Planning Board for demolition, construction fencing, sidewalk/road closures, SOE, excavation, and foundation work. A tabulated list of all permits, a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency will be provided in the FER.

Since no regulated wetlands or adjacent areas exist on or proximate to the Site, no additional compliance reviews or approvals from the NYSDEC Division of Natural Resources are necessary.

4.2.10 Pre-Construction Meeting with the NYSDEC

A meeting will be conducted to discuss project roles and responsibilities with the RE, Volunteer, Construction Manager, remediation contractor and the NYSDEC. This meeting will take place before the start of major construction activities.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the CHASP. The CHASP defines the specific project contacts for use by the NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The estimated engineer and contractor cost of the preferred Track 2 remedy is about $500,000. An itemized and detailed summary of estimated costs for the Track 2 remedy is provided as Table 2.

4.3 Site Preparation

The RE will work with the Volunteer and its contractors so that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

4.3.1 Mobilization

Before commencing the remedial excavation, the remediation contractor will mobilize to the Site and prepare for remedial activities. Mobilization and Site preparation activities may include the following:

- Identifying the location of all aboveground and underground utilities (e.g., power, gas, water, sewer, telephone), equipment, and structures (as necessary to implement the remediation);
- Mobilizing necessary remediation personnel, equipment, and materials to the Site;
- Constructing one or more stabilized construction entrances consisting of virgin crushed stone or recycled concrete aggregate (RCA) at or near the Site exit, which takes into consideration the Site setting and Site perimeter;
- Constructing a decontamination pad for trucks, equipment, and personnel that come into contact with contaminated materials during remedial activities;
- Installing erosion and sedimentation control measures, as necessary; and

- Installing temporary fencing or other temporary barriers to limit unauthorized access to areas where remediation activities will be conducted.

4.3.2 Monitoring Well Decommissioning

Existing groundwater monitoring wells will be properly decommissioned in accordance with NYSDEC CP-43. The only exception to this is if the full length of the well will be excavated during Site remediation and redevelopment. Well decommissioning will be performed by an experienced driller and logged by the Langan field personnel. Decommissioning documentation will be provided in the FER.

4.3.3 Stabilized Construction Entrance(s)

Stabilized entrance areas will be constructed to prevent decontaminated trucks from being re-contaminated by Site soil before exiting. The areas will be covered with virgin crushed stone or RCA and graded so that truck washing fluids will not leave the Site boundary. The contractor will protect and maintain the existing sidewalks and roadway at Site entrance points.

4.3.4 Utility Marker and Easements Layout

The Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under this RAWP, the implementation of required, appropriate or necessary health and safety measures during performance of work under this RAWP, and the safe execution of ground intrusive and other work performed under this RAWP. The Volunteer and its contractors must obtain local, state or federal permits and/or approvals that may be required to perform work under this RAWP. Approval of this RAWP by the NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site will be investigated by the Volunteer and its contractors. No impediments to the planned work under this RAWP are expected by known utilities or easements on the Site.

4.3.5 Sheeting and Shoring

Management and protection of the structural stability of any on-Site and off-site structures during Site remediation and redevelopment is the responsibility of the Volunteer and its contractors. The Volunteer and its contractors must obtain local, state or federal permits and/or approvals that may be required to perform this work.

4.3.6 Equipment and Material Staging

The contractor will notify the RE and the Volunteer in writing with receipt confirmed, of pending Site work mobilization at least 30 calendar days in advance. During mobilization, construction equipment will be delivered to the Site, temporary facilities constructed, and temporary utilities installed. The contractor will place and maintain temporary toilet facilities within the work areas for usage by all Site personnel. The contractor will provide drinking water for all Site personnel.

4.3.7 Decontamination Area

The contractor will construct decontamination pads at each Site entrance/exit planned for construction vehicle usage. The location of decontamination pads may change periodically to accommodate the contractor's sequencing of work. Where required, the pads will be constructed by the contractor to collect wastewater for off-site disposal or treatment and discharge, if generated during decontamination activities. The design will consider adequate space to decontaminate Site equipment and vehicles, and sloping and liners to facilitate collection of wastewater. Where required, collected truck rinsate and decontamination wastewater shall be either discharged in accordance with a NYSDEC general SPDES permit for construction activity or tested and transported to an off-site disposal facility that is permitted to accept this waste in accordance with applicable local, state and federal regulations. The contractor will maintain the decontamination pad(s) throughout the duration of Site work. Before demobilization, the contractor will deconstruct the pads and dispose of materials as required.

If the contractor uses high pressure washing methods, the contractor shall provide splash protection around the vehicle decontamination facility to prevent splatter and mist migrating off-site during the vehicle decontamination process. Splash protection shall be temporary and stable and capable of being dismantled in the event of high winds.

4.3.8 Site Fencing

The Site perimeter will be secured with gated, signed, plywood and/or metal fencing as required by local code. The purpose of the fencing is to limit Site access to authorized personnel, protect pedestrians from Site activities and maintain Site security.

4.3.9 Demobilization

The contractor will be responsible for demobilizing labor, equipment and materials not designated for off-Site disposal. The RE will be required to document that the remediation contractor decontaminated construction equipment and materials before removal from the Site. The RE will document performance by the contractor of any follow-up coordination and maintenance for

the following activities: removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations; removal of any residual contaminated material or wastes; equipment decontamination; and general refuse disposal.

4.4 Reporting

Daily and monthly reports and an FER will be required to document the remedial action. The RE responsible for certifying the FER will be an individual licensed to practice engineering in the State of New York; Jason Hayes, P.E., of Langan, will have this responsibility. Should Mr. Hayes become unable to fulfill this responsibility, another suitably qualified New York State professional engineer will take his place. Copies of all daily and monthly reports will be included in the FER. In addition to the periodic reports and the FER, copies of all relevant contractor submittals will be submitted to the NYSDEC.

4.4.1 Daily Reports

Daily reports will be submitted to the NYSDEC and NYSDOH Project Managers by the end of the following day and will include:

- An update of progress made during the reporting day, including a photographic log;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions;
- An explanation of notable Site conditions;
- A description of anticipated Site activities; and
- The NYSDEC-assigned project number will appear on all reports.

Daily progress will be detailed on a Site map. Daily reports are not intended to be the primary mode of communication when notifying the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to the NYSDEC Project Manager via personal communication.

4.4.2 Monthly Reports

Monthly reports will be submitted to the NYSDEC and NYSDOH Project Managers by the tenth of the following month of the reporting period and will include the following information, as well as the information required in the BCA:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes to the scope of work and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs documenting the remedial activities will be submitted to the NYSDEC in digital (JPEG) format of acceptable quality in daily reports and in the FER. Representative photographs of the Site before any remedial actions and of each contaminant source area and Site structures before, during and after remediation will be taken and catalogued. A photograph log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos and included in the FER.

Site records for remedial work will be appropriately documented and maintained on-Site during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

The management plan for documenting complaints is detailed below.

Item	Description
Approach	Complaints regarding remediation or construction activities/operations will be minimized and mitigation measures will be implemented to reduce the incidence of complaints.
Objective	To manage environmental complaints from the community regarding construction or remediation.

Item	Description
Implementation Strategy/Mitigation Measures	All complaints will be documented on a complaint register. The register will be maintained as an ongoing record. Each entry will include the following information: • Time, date and nature of complaint; • Type of communication (telephone, letter, personal, etc.); • Name, contact address and contact number; and • Response and investigation undertaken as a result of the complaint and action taken with the signature of the responsible person. Each complaint will be investigated as soon as practicable in relation to the requirements.
Monitoring	A representative from the Volunteer or the RE will follow up on the complaint within two weeks of receipt to ensure it has been resolved.
Reporting	Upon receipt, the NYSDEC will be notified. Complaints and resolutions will be documented in the daily reports.
Corrective Action	Should an incident or failure to comply occur in relation to the management of environmental complaints, one or more of the following corrective actions will be undertaken as appropriate: • Conduct additional training of staff to handle environmental complaints; • Investigate why the environmental complaint was not addressed within the specified time frame; and • Investigate the complaint and action follow-up according to the investigation results.

4.4.5 Deviations from the RAWP

Necessary deviations from the RAWP will be coordinated with the NYSDEC in advance. Notification will be provided to the NYSDEC by telephone/email for conditions requiring immediate action (e.g., conditions judged to be a danger to the surrounding community). Addendums to the RAWP will be prepared, as necessary and will include:

- Reasons for deviating from the approved RAWP;
- Approval process to be followed for changes/editions to the RAWP; and
- Effect of the deviations on the overall remedy.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

5.1 Soil Cleanup Objectives

The Track 2 SCOs are listed in Table 1. Although reuse is not anticipated, on-Site soil eligible for reuse must meet the CU SCOs if used below impervious cover systems (i.e., the asphalt-paved vehicle parking lot) or the lower of CU and PGW SCOs if used in cover soil/landscaped areas. Landscaped areas can also be capped with at least 2 feet of imported clean soil that meets the lower of CU and PGW SCOs.

Soil and materials management on- and off-site will be conducted in accordance with the Soil/Materials Management Plan as described below (Section 5.4). If encountered, UST closures will conform to the criteria defined in 6 NYCRR Part 613.9, NYSDEC CP-51, other applicable NYSDEC UST closure requirements including DER-10 Chapter 5.5, and any county-level requirements.

5.2 Remedial Performance Evaluation (Endpoint Sampling)

There are no plans for the collection and analysis of confirmation endpoint soil samples because of the limited extent of the remedial excavation under the Track 2 remedy. If the full extent of the lead-impacted soil cannot be removed safely without compromising the integrity of the existing structure, documentation endpoint samples will be collected to document the quality of residual soil left in place.

Documentation endpoint samples will be transported under standard chain-of-custody protocol to an NYSDOH ELAP-approved laboratory and analyzed for total lead only. Laboratory analyses will be conducted in accordance with EPA SW-846 methods and NYSDEC Analytical Services Protocol (ASP) Category B deliverable format. QA/QC procedures required by the NYSDEC ASP and SW-846 methods will be followed, including instrument calibration, standard compound spikes, surrogate compound spikes, and analysis of quality control samples. The laboratory will provide sample bottles, which are pre-cleaned and preserved. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP shall take precedence.

A data usability summary report (DUSR) will be included in the FER. Quality control procedures for the sampling are included in the QAPP (Appendix D). Documentation endpoint sample results will be provided in NYSDEC electronic data deliverable (EDD) format for EQuIS™. Guidance on sampling frequency is presented in Section 5.4 of DER-10.

The FER will provide the results of all post-excavation documentation endpoint samples in tabulated analytical data tables and scaled figures showing sample locations and summaries of analytical data.

5.3 Estimated Material Removal Quantities

The estimated quantity of soil/fill to be removed from the Site for a Track 2 cleanup is about 100 cubic yards. The remedial excavation area will be backfilled using imported backfill meeting the lower of the CU and PGW SCOs. The estimated quantity of fill material to be imported is about 100 cubic yards.

5.4 Soil Materials Management Plan

This section presents the approach to management, disposal and reuse of soil, fill, and debris excavated from the Site. This plan is based on the current knowledge of Site conditions, and will be augmented with the additional data collected during Site remediation. Field personnel, under the direct supervision of the RE, will monitor and document the handling and transport of contaminated, regulated solid waste material removed from the Site for off-site disposal. Field personnel, under the direct supervision of the RE, will assist the remedial contractor in identifying impacted materials during excavation, determining materials suitable for direct load-out versus temporary on-Site stockpiling, selecting samples for waste characterization, and determining the proper off-site disposal facility. Separate stockpile areas will be constructed as needed to stage various excavated materials with the intent to more efficiently manage and characterize the materials and to avoid comingling of impacted soil/fill materials with non-impacted soil/fill materials.

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by field personnel under the direct supervision of the RE during remedial and development excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the ground intrusive work is done and will include all excavation and ground intrusive work performed during the remedy and during the development phase, such as excavations for foundations and utility work before issuance of the Certificate of Completion.

Contaminant source areas (i.e., the hazardous lead soil area) identified during the RI/SRI and pending remedial action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER.

5.4.2 Stockpile Methods

Soil stockpile areas will be constructed as needed for staging of soil/fill materials during Site remediation and redevelopment. Separate stockpile areas will be constructed to avoid comingling materials of differing waste types. Stockpile areas will meet the following minimum requirements:

- The excavated soil will be placed onto an impermeable surface or on minimum thickness of 6 mil low-permeability plastic sheeting or tarps of sufficient strength to prevent puncture during use; separate stockpiles will be created where material types are different (e.g., historic fill material on areas where historic fill material is present.). The use of multiple layers of thinner liners is permissible.
- Equipment and procedures will be used to place and remove the soil so as not to affect the integrity of the liner.
- Stockpiles will be covered at the designated times (see below) with minimum 6-mil plastic sheeting or tarps, which will be securely anchored to the ground. Stockpiles will be routinely inspected and broken sheeting covers will be promptly replaced.
- Stockpiles will be covered, upon reaching their capacity of approximately 1,000 cubic yards, until ready for loading.
- Active stockpiles (e.g. stockpiles that have not reached their capacity) will be covered at the end of each workday.
- Each stockpile area will be encircled with silt fences and hay bales, as needed, to contain and filter particulates from rainwater that has drained off the soils, and to mitigate the potential for surface water run-off off-site.
- Stockpiles will be inspected at a minimum once each day and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

5.4.3 Materials Characterization, Excavation and Loading

Excavated materials will be characterized for off-site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility for review and approval before shipment and receipt.

The Volunteer and its contractors are solely responsible for safe execution of ground intrusive work, the structural integrity of excavations, structures that may be affected by excavations, and other work performed under this RAWP. Field personnel under the direct supervision of the RE

will oversee ground intrusive work and the excavation and loading of excavated material. Remedial excavations and post-excavation documentation endpoint sampling will be completed before excavations related to Site redevelopment can move forward. Contaminant sources identified during construction (i.e., hazardous lead soil area or any unknown petroleum- or solvent-impacted areas) will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the FER. Development-related grading cuts and fills will not be performed without NYSDEC approval of the RAWP, and the RE will provide that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

The RE will be responsible for monitoring ingress/egress points for truck and equipment transport from the Site on a daily basis during the remedial action and will notify the contractor to immediately clean the sidewalks and or streets of dirt and other materials derived from the Site, as warranted. Non-compliance will be reported to the NYSDEC. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site sediment tracking. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Loaded vehicles leaving the Site will be appropriately lined, securely covered, manifested, and placarded in accordance with appropriate federal, state, and local requirements, and all other applicable transportation requirements. Trucks hauling historic fill will not be lined unless the material exhibits free liquids or is grossly-impacted. On-Site, mechanical processing of historic fill and contaminated soil is prohibited unless otherwise approved by the NYSDEC.

5.4.4 Materials Transport Off-Site

Transport of materials will be performed by licensed haulers in accordance with appropriate local, state and federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded. Trucks will enter and exit the Site using dedicated ingress/egress points. Trucks loaded with Site materials will exit the vicinity of the Site using only approved commercial truck routes. Trucks will be prohibited from stopping and idling in residential neighborhoods outside the Site. To the extent possible, queuing of trucks will be performed on Site in order to minimize off-site disturbance. Off-Site queuing will be minimized.

Proposed in-bound and out-bound truck routes to the Site are shown on Figure 8. This is the most appropriate route and takes into account:

- Limiting transport through residential areas and past sensitive Sites;
- Prohibiting off-site queuing of trucks entering the facility;
- Limiting total distance to major highways;

- Promoting safety in access to highways;
- Overall safety in transport; and
- Community input (where necessary).

A truck wash/cleaning area will be operated on Site. The RE will be responsible for documenting that outbound trucks are washed and cleaned at the truck wash before leaving the Site until the remedy is complete. Locations where vehicles enter or exit the Site will be inspected daily for evidence of off-site sediment tracking.

5.4.5 Materials Disposal Off-Site

Excavated soil/fill material and other solid wastes removed from the Site will be handled, transported and disposed of in accordance with local, state (including 6 NYCRR Parts 360 and 361) and federal regulations. If disposal of fill material is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC Project Manager. Unregulated off-site management of materials from this Site is prohibited without formal NYSDEC approval.

Excavated fill material must be disposed of at an in-state or out-of-state facility licensed to accept the material. Non-hazardous fill material can be sent to a construction and demolition debris handling and recovery facility only with written approval from the NYSDEC. Hazardous waste is prohibited from being sent to a construction and demolition debris handling and recovery facility (6 NYCRR Part 361-5). Hazardous wastes derived from the Site will be managed, transported and disposed of in full compliance with applicable local, state and federal regulations.

The following documentation will be obtained and reported by the RE for each off-site disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms to applicable laws:

1) A letter from the RE or BCP Volunteer to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the RE. The letter will include, as an attachment, a summary of all chemical data for the material being transported (including site characterization data); and

2) A letter from each receiving facility stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

The FER will include an account of the destination of all material removed from the Site during the remedy, including excavated soil, contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of waste materials must also include records (i.e., manifests and scale tickets) and approvals for receipt of the material by the facilities. This information will also be presented in the FER

5.4.6 Materials Reuse On-Site

Although not anticipated, soil excavated during the remedy may be reused on-Site if the requirements in this section are met. Reuse of soil will be coordinated in advance with the NYSDEC project manager. Material intended for reuse on-Site will be stockpiled separately from excavated material destined for off-Site disposal. Material unfit for reuse will be transported for off-site disposal.

Non-hazardous historic fill or native soil that is not grossly impacted and meets the lower of the CU and PGW SCOs (see DER-10 Section 5.4[e]4) may be reused in cover soil/landscaped areas. Non-hazardous historic fill or native soil that meets CU SCOs may only be reused below the impervious and pervious cover systems (i.e., the asphalt parking lot and gravel-covered vehicle storage area). With the exception of two areas, Site soil meets the CU SCOs according to the RI/SRI and therefore can be reused on-site without additional laboratory testing provided no grossly-impacted material is observed and it is placed below the impervious and pervious cover systems (i.e., the asphalt parking lot and gravel-covered vehicle storage area).

Excavated soil/fill material will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines unless it meets the lower of the CU and PGW SCOs and meets other geotechnical and/or civil design requirements. Excavated soil/fill material proposed for reuse may need to be stockpiled and sampled and tested in accordance with DER-10 Table 5.4(e)10.

5.4.7 Fluids Management

Liquids to be removed from the Site, including any dewatering fluids, will be handled, transported and disposed of in accordance with applicable local, state and federal regulations.

Construction dewatering is not expected during implementation of the RAWP. In the event dewatering becomes necessary, dewatering fluids will either be containerized for off-site disposal at a permitted facility or pre-treated and discharged to the municipal storm sewer, which discharges to the Branch Brook, in accordance with a NYSDEC SPDES permit, which will be

obtained from the NYSDEC. Contaminated dewatering fluids will not be discharged into the municipal storm sewer without a NYSDEC SPDES permit.

5.4.8 Fill Material from Off-Site Sources

Materials proposed for import to the Site will be reviewed by the RE to verify they will be used in compliance with this RAWP before they are transported to the Site. Fill materials can consist of clean, granular soil/fill material meeting the lower of the CU and PGW SCOs, or aggregate-type fill materials, such as virgin, native crushed stone from a mine/quarry or recycled concrete or rock products from recycling facilities with in-state or out-of-state registrations or permits. Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. No solid waste of any kind will be imported to the Site under any circumstance. Recycled concrete aggregate (RCA) will not be used as clean cover material in any area of the Site under any circumstance.

If sampling of the clean, granular soil/fill or aggregate-type fill materials is required (per DER-10 5.4[e][5]), representative grab and composite samples will be collected for laboratory analysis by qualified environmental personnel at a frequency consistent with DER-10 Table 5.4(e)(10) or at a lesser frequency negotiated with the NYSDEC Project Manager. Additional exemptions from testing requirements may be approved by NYSDEC Project Manager based on their review of requests by the RE. Samples will be analyzed for VOCs, SVOCs, pesticides and PCBs, inorganics, and emerging contaminants by a NYSDOH ELAP-certified laboratory. Emerging contaminant sampling and analysis will follow the protocols established in NYSDEC's June 2019 *Sampling for 1,4-Dioxane and Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs*.

Import requests will be prepared for each type of fill material proposed for import to the Site and submitted to the NYSDEC Project Manager for review and approval. Once the NYSDEC Project Manager approves the material, it can be transported to the Site from its source for use. Inbound materials should be delivered by trucks with secure, tight-fitting flip tarp covers or bed covers. The sources of all imported materials will be reported in the FER. Imported material documentation, including import request forms, manifests/scale tickets, facility permits, sieve/gradation reports, and other applicable information will be included in the FER and SMP, as necessary.

5.4.9 Demarcation

Demarcation will not be necessary if the full extent of the hazardous lead soil and soil with lead above the Commercial Use SCO was removed by the remedial excavation. However, if the

remedial excavation cannot be completed because it would compromise the building structure, a physical demarcation barrier will be placed in the excavation between the lead-impacted soil that will be left in place and the clean backfill. In addition, after the excavation is completed and before the placement of backfill, the extents of the excavation area and elevations of lead-impacted soil left in place will be surveyed by a New York State-licensed surveyor. The survey will constitute the record of the top of the material representing the Residual Management Zone that requires adherence to special conditions for disturbance of residual contaminated soil defined in the SMP. A map showing demarcation barrier extents and the final survey will be included in the Final Engineering Report (FER) and the SMP.

5.4.10 Community Air Monitoring Plan

Community air monitoring will be conducted in compliance with the NYSDOH Generic CAMP outlined below and included in Appendix C.

The CAMP includes real-time monitoring for VOCs and particulates at the downwind perimeter of remediation areas during ground intrusive work. The remediation area is defined as the general area in which construction machinery is operating and supporting Site remediation activities. Continuous monitoring is required for all ground intrusive activities, including, but are not limited to, soil/fill material excavation and handling and stockpiling, Site grading, trenching, and advancement/completion of soil borings, monitoring wells, or test pits. Periodic monitoring for VOCs will be completed during certain non-ground-intrusive activities, such as the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection may consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading before leaving a sample location.

CAMP monitoring for VOC levels will be conducted with PIDs, and monitoring for dust/particulates will be conducted with particulate sensors equipped with filters to detect particulates less than 10 microns in diameter (PM10). A portable PID will be used to monitor the breathing work zone and for periodic monitoring of VOCs during any investigation/sampling that may be required during implementation of the remedy, such as soil and groundwater sampling. The site perimeter will be visually monitored for fugitive dust emissions.

The following actions will be taken based on VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.

- If total VOC levels at the downwind perimeter of the work zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the work zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm above background for the 15-minute average.
- If the total VOC level is above 25 ppm at the perimeter of the work zone, activities will be shut down.

The following actions will be taken based on visual dust observations:

- If the downwind particulate level is 100 µg/m³ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work zone, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind PM10 levels do not exceed 150 µg/m³ above the background level and provided that no visible dust is migrating from the work zone.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m³ above the background level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

Any exceedances observed during implementation of the CAMP will be reported to the NYSDEC and NYSDOH Project Managers and included in the daily report.

5.4.11 Odor, Dust and Nuisance Control Plan

Dust, odor and nuisance control will be accomplished by the contractor as described in this section.

Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include application of foam suppressants or tarps over the odorous or VOC source areas. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until nuisance odors are abated. The NYSDEC and NYSDOH will be notified of odor events. Implementation of odor controls, including the halt of work, will be the responsibility of the RE, who is responsible for certifying the FER. Application of odor controls is the responsibility of the contractor.

Necessary means will be employed to prevent on- and off-site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) covering open excavations with tarps and polyethylene sheets; and (c) using foams to cover exposed odorous soil. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-site disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

Although not anticipated, where odor nuisances develop during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided because of on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

Dust Control Plan

Dust suppression will include, at a minimum, the controls listed below:

- Using a dedicated water distribution system, on-Site water trucks, or an alternate source with suitable supply and pressure to control dust generation and off-site migration.
- Placing virgin crushed stone or RCA at Site ingress/egress points, roadways, or other work and staging areas to limit dust generation.
- Limiting the area of any on-Site roads or paths for trucks and machinery to minimize the area requiring dust suppression.

Other Nuisances

A plan for rodent control will be developed and utilized by the contractor before and during Site clearing and grubbing, and during remedial work.

A plan for noise control will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to Mount Kisco Department of Building and Code noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Under the Track 2 cleanup, residual contamination will be managed in place using ECs/ICs and an NYSDEC-approved SMP. If collected, the FER will provide the results of post-excavation documentation soil samples in tabulated analytical data tables and scaled figures showing sample locations and summaries of analytical data. The FER will also include a demarcation map and a map of surveyed limits of the lead-impacted soil excavation area.

7.0 ENGINEERING AND INSTITUTIONAL CONTROLS

Engineering controls and institutional controls will be required for the Track 2 remedy. An SMP will be prepared to establish protocols for the monitoring of the engineered composite cover system and define other ICs for the Site.

7.1 Engineered Composite Cover System

The engineered composite cover system will consist of the following components:

1. The existing concrete building slab (6-inch minimum thickness) improved with a surface-applied vapor barrier compatible with CVOCs across its entire footprint;
2. The existing asphalt pavement of the vehicle parking lot; and
3. The existing soil/fill material meeting the CU SCOs at the surface of all landscaped areas across the remaining parts of the Site.

The layout of the engineered composite cover are presented in Figure 7.

The vapor barrier system to be installed will be the RetroCoat™ vapor barrier, produced by Land Science Technologies, or an approved equivalent. A copy of the technical brochure and product details for RetroCoat™ are included in Appendix H. Any carpeting or flooring systems (laminate, wood, tile, etc.) will be removed to expose the surface of the concrete slab. The slab's surface will be mechanically roughened as required by the manufacturer to prepare the surface for proper adhesion to the vapor barrier coating. After surface preparation, a 6 mil primer coat followed by a 20 mil coat of RetroCoat™ will be rolled onto the concrete slab and allowed to cure. Three permanent vapor pins will be installed in the slab across the building footprint and sealed. After the installation of the vapor barrier and vapor pins, one round of three co-located indoor air and sub-slab vapor samples will be collected to evaluate indoor air quality, confirm there are no VOCs in indoor air exceeding the NYSDOH AGVs, and demonstrate the effectiveness of the installed vapor barrier. Additional sampling rounds may be completed at the discretion of the remedial engineer. The sub-slab and indoor air samples will be collected in accordance with NYSDOH guidance for 8 hours and analyzed for VOCs by USEPA TO-15. If supported by the confirmatory indoor air sampling data, the improved concrete slab would serve as an engineering control for the protection of human health by establishing an incomplete exposure pathway to CVOC-impacted soil vapor that originates from an off-site source.

Active Vapor Intrusion Mitigation (Contingency Only)

If the confirmatory sub-slab and indoor air samples indicate that the surface-applied vapor barrier is not effective and indoor air continues to exceed the NYSDOH AGVs, the building's heating,

ventilation and air conditioning (HVAC) system will be upgraded to be able to create and maintain a positive-pressure environment within occupied spaces of the building and serve as a long-term engineering control for vapor intrusion mitigation. This system, if needed, will be designed and certified by a mechanical, electrical and plumbing (MEP) engineer. After the startup of the upgraded HVAC system, one round of three indoor air samples will be collected to evaluate indoor air quality, confirm there are no VOCs in indoor air exceeding the NYSDOH AGVs, and demonstrate the effectiveness of the positive-pressure HVAC system. Additional sampling rounds may be completed at the discretion of the remedial engineer. If necessary, a positive-pressure HVAC system would serve as an engineering control for the protection of human health by establishing an incomplete exposure pathway to CVOC-impacted soil vapor that originates from an off-Site source.

7.2 Institutional Controls

The Track 2 remedy will require ICs, including an SMP and environmental easement.

Under a Track 2 cleanup, an SMP will be prepared and an environmental easement will be prepared and recorded with Westchester County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by the NYSDEC. The easement requires that the grantor and the grantor's successors and assigns adhere to all ECs/ICs placed on this Site. ICs provide restrictions on Site use and mandate operation, maintenance, monitoring and reporting measures for all ECs/ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs/ ICs that are required by the environmental easement. Once the SMP is approved by the NYSDEC, compliance with the SMP is required by the grantor of the environmental easement and the grantor's successors and assigns.

7.2.1 Environmental Easement

An environmental easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the remedy is complete. A Track 2 cleanup requires that an environmental easement approved by the NYSDEC will be filed and recorded with the Westchester County Office before the Certificate of Completion can be issued by the NYSDEC. The environmental easement will be submitted as part of the FER.

The environmental easement renders the Site a Controlled Property. If required, the easement will list the ECs/ICs required under this remedy to prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to commercial and industrial uses only. The ICs are generally divided between controls that

support ECs and controls that place general restrictions on Site use. ICs in both of these groups are closely integrated with the SMP.

The ICs that support ECs are:

- Compliance with the environmental easement by the grantor and the grantor's successors and adherence of all elements of the SMP;
- ECs must be operated and maintained as specified in the SMP;
- ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner defined in the SMP;
- ECs may not be discontinued without an amendment or extinguishment of the environmental easement.

Adherence to these ICs for the Site is mandated by the environmental easement and will be implemented under the SMP. The Site restrictions that apply to the Site areas are as follows:

- The planting of vegetable gardens and/or farming at the Site are prohibited;
- The use of groundwater underlying the Site is prohibited without treatment rendering it safe for intended purpose;
- Prohibitions of all future activities that will disturb residual contaminated soil unless they are conducted in accordance with the soil management provisions in the SMP;
- The Site can be used for commercial and industrial uses only provided the long-term ECs/ICs included in the SMP are employed; and
- The Site may not be used for a higher level of use without an amendment or extinguishment of this environmental easement.

The Grantor agrees to submit to the NYSDEC a written statement on an annual basis that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. The NYSDEC retains the right to access the Site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or at a specified frequency allowed by the NYSDEC.

7.3 Site Management Plan

A Track 2 cleanup requires an SMP. Site management is the last phase of remediation and begins with the approval of the FER and issuance of the Certificate of Completion for the remedy. The SMP is submitted as part of the FER, but will be written in a manner that allows it to be used as a complete and independent document. Site management will continue in perpetuity or until it can be terminated as agreed to by the NYSDEC. The property owner must perform all Site management responsibilities defined in the environmental easement and the SMP.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the remedy in accordance with the BCA. This includes: (1) development, implementation, and management of all ECs/ICs; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submission of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to the NYSDEC; and (5) establishment of criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of ECs/ICs; (2) a Monitoring Plan for implementation of any Site monitoring systems; (3) an Operation and Maintenance Plan for implementation of any remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submission of data, information, recommendations, and certifications to the NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC DER-10 and the guidelines provided by the NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually and will be due for submission to the NYSDEC by March 1 of the year following the reporting period.

No exclusions for handling of residual contaminated soil will be provided in the SMP. The handling of any residual contaminated soil will be subject to provisions contained in the SMP.

8.0 FINAL ENGINEERING REPORT

An FER, prepared in accordance with DER-10, will be submitted to the NYSDEC following implementation of the remedial action defined in this RAWP. The FER provides the documentation that the remedial work was completed and was performed in compliance with the RAWP. The FER will include the following documentation:

1. A written and photographic documentation (via daily field reports) of the completed remedy
2. A description of any deviations from the RAWP
3. An account of waste material exported from the Site, including waste types and volumes, waste characterization documentation, facility-signed manifests and scale tickets, facility approvals and other waste disposal documentation
4. An account of materials imported to the Site
5. A summary of post-excavation documentation sampling results and other sampling and laboratory analysis completed as part of the remedial action, if collected
6. As-built drawings and photographs of the engineering controls

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

8.1 Certifications

The following certification will appear in front of the Executive Summary of the FER. The certification will be signed by the RE, Jason Hayes, who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I _____certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Action Work Plan (or Remedial Design or Plans and Specifications) was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Action Work Plan (or Remedial Design or Plans and Specifications).

The data submitted to DER demonstrates that the remediation requirements set forth in the Remedial Action Work Plan (or Remedial Design or Plans and Specifications) and all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in the work plan (or Remedial Design or Plans and Specifications).

All use restrictions, institutional controls, engineering controls and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant to ECL 71-3605 and that any affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

An SMP has been submitted for the continual and proper operation, maintenance and monitoring of any engineering controls employed at the Site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by DER.

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

9.0 SCHEDULE

Mobilization will commence before remedial activities at the Site and is expected to take about one week. Once mobilization is complete, the remedial activities can begin, and are anticipated to take about 1 month. Within 60 days of completion of remedial activities at the Site, an FER will be submitted to the NYSDEC as detailed in Section 8.0. A detailed project schedule is included in Appendix G.