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# REMEDIAL ACTION WORK PLAN

for

## AMN SITE

260 Main Street  
New Rochelle, New York  
NYSDEC BCP Site No. C360201

*Prepared for:*

Pratt Landing Partners LLC  
200 Park Avenue, 17<sup>th</sup> Floor  
New York, NY 10166

*Prepared by:*

Langan Engineering, Environmental, Surveying,  
Landscape Architecture and Geology, D.P.C.  
21 Penn Plaza  
360 West 31<sup>st</sup> Street, 8<sup>th</sup> Floor  
New York, New York 10001

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Gerald Nicholls, PE, CHMM  
Executive Associate

**LANGAN**

July 2023  
Langan Project No. 170331704

**CERTIFICATION**

I, Gerald Nicholls, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all 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 Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law.

**DRAFT**

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NYS Professional Engineer #092433

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Date

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Signature

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.

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**LIST OF ACRONYMS**

<b>Acronym</b>	<b>Definition</b>
Alpha	Alpha Analytical, Inc.
AOC	Area of concern
AST	Aboveground storage tank
ASTM	American Society of Testing and Materials International
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below grade surface
BMP	Best management practice
C&D	Construction and demolition
CAMP	Community Air Monitoring Plan
CESQG	Conditionally-Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Contaminant of concern
CP	Commissioner Policy
CQAP	Construction Quality Assurance Plan
CSM	Conceptual site model
CVOC	Chlorinated volatile organic compound
DER	Division of Environmental Remediation
DER-10	Technical Guidance for Site Investigation and Remediation
DMM	Division of Materials Management
DPW	Department of Public Works
EC	Engineering control
ECL	Environmental Conservation Law
EE	Environmental easement
el	Elevation
ELAP	Environmental Laboratory Approval Program
ELM	Environmental Liability Management of New York, LLC
ESA	Environmental Site Assessment
eV	electron volt
FER	Final Engineering Report
HASP	Health and Safety Plan
IC	Institutional control
inWC	Inches water column
Langan	Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
LNAPL	Light non-aqueous phase liquid
LSI	Limited Site Investigation

<b>Acronym</b>	<b>Definition</b>
mg/kg	milligram per kilogram
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic aromatic hydrocarbon
PBS	Petroleum bulk storage
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PE	Professional Engineer
PFAS	Per- and polyfluoroalkyl substances
PGW	Protection of Groundwater
PID	Photoionization detector
PM10	Particulates less than 10 microns in diameter
PPE	Personal protective equipment
PPM	Parts per million
PVC	Polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RAO	Remedial action objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RE	Remedial Engineer
REC	Recognized environmental condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RURR	Restricted Use Restricted-Residential
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SGV	Standards and Guidance Values
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SOE	Support of excavation
SOP	Standard operating procedure
SPDES	State Pollutant Discharge Elimination System
SRI	Supplemental Remedial Investigation
SSD	Sub-slab depressurization
STARS	Spills Technology and Remediation Series
SVI	Soil vapor intrusion

<b>Acronym</b>	<b>Definition</b>
SVOC	Semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TCL	Target Compound List
TOGS	Technical and Operational Guidance Series
TSCA	Toxic Substances Control Act
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
UU	Unrestricted Use
VOC	Volatile organic compound
6 NYCRR	Title 6 of the New York Codes, Rules, and Regulations
$\mu\text{g}/\text{m}^3$	microgram per cubic meter

## **EXECUTIVE SUMMARY**

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) prepared this Remedial Action Work Plan (RAWP) on behalf of Pratt Landing Partners LLC (the Volunteer) for the AMN Site at 260 Main Street in New Rochelle, New York (the site). The site consists of part of Westchester County Section 1, Block 84, Lot 0022 and part of Lot 0005. The Volunteer entered into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) to investigate and remediate the site in accordance with a Brownfield Cleanup Agreement (BCA) executed on September 10, 2020 and amended on May 10, 2023. The site was assigned BCP Site No. C360201. Upon completion of the remedial action described herein and the subsequent construction, the site will be improved with multi-story mixed-use residential and commercial buildings with ground-floor commercial retail spaces, residential units, and sub-grade parking in the southeastern part of the site. The remainder of the site will be comprised of landscaped areas and asphalt-paved roadways.

This RAWP identifies and evaluates remedial action alternatives and recommends a Track 4 remedy to address petroleum impacts in soil and groundwater, semivolatile organic compounds (SVOC), polychlorinated biphenyls (PCB), and metals in historic fill and underlying soil, and chlorinated volatile organic compounds (CVOC) in soil vapor at the site. The proposed remedy was developed based on data gathered during the April 2020 Limited Site Investigation (LSI), the November 2020 to January 2021 Remedial Investigation (RI), and the February 2023 Supplemental Remedial Investigation (SRI) performed by Langan.

The recommended remedy described in this document is consistent with the procedures defined in the NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable standards, criteria and guidance. The recommended remedy also complies with applicable federal, state and local laws, regulations, and requirements. The RI Report (RIR) and Addendum to the RIR were approved by the NYSDEC and New York State Department of Health (NYSDOH) on February 7, 2022 and DATE, respectively.

### **Site Description/Physical Setting/Site History**

The site is at 260 Main Street in New Rochelle, New York and is identified as the upland part of Section 1, Block 84, and Lot 0022 and part of Lot 0005 on the Westchester County Tax Map. The site is irregularly shaped and approximately 225,910 square feet ( $\pm$  5.19 acres) in area, and excludes about 27,000 square feet of land under water in the southeastern part of Lot 22 (southeastern part of former Lot 0110). The site is improved with three vacant interconnected one- to three-story brick and concrete buildings (Armory and Annex) with a shared basement and two dilapidated concrete and stone structures associated with former buildings. The remainder of the site is primarily comprised of concrete slabs from former buildings and overgrown vegetation.

The site is in an urban setting that is characterized by residential, commercial, and light industrial buildings. The site is irregularly shaped, and thus cardinal direction references vary. Generalized

boundary references to cardinal directions are summarized as follows: the site is bound by Main Street and Huntington Place to the northwest; the City of New Rochelle Department of Public Works (DPW) storage facility (224 East Main Street/BCP Site No. C360101) to the northeast; Echo Bay generally to the south; and a one-story restaurant building (270-280 Main Street) and a masonry supplier with an open-air parking lot (34 Evans Street) followed by Evans Street to the southwest.

### **Summary of the Remedial Investigation**

The RI was implemented between November 2020 and January 2021 to investigate areas of concern (AOC) and to determine the nature and extent of contamination in soil, groundwater, and soil vapor to design a remedy that will be protective of human health and the environment. Findings and conclusions are as follows:

1. **Stratigraphy:** Historic fill consisting predominantly of grayish brown, fine- to medium-grained sand with varying amounts of silt, clay, gravel, brick, concrete, asphalt, and wood was encountered across the site beneath the surface cover to depths ranging from about 1 to 18 feet below grade surface (bgs), and in some areas extends to shallow bedrock. Native soil encountered below historic fill predominantly consists of gray-to-brown, fine- to medium-grained sand with varying amounts of silt, clay, weathered rock, and gravel. During the RI, borehole refusal was encountered from about 3 feet bgs in the northern part of the site to 18 feet bgs in the eastern part of the site due to presumed bedrock and/or subsurface obstructions (i.e., timber piles, boulders).
2. **Hydrogeology:** Synoptic groundwater measurements were collected on January 6, 2021 from the groundwater monitoring wells installed during the RI. Groundwater was encountered between about 1 and 9 feet bgs, corresponding to elevation [el] 2.64 to 8.27, excluding perched groundwater encountered in the northern part of the site. Groundwater flow was evaluated and determined to generally flow towards Echo Bay to the south, which is consistent with surface and bedrock topography.
3. **Petroleum Impacts in Soil and Groundwater:** Petroleum-related contamination was identified in soil along the Echo Bay shoreline and in discontinuous localized areas in the central and northern parts of the site. Petroleum-related groundwater impacts were detected marginally above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (collectively referred to as SGVs) within a localized area in the central part of the site. Petroleum-related contamination in soil and groundwater is attributable to historical petroleum bulk storage (PBS) and former site uses.
4. **Historic Fill:** SVOCs, PCBs, pesticides, and metals were detected in historic fill across the site at concentrations exceeding the Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375 Unrestricted Use (UU) or Restricted Use Restricted-Residential (RURR) Soil Cleanup Objectives (SCO) to depths of up to 8 feet bgs. Metals, including arsenic, barium, cadmium,

trivalent chromium, copper, lead, and mercury, were detected above the UU and RURR SCOs in soil samples collected from historic fill and the underlying native interval within the southern, southwestern and central parts of the site. Hexavalent chromium, nickel, selenium, and zinc were detected above the UU SCOs, but below the RURR SCOs, in historic fill samples from across the site. Pesticides were detected at concentrations above the UU SCOs, but below RURR SCOs, in historic fill samples collected from across the site. PCBs were detected at concentrations above the UU and/or RURR SCOs in historic fill samples from EB01, EB03, EB04, EB09, EB30, EB31, and EB32. PCBs in soil may be related to the quality of historic fill or historical on- and off-site uses. SVOCs, pesticides, and metals in soil are likely related to the quality of the historic fill. Pesticides may also be attributed to potential historical application of pesticides at the site and SVOCs may also be attributed to petroleum impacts, particularly in borings that correlate with observations of odors, staining and/or photoionization detector (PID) readings or volatile organic compound (VOC) impacts. SVOCs and total metals (lead) were detected in groundwater at concentrations above the SGVs. SVOCs in groundwater are attributed to entrained sediment (historic fill) in the groundwater column. Localized naphtha- or creosote-like odors may be encountered within treated timber piles across the site.

5. PCB Contamination: PCB contamination, as evidenced by concentrations of total PCBs above the UU and/or RURR SCOs, was encountered in historic fill and native soil samples collected from 0 to 12 feet bgs in the southwestern part of the site (EB01 through EB04, EB09, EB28, and EB30 through EB32; MM\_SB01, MM\_SB02, MM\_SB04, MM\_SB05, MM\_SB07 through MM\_SB09) and the central part of the site along the Echo Bay waterfront (EB14 and EB21). The presence of PCBs in shallow soil is attributable to former site operations (e.g., marine painting and/or electrical utilities). The presence of PCBs at concentrations above the UU and/or RURR SCOs in deeper native soil samples along the Echo Bay shoreline may be related to former on-site uses or the nearby former Consolidated Edison Echo Avenue Site.
6. CVOCs in Soil Vapor: The concentration of tetrachloroethene (PCE) detected in soil vapor sample NS\_SV02 corresponded to recommended actions ranging from “no further action” to “mitigate”. PCE was also detected during the RI in sub-slab vapor samples VP02 and VP03 and both indoor air samples; however, the concentrations detected in co-located sub-slab vapor sample VP02 and indoor air sample IA02 did not warrant further action. In the absence of a co-located indoor air sample with sub-slab vapor point VP03 (the former building has been demolished), the NYSDOH decision matrices yield recommendations ranging from “no further action” to “identify source(s) and resample or mitigate”. The localized CVOCs in soil vapor may be indicative of a chemical release of unknown origin during historical site operations or an off-site source. However, during the indoor air quality survey and chemical inventory, no sources of sub-slab soil vapor, soil vapor, and/or indoor air contaminants were identified. Additionally, a source of CVOC-related contamination was not identified in on-site soil or groundwater during the LSI or RI. Under the

future development scenario, active mitigation may be necessary in a localized area surrounding NS\_SV02 in the central part of the site (former Lot 0120).

7. Fish and Wildlife Resources Impact Analysis (FWRIA): An FWRIA was completed as part of the RI and is included as Appendix K of the RIR. The FWRIA identified Echo Bay as a sensitive natural resource in the area surrounding the site. Any potential soil impacts at the site are not expected to impact Echo Bay due to the proposed remediation and redevelopment. The construction and remediation will include removing at least the top two feet of soil, disposing of excavated soil off-site, stabilizing the Echo Bay shoreline, and constructing mixed-use residential and commercial buildings and surface and/or underground parking. The constructed areas that will not be improved with an impervious surface will have a 2-foot-thick clean soil cap, and the shoreline will be stabilized using a combination of rip rap, living shoreline, and bulkheads, which will prevent erosion of impacted soil to Echo Bay. Based on a review of groundwater data, groundwater impacts related to historic site operations are not migrating to Echo Bay. SVOCs that were detected in soil collected from the historic fill layer were also detected in groundwater samples, which were collected from monitoring wells screened within the historic fill layer. Groundwater samples were not filtered for SVOC analysis; therefore, the SVOCs detected above the NYSDEC SGVs in unfiltered groundwater samples are attributed to entrained historic fill/sediment.

### **Qualitative Human Health Exposure Assessment**

Based on the conceptual site model (CSM) developed based on the findings of the RI and the review of environmental data, complete on-site exposure pathways appear to be present in current conditions. Complete on-site exposure pathways would only exist in construction-phase and future conditions in the absence of engineering controls (EC) and institutional controls (IC). The complete exposure pathways indicate there is a risk of exposure to humans from site contaminants via exposure to soil, groundwater, and soil vapor if mitigation measures and controls are not implemented.

#### *Current Conditions*

Contaminant sources include historic fill with varying concentrations of SVOCs, PCBs, pesticides, and metals; petroleum-impacted soil and groundwater containing varying concentrations of VOCs and/or SVOCs; metal-impacted soil; PCB-impacted soil; and soil vapor with PCE and petroleum-related VOCs.

Contaminant release and transport mechanisms include potential release and transport during penetration of the site cover for soil, groundwater, and soil vapor sampling and potential exposure through soil vapor intrusion into existing buildings. The potential receptor population is the on-site sampling personnel and the nearby community. Under current conditions, the likelihood of exposure to humans is limited due to the following:

- The site footprint is partially covered by continuous concrete building slabs and asphalt pavement, which prevent direct contact with soil, groundwater, and soil vapor. Exposed soil exists across the site; exposure to surficial soil through direct contact and inhalation may occur in these areas.

- The site is surrounded by locked construction fencing, and the Armory and Annex buildings are vacant and locked, preventing access to the community and limiting exposure via inhalation of impacted vapor by site workers in the existing buildings. Sampling activities are completed in accordance with the site-specific Construction Health and Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) that is designed to monitor and prevent exposure to soil, groundwater, and soil vapor contaminants.
- Groundwater at the site is not a potable water source.

#### *Construction/Remediation Activities*

During the excavation and foundation construction stage of redevelopment, which will include remediation, points of exposure include disturbed and exposed soil during excavation, dust and potential organic vapors generated during excavation, and contaminated groundwater encountered during excavation and/or dewatering operations. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of potential organic vapors arising from contaminated soil vapor and groundwater, and inhalation of dust originating from contaminated soil. The receptor population includes construction and remediation workers, and the nearby community.

All five elements exist; therefore, the potential for completed exposure pathways is present. The risk can be avoided by applying health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, maintaining site security, and wearing personal protective equipment (PPE). In accordance with a Health and Safety Plan (HASP)/CHASP, a RAWP, and a CAMP, measures such as conducting an air monitoring program, donning PPE, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. Such measures will prevent completion of these potential migration pathways.

#### *Proposed Future Conditions*

Under the proposed future conditions, some remaining contaminants may remain on site, depending on the remedy, and will, to a lesser extent, include those listed under current conditions. If remaining impacts exist and ECs and ICs are not implemented, points of exposure would potentially include cracks in the foundation of the proposed development, exposure during any future ground-intrusive work, or inhalation of vapors entering the building. The receptor population would include residential- and commercial-use occupants, employees, and the nearby community. The possible routes of exposure can be avoided or mitigated by maintenance of a site capping system (e.g., concrete building slabs, asphalt roadways and at least 2 feet of clean soil in landscaped areas); installation of a waterproofing/vapor barrier and/or active vapor mitigation controls in new buildings, if required; implementation of a Site Management Plan (SMP); and placement of an environmental easement (EE) at the site.

#### *Human Health Exposure Assessment Conclusions*

1. In the absence of mitigation measures and controls, there is potential for exposure during remediation/construction activities. The primary exposure pathways are:
  - a. Dermal contact, ingestion, and inhalation of contaminated soil, groundwater, and/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 can be avoided or minimized by implementing CAMP and by following the appropriate CHASP, vapor and dust suppression, soil erosion and sediment control, site security measures, and following a NYSDEC-approved RAWP.

2. The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely. The site will be remediated and ICs and ECs will be in-place to mitigate any exposure risk related to remaining contamination. Further, regional groundwater is not used as a potable source in New Rochelle.
3. It is possible that a complete exposure pathway exists for the migration of site contaminants to off-site human receptors during current, construction-phase, and future conditions, primarily through exposure to surficial soil through direct contact and/or inhalation. Such exposure can be prevented or mitigated by implementation of monitoring and control measures. Under future conditions, remediation and ECs and ICs would prevent completion of this exposure pathway.

### **Summary of the Remedy**

It is anticipated that the site will be remediated to meet Track 4 restricted-residential use standards. The recommended Alternative II Track 4 remedy will include the following:

- Development and implementation of a CHASP and CAMP for the protection of on-site workers and the community during remediation
- Abatement of hazardous building materials within existing structures to remain on-site following site-wide remediation (Armory and Annex)
- As a pre-requisite to site remediation, removal of the surficial asphalt cover by the contractor and management of removed asphalt as construction and demolition (C&D) debris in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies will be the responsibility of contractors performing off-site transportation and disposal of C&D debris. The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.

- Site-wide excavation, excluding an about 19,300-square-foot area in the northwestern part of the site, up to 2 feet bgs to install a composite cover system, and deeper excavation of petroleum- and PCB-impacted soil
- Screening of excavated soil for indications of contamination by visual, olfactory, and instrumental methods
- Decommissioning and removal of any encountered underground storage tanks and aboveground storage tanks in accordance with 6 NYCRR Part 613.0 and NYSDEC DER-10 Section 5.5
- Handling, transport, and off-site disposal of excavated soil in accordance with federal, state, and local rules and regulations for handling, transport, and disposal
- Installation of support of excavation (SOE) components as needed to facilitate the remedial excavations
- Dewatering as needed to allow for excavation below the groundwater table, and treatment and discharge of dewatering fluids in accordance with applicable regulations
- Collection and analysis of documentation soil samples, including quality assurance/quality control (QA/QC) samples, in accordance with DER-10 at the base of the remedial excavation
- Demarcation of remaining contaminated soil and fill outside of the proposed building footprints by survey and a high-visibility demarcation barrier for visual reference
- Import and placement of fill (e.g., virgin crushed stone, recycled concrete aggregate [RCA], soil) meeting the lower of Part 375 RURR and Protection of Groundwater (PGW) SCOs to backfill remedial excavations and facilitate EC installation. Requests for import of fill are subject to NYSDEC review and approval, and will include a Request to Import/Reuse Soil Form.
- Stabilization of the Echo Bay shoreline using a combination of rip rap, living shoreline, and bulkheads, which will prevent erosion of remaining contaminated soil to Echo Bay.
- Installation of below-grade sub-slab depressurization (SSD) system components beneath a part of the proposed Block D2 building slabs (including a continuous waterproofing/vapor barrier membrane) for potential commissioning and active operation of the systems during site management, if warranted based on the results of a post-remediation soil vapor intrusion (SVI) evaluation
- Installation of a site-wide composite cover system consisting of concrete building foundation slabs and underlying waterproofing/vapor barrier membrane systems, exterior hardscapes (i.e., asphalt roadways, concrete sidewalks, pavers), landscaped areas with at least 2 feet of fill meeting the lower of Part 375 RURR and PGW SCOs, and a stabilized shoreline along Echo Bay to prevent future exposure to remaining contaminated soil

- Establishment of use restrictions (i.e., ICs) including prohibitions on the use of groundwater from the site and prohibitions on sensitive site uses, such as farming or vegetable gardening in remaining site soil, to prevent future exposure to remaining contamination
- Recording of an EE referencing ECs and ICs to prevent future exposure to remaining contamination
- Publication of an SMP for long-term management of remaining contamination as required by the EE, including plans for: 1) IC/EC implementation, 2) monitoring, 3) operation and maintenance, and 4) reporting

Additionally, although not considered an EC, the development would include installation of a continuous waterproofing/vapor barrier membrane across future on-site building foundations. This design element would have the effect of eliminating potential exposure pathways for contaminated soil vapor that may migrate onto the site.

Remediation will be performed in accordance with this NYSDEC-approved RAWP.

## 1.0 INTRODUCTION

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) prepared this Remedial Action Work Plan (RAWP) on behalf of Pratt Landing Partners LLC (the Volunteer) for the AMN Site at 260 Main Street in New Rochelle, New York (the site). The site is also identified as Westchester County Tax Map as Section 1, Block 84, Lot 0022 and part of Lot 0005. On April 2, 2020, the City of New Rochelle Department of Finance approved a Lot Merger Application to merge former Lots 0022, 0110, and 0120 into a single lot (Lot 22). For the purposes of this report, the three contiguous former lots comprising the site are identified and discussed as follows:

- Former Lot 0022, also known as the former Armory, comprises the northern and northeastern parts of the site;
- Former Lot 0110, also known as the former Mancuso Marina property, comprises the southwestern part of the site; and
- Former Lot 0120, also known as the former Nelstad Concrete Plant, comprises the central part of the site.

The Volunteer entered into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) to investigate and remediate the site in accordance with a Brownfield Cleanup Agreement (BCA) executed on September 10, 2020 and amended on May 10, 2023. The site was assigned BCP Site No. C360201. As part of the May 10, 2023 BCA amendment, a 16,215-square-foot area was transferred from the western part of the City DPW Yard site (C360101) to the southwest-adjointing AMN BCP site (C360201). This area is referred to as the “BCP Swap Area” and is depicted on Figure 1. Upon completion of the remedial action described herein and the subsequent construction, the site will be improved with multiple multi-story mixed-use residential and commercial buildings with ground-floor commercial retail spaces, residential units, and sub-grade parking in the southeastern part of the site. The remainder of the site will be comprised of landscaped areas and asphalt-paved roadways.

This RAWP identifies and evaluates remedial action alternatives and recommends a Track 4 remedy to address petroleum impacts in soil and groundwater, semivolatile organic compound (SVOC), polychlorinated biphenyls (PCB), and metals in historic fill and underlying soil, and chlorinated volatile organic compounds (CVOC) in soil vapor at the site. The recommended remedy was developed based on data gathered during the April 2020 Limited Site Investigation (LSI), the November 2020 to January 2021 Remedial Investigation (RI), and the February 2023 Supplemental Remedial Investigation (SRI) performed by Langan.

The recommended remedy described in this document is consistent with the procedures defined in the NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable standards, criteria and guidance. The recommended remedy also complies with applicable federal, state and local laws, regulations, and requirements. The RI

Report (RIR) and Addendum to the RIR were approved by the NYSDEC and New York State Department of Health (NYSDOH) on February 7, 2022 and DATE, respectively.

### **1.1 Site Location and Description**

The site is at 260 Main Street in New Rochelle, New York and is identified as the upland part of Section 1, Block 84, and Lot 0022 and part of Lot 0005 on the Westchester County Tax Map. The site is irregularly shaped and approximately 225,910 square feet ( $\pm$  5.19 acres) in area, and excludes 27,710 square feet of land under water in the southeastern part of Lot 22 (southeastern part of former Lot 0110). The site is improved with three vacant interconnected one- to three-story brick and concrete buildings (Armory and Annex) with a shared basement and two dilapidated concrete and stone structures associated with former buildings. The remainder of the site is primarily comprised of concrete slabs from former buildings and overgrown vegetation.

The site is in an urban setting that is characterized by residential, commercial, and light industrial buildings. The site is irregularly shaped, and thus cardinal direction references vary. Generalized boundary references to cardinal directions are summarized as follows: the site is bound by Main Street and Huntington Place to the northwest; the City of New Rochelle Department of Public Works (DPW) storage facility (224 East Main Street) to the northeast; Echo Bay generally to the south; and a one-story restaurant building (270-280 Main Street) and a masonry supplier with an open-air parking lot (34 Evans Street) followed by Evans Street to the southwest. A site plan and location map are provided as Figure 1. A site survey also showing the northeast-adjointing City DPW Yard BCP Site (Site No. C360101) is provided in Appendix A.

In 2015 the City of New Rochelle restructured the existing zoning districts and created six form-based overlay zones called Downtown Overlay Zones. The site is within the DO-7 Waterfront Overlay District, which was adopted as the seventh overlay zone on December 14, 2021. DO-7 is defined as a waterfront district and allows for a range of mixed residential, commercial, industrial, and water-dependent uses.

### **1.2 Redevelopment Plan**

The proposed remedial action is intended to render 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 contemplated remedy may be implemented independent of the proposed redevelopment plan.

The proposed redevelopment project is still in the early planning stages and is subject to change. Current redevelopment plans include renovation of the existing Armory and Annex buildings (Block A1) to accommodate future mixed-use tenants, and construction of several mixed-use residential and commercial buildings with retail space and subgrade parking. The proposed Building A2 in the northeastern part of the site will consist of a multi-story mixed-use building with a partial cellar to be used for mechanical space, storage, and elevator pits; at-grade retail; and residential units throughout the

remainder of the building. Building D1 in the southeastern part of the site will consist of a multi-story mixed-use building with two below-grade cellar levels designated for subgrade parking; at-grade retail and mechanical space; and residential condominium units throughout the remainder of the building. Building D2 will contain a three-story multi-unit condominium building. The D1 and D2 buildings are anticipated to be operated as condominiums and will be managed by a central condominium board and management company. The redevelopment project also includes the construction of public parkland space and a waterfront promenade in the southwestern and eastern part of the site along Echo Bay. The proposed building footprints and block designations are presented in Figure 1.

### 1.3 Description of Surrounding Property

The site is in an urban setting that is characterized by residential, commercial, and light industrial buildings. Because of the urban nature of the area, major infrastructure (e.g., storm drains, sewers, and underground utility lines) exist in the vicinity of the site. The closest ecological receptor is Echo Bay, which adjoins the site to the south. The following table includes a summary of surrounding properties and uses:

Direction	Adjoining Properties			Surrounding Properties
	Block No.	Lot No.	Description	
Northwest	Huntington Place			Multi-story mixed-use residential and commercial buildings, multi-story light industrial buildings, and public park space
	84	0034	2-story commercial building (288-300 Main Street)	
		0028	1-story commercial building (270-280 Main Street)	
	Main Street			
Northeast	84	0005	City of New Rochelle DPW storage facility (224 East Main Street)	
South	Echo Bay			Surface waters of Echo Bay followed by multi-story mixed-use residential, commercial, and light industrial buildings
Southwest	84	0067	New Rochelle Masonry Depot (34 Evans Street)	

No schools or daycare facilities are on or adjacent to the site. Sensitive receptors, as defined in DER-10, located within a half-mile of the site are listed in the following table:

Number	Name (Approximate distance from site)	Address
1	Salesian High School (approximately 0.27 miles northeast of the site)	148 E Main St New Rochelle, NY 10801
2	Japanese Weekend School of New York (approximately 0.30 miles west of the site)	56 Harrison St # 503 New Rochelle, NY 10801
3	Growing Minds of New York Day Care Center (Daycare – approximately 0.37 miles southwest of the site)	466 Main St New Rochelle, NY 10801

Number	Name (Approximate distance from site)	Address
4	The Learning Experience (Daycare – approximately 0.37 miles west of the site)	1 Bally Place New Rochelle, NY 10801
5	Creative Learning Center (Daycare – approximately 0.38 miles southwest of the site)	17 Anderson Street New Rochelle, NY 10801
6	Baby Cubs Daycare Inc (approximately 0.47 miles north of the site)	2433 Palmer Avenue New Rochelle, NY 10801
7	Little Blessings Child Development Center (approximately 0.47 miles north of the site)	2433 Palmer Avenue New Rochelle, NY 10801

## 1.4 Site History

### 1.4.1 Historical Site Use

The site is in an urban setting that is characterized by residential, commercial, and light industrial buildings. The site was formerly three separate tax lots. Historical uses for each former lot are presented below:

- Historical site uses of the northern and northeastern parts of the site include an armory and training ground, shooting range, ammunition storage, training ground for the fire and police departments, equipment storage, and film screening operation. The film screening operation was associated with the generation of hazardous waste. The City of New Rochelle purchased the Armory in 1997, and it has been vacant since then.
- Historical site uses of the southwestern part of the site include a boat storage yard from 1947 to 2003. Boat fueling, maintenance, and repair are activities characteristic of boat yards and marinas and typically involve the use and storage of petroleum products (e.g., fuel, oil, grease, and lubricants); paints, varnishes, and epoxy resins; and cleaning products, including solvents and paint strippers. This part of the site has been owned by the City of New Rochelle since 1993, is currently vacant, and has been periodically used for temporary equipment storage and staging by the City of New Rochelle.
- Historical site uses of the central part of the site include a boat builder in 1911 and a concrete mixing plant with a truck repair shop from 1951 to 2009. Boat builders, concrete mixing plants, and truck repair shops typically include the use and storage of solvents, various chemicals, and petroleum products. This part of the site has been vacant since 2011.

### 1.4.2 Previous Environmental Reports and Investigations

Previous environmental reports were reviewed as part of the RIR and are summarized in chronological order below. Previous environmental reports are included as Appendix A of the RIR, which is included in Appendix B.

- June 20, 2007 Echo Bay Redevelopment Phase I Environmental Site Assessment (ESA), prepared by Environmental Liability Management of New York, LLC (ELM), for the northern and northeastern parts of the site (former Lot 0022), the southwestern part of the site (former Lot 0110), and the northeastern-adjointing Lot 0005
- June 21, 2007 Brownfield Cleanup Program Application – Echo Bay, prepared by ELM, for the northern and northeastern parts of the site (former Lot 0022), the southwestern part of the site (former Lot 0110), and the northeastern-adjointing Lot 0005
- August 28, 2012 Phase I ESA, prepared by Roux Associates, Inc. (Roux), for the northern and northeastern parts of the site (former Lot 0022);
- May 21, 2013 Phase II Environmental Site Assessment Report, prepared by Roux, for the northern and northeastern parts of the site (former Lot 0022)
- April 2020 Limited Environmental Site Investigation Report, prepared by Langan
- September 2020 Geotechnical Engineering Report, prepared by Langan, prepared for the site and the adjoining City DPW Yard site

June 20, 2007 Phase I ESA, prepared by ELM

The Phase I ESA was prepared for the northern and northeastern parts of the site (former Lot 0022), the southwestern part of the site (former Lot 0110), and the northeastern-adjointing Lot 0005. Recognized environmental conditions (REC) associated with the site, as reported in this Phase I ESA, are listed below and separated by the part of the site to which they are relevant.

The following RECs are relevant to the northern and northeastern (former Lot 0022) and southwestern (former Lot 0110) parts of the site:

- Historical Sanborn maps dated 1911 through 1990 show surrounding land to have been historically comprised of mixed commercial and industrial uses interspersed with residential uses. Surrounding land uses included the City of New Rochelle DPW storage yard, a lunch wagon factory (circa 1911), a manufacturer of dining cars (circa 1931), a supplier of coal and building materials (circa 1931), oil storage terminal(s) (circa 1931 through 1990), a chemical laboratory (circa 1951 through circa 1990), Power Tronic Systems Electronics (circa 1990), an electronics laboratory (circa 1990), and auto repair facilities, auto parking, auto sales, auto painting, and filling stations (various years).
- These parts of the site contain buildings that may contain asbestos-containing building materials and/or lead-based paint. The buildings contain fluorescent lighting. Older fluorescent lights and fixtures may include PCB- and/or mercury-containing components (including capacitors and potting compounds).

The following RECs are relevant to the northern and northeastern parts of the site (former Lot 0022):

- Two 275-gallon aboveground storage tanks (AST) and two boiler units were observed in the boiler room in the basement of the three-story Annex building. Additionally, a vent pipe was observed in the eastern corner of the three-story Annex building.
- The former Lot 0022 was listed twice in the NYSDEC Petroleum Bulk Storage (PBS) database. New Rochelle Armory was listed with one 8,000-gallon in-service fuel oil underground storage tank (UST) with vaulted access. Navy Motion Pictures was listed with one 7,500-gallon in-service fuel oil UST with vaulted access. The City of New Rochelle reported that one fuel oil tank was active at the time of the 2007 Phase I ESA.
- A shooting range associated with the former armory was observed in the basement of the three-story brick building. Lead associated with ammunition for guns discharged on the shooting range was noted to have possibly adversely impacted the on-site soil and/or groundwater if cracks were present in the basement concrete, or if the floor of the shooting range was historically soil.
- One partially full 55-gallon drum was observed in the basement of the three-story building. The contents of this drum were unknown.
- Stacks of paint cans were stored in a landscaped area in the southeastern part of former Lot 0022.
- The former Lot 0022 was listed three times in the Resource Conservation and Recovery Act (RCRA) Generators database:
  - As a generator of 200 pounds of mercury in 2000;
  - As a Conditionally-Exempt Small Quantity Generator (CESQG) of 55 gallons of lead-contaminated waste in 1994 (during the Naval Motion Picture Service tenancy); and
  - As a CESQG associated with US Navy Motion Picture Service; however, no information related to the type or volume of generated wastes was provided in the listing.

The following RECs are relevant to the southwestern part of the site (former Lot 0110):

- One 275-gallon AST was observed inside a one-story corrugated metal structure in the southwestern part of the site. The contents of the AST were unknown.
- Historical Sanborn maps and previous studies indicate this part of the site was used as a boat yard and marina. Activities typically associated with this type of land use include boat fueling, maintenance and repair. There is the potential for historical use of petroleum products, paints, and solvents.
- Records from a site reconnaissance visit listed a metal container box, a boat and car, miscellaneous trash, and concrete-filled drums in a landscaped area in the western part of former Lot 0110. One 55-gallon drum was observed within the metal container box; the contents of this drum were unknown. A history of unauthorized dumping was identified for former Lot 0110.

June 21, 2007 Brownfield Cleanup Program Application – Echo Bay, prepared by ELM

In 2007, ELM prepared a BCP application for a proposed BCP site comprised of the northern and northeastern parts of the site (former Lot 0022), the southwestern part of the site (former Lot 0110), and the northeastern-adjointing Lot 0005. A BCA was never executed for the proposed BCP site.

August 28, 2012 Phase I ESA, prepared by Roux

This Phase I ESA was prepared on behalf of Forest City Residential Group for the northern and northeastern parts of the site (former Lot 0022) and identified the following RECs:

- A former 7,500-gallon UST containing No. 2 fuel oil was removed on April 7, 2009 from the basement of a two-story brick building to the north of the one-story former armory building. Stained soil and petroleum-like odors were reportedly apparent in the former tank area.
- Historical site uses included an armory and training ground, shooting range, ammunition storage, training ground for the fire and police departments, equipment storage, and film screening operation. The film screening operation was associated with the generation of hazardous waste.
- Staining indicative of a release of hazardous substances or petroleum products was observed on soil near the entrance of a small ancillary building near the southern corner of the one-story former armory building.
- An abandoned drum containing suspected hazardous substances or petroleum products was observed in the basement of the three-story brick building to the north of the one-story former armory building.
- Current and historical uses of the surrounding properties may have impacted subsurface conditions on site, particularly through groundwater migration.
- One historical REC associated with closed NYSDEC Spill No. 00-13171 was also identified for the northern and northeastern parts of the site (former Lot 0022). The spill incident was opened in response to about 25 gallons of No. 2 fuel oil spilling onto the ground and into a storm sewer on March 16, 2001. Petroleum-impacted soil was excavated and disposed off-site, and the spill was closed on March 9, 2004.

While not defined as a REC, the Phase I ESA also indicated the presence of a construction and demolition (C&D) debris pile in the center of the northeastern part of the site (former Lot 0022) and the presence of historic fill in the subsurface.

May 21, 2013 Phase II ESA Report, prepared by Roux

Roux conducted a Phase II ESA in February 2013 at the northern and northeastern parts of the site (former Lot 0022). The subsurface investigation included the installation of two soil borings beneath the former

tank area in the main armory building basement via hand auger and collection of one soil sample for laboratory analysis. Findings of the subsurface investigation are as follows:

- Refusal due to shallow inferred bedrock was encountered in both borings at 2 feet below the basement grade.
- Groundwater was encountered at the base of the borehole.
- Evidence of subsurface impacts was not observed in either boring.
- Volatile organic compounds (VOC), SVOCs, and metals were not detected at concentrations exceeding the Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375 Unrestricted Use (UU) or Restricted Use Restricted-Residential (RURR) Soil Cleanup Objectives (SCO) in the soil sample collected.

Based on the field observations and analytical results, Roux concluded that the former fuel tank did not impact subsurface soil conditions beneath the armory building basement.

*April 2020 Limited Environmental Site Investigation Report, prepared by Langan*

In August and September 2019, Langan performed an LSI to evaluate soil, groundwater, and soil vapor. The investigation included the following activities:

- Performance of a geophysical survey prior to ground-intrusive activities to identify underground utilities and anomalies indicative of potential USTs and to mark out proposed sampling locations;
- Advancement of 27 soil borings and collection of 48 discrete soil samples, including three duplicate samples, for laboratory analysis;
- Conversion of five soil borings into temporary monitoring wells and collection of eight groundwater samples, including three duplicate samples, for laboratory analysis;
- Installation of six temporary soil vapor probes and collection of six soil vapor samples for laboratory analysis; and
- Collection of quality assurance/quality control (QA/QC) samples, including three trip blank samples, three field blank samples, and three ambient air samples, for laboratory analysis.

Field observations are summarized below:

- Various underground utilities were located across the northeastern part of the site including water, sewer, electric, gas, fuel, telecommunication, manholes, and unknown structures. Subsurface water utility lines were identified in the central part of the site close to the northwestern site boundary, and a stormwater outfall was identified in the east-central part of the site along the Echo Bay shoreline.

- Anomalies indicative of USTs were not identified; however, a suspect fuel line was identified in the northeastern part of the site between the Annex building and a one-story building to its east. Additionally, a vent pipe was observed along the eastern corner of the Annex building proximate to the suspect fuel line.
- Historic fill, consisting of gray-to-brown medium-grained sand with varying amounts of fine-grained sand, silt, clay, gravel, red brick, concrete, and wood, was observed from the surface of the site to depths between 1 and 14 feet below grade surface (bgs). Native soil, consisting of gray-to-brown, fine- to medium-grained sand with varying amounts of fine- to medium-grained sand, silt, clay, weathered rock, and gravel, was encountered beneath historic fill. Refusal was encountered due to inferred bedrock (weathered rock) in the 17 borings between about 2 feet bgs in boring MM\_SB03 to about 25 feet bgs in boring AM\_SB06.
- Groundwater was observed at depths from about 5.71 feet bgs in the southwestern part of the site to 23.1 feet bgs in the northeastern part of the site and was inferred to flow southeast towards Echo Bay.
- Petroleum-like odors and photoionization detector (PID) readings of up to 64.5 parts per million (ppm) were observed in six soil borings in the central and southwestern parts of the site.
- A sheen was apparent on groundwater purged from temporary monitoring wells MM\_MW07, NS\_MW02, and NS\_MW05. In addition to a visible sheen, petroleum-like odors and a headspace PID reading of 1.2 ppm were apparent in temporary monitoring well NS\_MW05 and yellowish-colored purge water, petroleum-like odors and a headspace PID reading of 571.5 ppm were apparent in temporary monitoring well MM\_MW07.

VOCs, SVOCs, PCBs, pesticides and metals were detected in soil at concentrations above the UU and/or RURR SCOs. Acetone was detected in soil samples across the site and is likely a laboratory artifact. Petroleum-related VOCs were encountered in soil in the southwestern part of the site in MM\_SB07. SVOCs were detected in soil samples from across the site. The detection of the pesticide 4,4'-DDE above the UU SCO in the central part of the site may be related to historical use and application of pesticides, or it may be a component of historic fill. PCB concentrations above applicable regulatory standards were broadly reported across the southwestern part of the site, in close vicinity to the Echo Bay shoreline. The highest PCB detection in soil (3,270 milligrams per kilogram [mg/kg] in MM\_SB08\_10-12) exceeded the United States Environmental Protection Agency (USEPA) Toxic Substances Control Act (TSCA) limit of 50 mg/kg. The source of PCBs in soil is unknown. Concentrations of metals above applicable regulatory standards were detected across the site.

VOCs, SVOCs, PCBs, and dissolved metals were detected above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (collectively referred to as SGVs) in temporary monitoring wells across the site. Pesticides were not detected in any of the groundwater samples analyzed. Petroleum-related VOCs were identified in

groundwater in the southwestern and central parts of the site. SVOCs were detected in three of the five groundwater samples; the presence of SVOCs in groundwater is likely due to suspended solids in the water column of the temporary monitoring wells. Dissolved metals detected in groundwater, with the exception of antimony and arsenic (detected in the central part of the site within NS\_MW02), are common earth metals, and reflect background conditions.

Two VOCs, tetrachloroethene (PCE) and methylene chloride, were detected in soil vapor samples collected from the central and northeastern parts of the site at concentrations above the NYSDOH Decision Matrix B thresholds that trigger recommendations ranging from “no further action” to “mitigate.” Total VOC concentrations were detected at a maximum concentration of 10,900 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) in NS\_SV02. Petroleum-related and chlorinated VOCs were detected in soil vapor. The detection of chlorinated VOCs in soil vapor may be related to an unidentified on-site or off-site source.

September 2020 Geotechnical Report, prepared by Langan

Langan completed a geotechnical investigation for the site and the adjoining City DPW Yard site (BCP No. C360101) to evaluate subsurface conditions within and around the proposed Pratt Landing development area. The assessment included the advancement of 13 geotechnical borings and completion of nine test pits. Relevant findings from the geotechnical investigation are summarized below:

- The borings and test pits indicate site stratigraphy consists of a fill layer beneath the surficial concrete and asphalt covered surfaces to depths of about 1 to 14 feet bgs. The fill generally consisted of dark brown sand with varying amounts of gravel, wood, roots, brick, and concrete. Alluvial deposits consisting of dark brown to gray sand with varying amounts of clay, silt, and gravel were observed below the fill layer. Bedrock was encountered across the AMN site at depths from about 5 to 35 feet bgs.

## 2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The RI was implemented between November 2020 and January 2021 to investigate areas of concern (AOC) and to determine the nature and extent of contamination in soil, groundwater, and soil vapor, to the extent necessary to design a remedy that will be protective of human health and the environment. Langan conducted the RI in accordance with the NYSDEC-approved October 5, 2020 Remedial Investigation Work Plan, 6 NYCRR Part 375, DER-10 (May 2010), and the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 and subsequent updates). In support of the May 10, 2023 BCA Amendment, an SRI was conducted in February 2023 to evaluate environmental conditions within the proposed extension to the BCP site boundary along the Echo Bay shoreline in the southern part of the BCP site. The findings of the SRI are incorporated herein and are presented in the May 11, 2023 Addendum to the RIR. The December 15, 2021 RIR and the May 11, 2023 Addendum to the RIR are included in Appendix B.

### 2.1 Summary of the Remedial Investigation

The RI consisted of the following:

#### Geophysical Survey

- Conducted a geophysical survey to identify anomalies indicative of USTs and associated piping and clear boring locations from physical and/or subsurface utilities and structures

#### Soil Borings and Sampling

- Advanced 42 soil borings
- Field screened soil borings for environmental impacts using visual and olfactory methods and with a PID equipped with a 10.6 electron volt (eV) bulb
- Collected 81 grab soil samples (including five duplicate samples)

#### Monitoring Well Installation and Sampling

- Installed 18 permanent groundwater monitoring wells and collected 19 groundwater samples from all newly installed wells with the exception of EW17 (including two duplicate samples)
- Surveyed newly installed groundwater monitoring wells and performed synoptic gauging of groundwater depths to evaluate local groundwater flow direction

#### Soil Vapor, Sub-slab Vapor, Indoor Air, and Ambient Air Sampling

- Installed four soil vapor points and four temporary sub-slab vapor points and collected four soil vapor samples, four sub-slab vapor samples, two indoor air samples, and one ambient air sample

### 2.1.1 Geophysical Survey

On November 19 and December 2, 2020, Nova Geophysical Services conducted a geophysical survey using ground-penetrating radar and electromagnetic detection equipment to document potential subsurface utilities, USTs, and subsurface anomalies at proposed investigation locations. Access for the geophysical survey was limited by equipment storage throughout the site.

### 2.1.2 Soil Investigation

Lakewood Environmental Services Corp (Lakewood) of Smithtown, New York advanced 42 soil borings (EB01 through EB41 and EB37\_N\_5) across the site footprint. Boring locations were selected to investigate the potential AOCs. Boring termination depths ranged from about 3 to 18 feet bgs. Soil was screened for visual, olfactory, and instrumental evidence of a chemical or petroleum release, 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 eV lamp.

Eighty-one soil samples, including five duplicate samples, were collected for laboratory analysis. Up to four grab soil samples were collected for laboratory analysis from each boring location, depending on the depth of the boring and field screening observations, to further investigate AOCs and to provide vertical and horizontal delineation of identified impacts. Samples from the borings were collected as follows:

- For petroleum-related AOCs, soil samples were collected from the interval with the greatest observable impact (staining, odor, PID readings above background) and from the interval immediately beneath impacted soil that did not exhibit signs of contamination and/or native soil.
- To investigate historic fill, soil samples were collected from an interval within the historic fill layer and at the top of the observed native soil. Sampling was biased toward intervals where visual, olfactory, or instrumental evidence of a chemical or petroleum release were apparent.

Soil samples collected to investigate AOC 1 were analyzed as follows:

- Target Compound List (TCL) VOCs by USEPA methods 8260C/5035
- TCL SVOCs by USEPA method 8270D

Soil samples collected to investigate AOC 2 were analyzed as follows:

- PCBs by USEPA method 8082A

Soil samples collected to investigate AOC 3 were analyzed as follows:

- TCL VOCs by USEPA methods 8260C/5035
- NYSDEC list of Per- and Polyfluoroalkyl Substances (PFAS) by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

Soil samples collected to investigate AOC 4 were analyzed as follows:

- Target Analyte List (TAL)/Part 375 List metals (including hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/9010C/7196A.
- Cyanide by USEPA Method 9010C

Soil samples collected to investigate AOC 5 were analyzed as follows:

- TCL VOCs by USEPA methods 8260C/5035
- TCL SVOCs by USEPA method 8270D
- PCBs by USEPA method 8082A
- TAL/Part 375 List metals (including hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/7196A
- Cyanide by USEPA Method 9010C
- Pesticides and herbicides by USEPA methods 8081B and 8151A, respectively
- NYSDEC list of PFAS by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

Soil samples collected to investigate AOC 6 were analyzed as follows:

- TCL VOCs by USEPA methods 8260C/5035
- TCL SVOCs by USEPA method 8270D
- NYSDEC list of PFAS by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

Samples submitted for VOC analysis were collected directly from undisturbed soil retained in the acetate liner into laboratory-supplied TerraCore soil samplers. The remaining sample volume was homogenized and placed in laboratory-supplied containers for additional analyses. The sample containers were labeled, placed in a laboratory-supplied cooler, and packed on ice in an attempt to maintain a temperature of about 4°C. The samples were picked up and delivered via courier service to Alpha Analytical Inc. (Alpha) under standard chain-of-custody protocol for analysis using the latest USEPA methods. Alpha is an NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory located in Westborough, Massachusetts.

### 2.1.3 Groundwater Investigation

Eighteen soil borings were converted into permanent groundwater monitoring wells EW01 through EW07, EW09 through EW15, EW17, EW19, EW21, and EW22. The permanent monitoring wells were installed by inserting 4 to 10 feet of 2-inch-diameter, schedule 40, 0.02-inch-slotted polyvinyl chloride (PVC) screen at the base of the well, and attaching a PVC riser to grade.

Groundwater samples were collected at least one week following well development from December 11, 2020 to January 6, 2021. One groundwater sample was collected from each monitoring well, with the exception of EW17, to characterize groundwater conditions and to investigate potential groundwater impacts associated with the AOCs. Following development, EW17 did not produce groundwater; thus, a groundwater sample was not collected. Duplicate groundwater samples were collected from monitoring wells EW15 and EW21.

Samples were collected in accordance with the USEPA low-flow groundwater sampling procedure (“Low Stress [low-flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells,” dated July 30, 1996 and revised September 19, 2017) to allow for collection of representative samples. Prior to sample collection, groundwater was purged from each well while monitoring physical and chemical groundwater parameters (i.e., pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential). Groundwater was purged until physical and chemical groundwater parameters stabilized or after the well was purged for one hour, whichever was sooner. Groundwater samples were collected with a peristaltic pump with dedicated polyethylene tubing.

Groundwater samples were collected directly from the pump discharge line into laboratory supplied containers that were sealed, labeled, and placed in a cooler containing ice for delivery to Alpha. The samples were picked up and delivered via courier service to Alpha under standard chain-of-custody protocol for analysis using the latest USEPA methods.

Groundwater samples collected to investigate AOC 1 were analyzed as follows:

- TCL VOCs by USEPA method 8260C
- TCL SVOCs by USEPA method 8270D

Groundwater samples collected to investigate AOC 2 were analyzed as follows:

- PCBs by USEPA method 8082A

Groundwater samples collected to investigate AOC 3 were analyzed as follows:

- TCL VOCs by USEPA method 8260C
- NYSDEC list of PFAS by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

Groundwater samples collected to investigate AOC 4 were analyzed as follows:

- TAL/Part 375 metals (field-filtered and unfiltered) by USEPA method 6010C/7470
- Cyanide by USEPA Method 9012B

Groundwater samples collected to investigate AOC 5 were analyzed as follows:

- TCL VOCs by USEPA method 8260C
- TCL SVOCs by USEPA method 8270D
- PCBs by USEPA method 8082A
- Metals (field-filtered and unfiltered) by USEPA method 6010C/7470
- Cyanide by USEPA Method 9012B
- Pesticides and herbicides by USEPA methods 8081B and 8151A, respectively
- NYSDEC list of PFAS by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

Groundwater samples collected to investigate AOC 6 were analyzed as follows:

- TCL VOCs by USEPA methods 8260C/5035
- TCL SVOCs by USEPA method 8270D
- NYSDEC list of PFAS by USEPA method 537M
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary

#### *2.1.4 Soil Vapor Investigation*

Four sub-slab soil vapor points (VP01 through VP04) and four soil vapor points (VP05 through VP08) were installed throughout the site. Sub-slab vapor points were installed using an electric hammer drill to approximately 2 inches below the base of existing concrete slabs. Soil vapor points were installed using a Geoprobe 6610DT drill rig up to about 16 feet bgs (about 2 feet above the water table or borehole refusal). For QA/QC purposes, one ambient air sample was collected during soil vapor, sub-slab, and indoor air sampling. Soil vapor sampling was conducted in accordance with the October 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Two indoor air samples (IA01 and IA02) were collected concurrently with the sub-slab, soil vapor, and indoor air samples.

Soil vapor, ambient air, and indoor air samples were analyzed for VOCs by USEPA Method TO-15.

As a QA/QC measure, an inert tracer gas (helium) was introduced into an above-grade sampling chamber to ensure that the sampling points were properly sealed above the target sampling depth, thereby preventing subsurface infiltration of ambient air. Each soil vapor probe was purged using a MultiRAE meter at a rate of 0.2 liters per minute (L/min) to evacuate a minimum of three sample volumes prior to sample collection. The multi-gas monitor was used to screen the soil vapor for the presence of VOCs. Following purging, each soil vapor point was sampled using laboratory-provided, 2.7- or 6-liter air canisters equipped with 2-hour sample interval flow controllers. Soil vapor, ambient air, and indoor air samples were analyzed by Alpha for VOCs by USEPA Method TO-15.

## **2.2 Summary of the Supplemental Remedial Investigation**

The SRI consisted of the following:

### Soil Borings and Sampling

- Advanced 3 soil borings
- Field screened soil borings for environmental impacts using visual and olfactory methods and with a PID equipped with a 10.6 eV bulbAI
- Collected 5 grab soil samples (including one duplicate sample)

#### *2.2.1 Soil Investigation*

Lakewood advanced three soil borings (AMN\_SB01 through AMN\_SB03) on February 24, 2023 using a Geoprobe 6610DT and a 3-inch-diameter barrel hand auger. The boring locations were selected to provide representative data for the extension of the BCP site boundary. Two soil borings (AMN\_SB01 and AMN\_SB03) were advanced to 12 feet bgs using a Geoprobe 6610DT direct-push drill rig equipped with a MacroCore sampler with 4-foot-long acetate liners. One soil boring (AMN\_SB02) was advanced to 4 feet bgs with a 3-inch-diameter barrel hand auger due to accessibility issues with the drill rig at this location. Recovered soil was screened continuously to the boring termination depth for organic vapors with a PID equipped with a 10.6 eV bulb and for visual and olfactory evidence of environmental impacts (e.g., staining and odor).

Five soil samples, including one duplicate sample, were collected for laboratory analysis. Two grab soil samples were collected from soil boring AMN\_SB01, and one grab soil sample was collected from soil borings AMN\_SB02 and AMN\_SB03 for laboratory analysis. Soil samples were collected from shallow fill (about 0 to 2 feet bgs) in each soil boring and also from the groundwater interface in AMN\_SB01. Soil samples were analyzed for one or more of the following parameters:

- TCL VOCs by USEPA methods 8260C/5035
- TCL SVOCs by USEPA method 8270D
- PCBs by USEPA method 8082A

- Pesticides and herbicides by USEPA methods 8081B and 8151A, respectively
- TAL/Part 375 List metals (including hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/7196A
- Cyanide by USEPA Method 9010C
- 1,4-dioxane by USEPA Method 8270D with SIM isotope dilution where concentrations indicated it necessary
- NYSDEC list of PFAS by USEPA method 537M

Samples submitted for VOC analysis were collected directly from undisturbed soil retained in the acetate liner into laboratory-supplied TerraCore soil samplers. The remaining sample volume was homogenized and placed in laboratory-supplied containers for additional analyses. The sample containers were labeled, placed in a laboratory-supplied cooler, and packed on ice to maintain a temperature of about 4°C. The samples were picked up and delivered via courier service to Alpha under standard chain-of-custody protocol for analysis using the latest USEPA methods.

### **2.3 Significant Threat**

A determination of whether the site poses a significant threat to human health and the environment will be made by NYSDEC and NYSDOH. A copy of the significant threat determination will be provided as Appendix C in the final RAWP.

### **2.4 Geological Conditions**

#### *2.4.1 Regional and Site Geology*

Based on the findings of previous investigations, the site is underlain by historic fill predominantly consisting of gray-to-brown, fine- to medium-grained sand with varying amounts of silt, clay, gravel, brick, concrete, asphalt, and wood that extends from about 1 to 18 feet bgs. In some areas, the historic fill layer extends to shallow bedrock. Native soil, consisting of gray-to-brown, fine- to medium-grained sand with varying amounts of silt, clay, and gravel, was encountered beneath historic fill.

According to the September 2020 Geotechnical Report for the Pratt Landing Development, prepared by Langan, bedrock consisting of light to dark gray gneiss with varying amounts of quartz and biotite inclusions was encountered across the site between 5 and 35 feet below grade (elevation [el] 19 to -19) and generally slopes southeast towards Echo Bay.

#### *2.4.2 Regional and Site Hydrogeology*

Groundwater flow is typically topographically influenced, as shallow groundwater tends to originate in areas of topographic highs and flow toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeological network often governs groundwater flow at depth or in the bedrock aquifer. Groundwater depth and flow direction are also subject to

hydrogeologic and anthropogenic variables such as precipitation, evaporation, extent of vegetation cover, and coverage by impervious surfaces. Other factors influencing groundwater include depth to bedrock, the presence of artificial fill, and variability in local geology and groundwater sources or sinks.

Synoptic groundwater measurements were obtained during the RI. Groundwater depths ranged from about 1 to 9 feet bgs, corresponding to el 2.64 to 8.27. Groundwater flow was evaluated and determined to generally flow to the south towards Echo Bay. Underground utilities, stratigraphy, and other subsurface structures may locally influence the direction of groundwater flow. Groundwater in the City of New Rochelle is not used as a potable water source.

#### *2.4.3 Wetlands*

Wetlands on or near the site were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands map. Southern parts of the site are located within an E1UBL wetland area. According to the NYSDEC Wetlands Mapping database, the southern-adjointing Echo Bay has been mapped as an E1UBL estuarine and marine deepwater wetland with adjacent tidal wetlands. The NYSDEC has jurisdiction over a tidal wetland adjacent area, the extent of which will be defined in connection with a pending tidal wetland permit application for reconstruction and stabilization of the shoreline along the site boundary with Echo Bay. According to a study that was conducted as part of the northeast-adjointing City DPW Yard BCP Site RIR, groundwater levels along the Echo Bay shoreline are tidally influenced.

### **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 RI and previous reports to produce a simplified framework for understanding the distribution of impacted media, potential migration pathways, and potentially complete exposure pathways, as discussed below.

##### *2.5.1.1 Potential Sources of Contamination*

Potential sources of contamination include historical and current PBS, historic fill, and historical site operations.

Evidence of petroleum-related contamination in soil, groundwater, and soil vapor in the northern, eastern, and southwestern parts of the site are likely related to historical releases from historical and current PBS and current and historical site operations.

PCBs were detected in soil samples collected from across the site, with higher concentrations detected along the Echo Bay Shoreline. Low-levels of PCBs in soil may be related to historic fill, as noted below. Higher localized concentrations in the southwestern part of the site may be related to historical site use as a marina, as PCBs were often added to marine paints to enhance adhesion and anti-corrosion properties of the paint from the 1940s through the late 1970s, when PCBs were banned in the United

States. Localized concentrations of PCBs along the Echo Bay shoreline may also be related to an off-site source.

CVOCs were detected in soil vapor, but below concentrations that warrant mitigation, per the NYSDOH Soil Vapor Guidance. A site source of CVOCs was not identified.

Metal-impacted soil is present across the site, with higher concentrations of metals detected across the southwestern and southern parts of the site. The metal impacts may be associated with historical site uses or historic fill, as noted below.

Historic fill encountered beneath surface cover to about 1 to 18 feet bgs originated from unidentified source areas and was placed as backfill at an unknown date. In some areas, historic fill extends to the surface of shallow bedrock. Historic fill contains SVOCs, PCBs, pesticides, and metals at concentrations above the UU and/or RURR SCOs. The presence of SVOCs in soil samples may also be related to petroleum impacts (where their presence is co-located with VOC detections and/or observations of staining, odors and/or PID readings in soil). The presence of pesticides may also be related to historical application of pesticides.

#### *2.5.1.2 Exposure Media*

The impacted media include soil, groundwater, and soil vapor. Petroleum-related VOCs and SVOCs were detected in soil and groundwater primarily in the southwestern and central parts of the site. Contaminants associated with historic fill (with detections of SVOCs, pesticides, PCBs and metals) were detected in surficial soil to depths of 8 feet bgs across the site. CVOCs (PCE) were detected in soil vapor, sub-slab vapor, and indoor air samples collected from across the site.

#### *2.5.1.3 Receptor Populations*

Current receptor populations include the community surrounding the site and on-site workers associated with use of the site as a staging and storage area. During site redevelopment, human receptors will be limited to remediation and construction workers, authorized guests visiting the site, and the community and pedestrians adjacent to the site. Under future conditions, receptors will include the residential and commercial use occupants, employees, and the nearby community, including children.

### *2.5.2 Description of Areas of Concern*

The following AOCs have been identified based on the results of the RI. AOC locations are shown on Figure 2.

#### *2.5.2.1 AOC 1: Petroleum Bulk Storage and Related Impacts*

On-site petroleum impacts, as evidenced by odors, staining, elevated PID readings and/or sheen, and petroleum-related VOCs detected above regulatory criteria, were identified in soil and groundwater in former PBS areas and along the Echo Bay Shoreline as shown on Figure 2. Petroleum-related VOCs were also detected in sub-slab soil vapor, soil vapor, indoor air, and ambient air samples within former building

footprints and within the northern part of the site. Petroleum impacts are attributed to former on-site PBS and historical releases.

#### *2.5.2.2 AOC 2: PCB Impacts*

PCB contamination was identified in soil samples collected in the southwestern part of the site and is related to historical on-site or off-site uses. Total PCBs were detected at concentrations above the UU SCOs in soil samples collected from borings EB01 through EB04, and delineation borings EB28, EB30, EB31, and EB32. Total PCBs were also detected above the RURR SCOs in soil samples collected from borings EB01, EB03, EB04, and EB30. Additionally, total PCBs were detected above the UU SCOs in soil samples collected from borings EB09, EB14, and EB21, which are located outside of AOC 2. These PCB concentrations are attributable to the quality of historic fill and are captured in AOC 5.

#### *2.5.2.3 AOC 3: CVOCs in Soil Vapor*

No on-site source of CVOCs was identified in soil or groundwater. Concentrations of CVOCs detected in soil vapor and/or indoor air during the LSI and RI do not indicate the presence of an on-site source; however, active mitigation may be necessary in a localized area surrounding NS\_SV02 in the central part of the site (former Lot 0120) under the future development scenario.

#### *2.5.2.4 AOC 4: Metal-Impacted Soil/Fill*

Metals impacts to soil in the central, southern, and southwestern parts of the site, as evidenced by concentrations of compounds in soil above the UU and/or RURR SCOs, were identified and may be attributed to historical marina and boat yard uses, which likely included boat maintenance, repair, and painting operations. One of the metals detected in soil, lead, was also present in groundwater at concentrations above the SGVs; however, the detections are likely a result of entrained sediment within the unfiltered groundwater samples because dissolved lead did not exceed the SGV. Concentrations of metals detected above the UU SCOs and outside of the anticipated AOC area in soil samples collected from borings EB12, EB13 through EB15, EB21, EB22, EB35, and EB38 are attributed to AOC 5.

#### *2.5.2.5 AOC 5: Historic Fill*

Historical topographic maps indicated increasing grade elevations over time; as such, land reclamation likely occurred to create the site as it exists today. Historic fill is ubiquitous across the entire site and generally found immediately below surface cover to depths between about 1 and 18 feet bgs across the site, and in some areas extends to the surface of shallow bedrock.

SVOCs detected in soil samples are attributed to historic fill quality and creosote-treated timber piles. Pesticides, PCBs, and metals in soil are attributed to historic fill. Antimony, iron, magnesium, manganese, sodium, and thallium detected in groundwater samples above the SGVs are indicative of regional, naturally-occurring groundwater conditions. SVOCs detected in groundwater are likely the result of entrained historic fill sediment.

### 2.5.3 *Nature and Extent of Contamination*

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

#### 2.5.3.1 *Soil Contamination*

Soil contamination, characterized by field observations and concentrations of contaminants exceeding the NYSDEC Part 375 UU and/or RURR SCOs, is attributed to 1) historical and current PBS, 2) the presence of historic fill, and 3) historical site operations. Soil sample results are shown on Figures 3A, 3B, 3C, and 3D.

##### 2.5.3.1.1 *SVOC-, PCB-, Metal-, and/or Pesticide-Contaminated Soil*

Historic fill is present throughout the site and generally varies in thickness between about 1 and 18 feet. Historic fill was generally characterized as grayish brown, fine- to medium-grained sand with varying amounts of silt, clay, gravel, brick, concrete, asphalt, and wood. Contaminants of concern (COC) associated with historic fill include SVOCs, PCBs, metals, and pesticides.

##### 2.5.3.1.2 *Metals-Impacted Soil/Fill*

Metals, including arsenic, barium, cadmium, trivalent chromium, copper, lead, mercury, hexavalent chromium, nickel, selenium, and zinc were detected in historic fill and the underlying native interval within the southern, southwestern, and central parts of the site.

##### 2.5.3.1.3 *Petroleum-Related Contamination*

Field indications of petroleum impacts including odors, staining, and/or PID readings above background were identified in soil samples collected throughout the site. Three petroleum-impacted areas were identified across the site as shown on Figure 2. In addition, soil from five borings outside of these three areas in the central and southwestern parts of the site also exhibited petroleum-like odors and concentrations of petroleum-related VOCs marginally above the UU SCOs.

The petroleum-impacted area in the southwestern part of the site is characterized by PID readings above background conditions, petroleum-like odors, and/or staining from 5 to 14 feet bgs in borings EB03, EB04, EB32, and MM\_SB07. The horizontal extents of the petroleum impacts in the southwestern part of the site were delineated to the northwest by the absence of petroleum impacts in EB30 and EB29; to the northeast by EB07 and EB33; to the southeast by EB34 and the site boundary; and to the southwest by EB02 and EB30. The vertical extents of the petroleum impacts were delineated by borehole refusal due to presumed bedrock at 13 feet bgs in MM\_SB07 and lack of petroleum-like impacts in EB04 from 9.5 to 13.5 feet.

The petroleum-impacted area in the central part of the site is characterized by PID readings above background conditions, petroleum-like odors, and/or staining in borings EB13, EB14, and NS\_SB02, in addition to concentrations of petroleum-related VOCs in groundwater in monitoring wells EW13 and NS\_MW02. Petroleum-related impacts to soil in the central part of the site are limited to petroleum-

related field observations, and no petroleum-related VOCs or SVOCs were detected at concentrations above the UU or RURR SCOs. These petroleum-related field observations were horizontally delineated by lack of petroleum-like odors and/or staining to the west by NS\_SB07, to the east by EB35, and to the south by NS\_SB08.

The petroleum-impacted area in the northern part of the site is characterized by PID readings up to 224.2 ppm and petroleum-like odors identified from 15 to 16 feet bgs in boring EB37. The area historically contained ASTs, a suspect fuel line, and evidence of USTs. Petroleum-related VOCs and SVOCs were not detected at concentrations above the UU SCOs in any soil samples from this area. Petroleum-related field observations were horizontally delineated to the northwest by EB37\_N\_5 and EB36, northeast by EB17, and southeast by AM\_SB01. The vertical extents of the petroleum impacts were delineated by borehole refusal due to presumed bedrock at 16 feet bgs in EB37 and EB37\_N\_5.

The petroleum-impacted areas across the site encompass about 10%± of the total site area. Petroleum-related contamination in soil is likely related to historical and current PBS and former site uses.

#### 2.5.3.1.4 *PCB Contamination*

PCB contamination, as evidenced by concentrations of total PCBs above the UU and/or RURR SCOs within soil samples collected from 0 to 12 feet bgs, was identified in the southwestern part of the site and the central part of the site along the Echo Bay waterfront. The depth of PCB impacts was delineated vertically (as evidenced by the absence of analytical data indicating PCBs above the UU SCOs or borehole refusal). Total PCBs above the UU SCOs in the southwestern part of the site are horizontally delineated to the north by EB05, EB10, and EB11, and to the east, south, and west by the site property boundaries. The PCB impacts in EB14 are horizontally delineated to the northwest by NS\_SB07, northeast by NS\_SB02, southeast by NS\_SB08, and southwest by the site property boundary. The PCB impacts in EB21 are delineated to the northeast by EB22, southeast by the site property boundary, and southwest by NS\_SB10. Total PCBs above the UU SCO in SRI boring AMN\_SB03 are delineated to the northwest by EB22, to the southwest by SRI boring AMN\_SB02, and to the south and east by the site property boundary.

The presence of PCBs in shallow soil in the southwestern part of the site is attributable to former site operations (e.g., marine painting and/or electrical utilities). The presence of PCBs at concentrations above the UU and/or RURR SCOs in deeper native soil samples along the Echo Bay shoreline may be related to former on-site uses, the nearby former Consolidated Edison Echo Avenue Site, or overlying historic fill. The presence of PCBs at concentrations above the UU SCOs outside of AOC 4 are attributable to historic fill.

The remediation of TSCA-regulated PCB-impacted soil at the site will be conducted in accordance with a Self-Implementing Cleanup and Disposal of PCB Remediation Waste Plan (SIP). The SIP will be submitted to the USEPA for review and approval.

### *2.5.3.2 Groundwater Contamination*

Groundwater contamination, characterized by concentrations of contaminants exceeding the NYSDEC SGVs, is attributed to 1) historical and current PBS, 2) the presence of historic fill, and 3) historical site operations. Groundwater sample results are shown on Figure 4, and a groundwater elevation contour map is included as Figure 5.

Light non-aqueous phase liquid (LNAPL) was not encountered in any monitoring wells during the RI or LSI. Eleven petroleum-related VOCs and three petroleum-related SVOCs were detected above the SGVs in a sample collected from MM\_MW07 during the LSI; however, no petroleum-related VOCs or SVOCs were detected in EW06, EW07, or EW09 during the RI. Additionally, no petroleum-related impacts were identified in soil boring EB34 adjacent to LSI boring MM\_SB07. During the RI, two petroleum-related VOCs were detected marginally above the SGVs in a sample collected from EW13 in the central part of the site. Petroleum-related contamination in groundwater is minimal, has been delineated, and is attributed to historical and current PBS and former site uses.

Concentrations of polycyclic aromatic hydrocarbons (PAH) less than 2 micrograms per liter were detected in 11 wells during the LSI and RI. Given the absence of free product and because PAHs are not readily dissolvable in groundwater, PAH concentrations above the SGVs in groundwater samples across the site is likely related to entrained sediments from historic fill.

Dissolved metals were detected at concentrations above the SGVs in groundwater samples across the site, and are attributed to regional groundwater conditions and are not indicative of a release. Lead was detected in unfiltered groundwater samples at concentrations above the SGVs; however, dissolved lead was not detected at concentrations above the SGVs in groundwater. Therefore, the detections in unfiltered samples are likely the result of entrained sediment from historic fill.

### *2.5.3.3 Soil Vapor Contamination*

Eighteen VOCs, including CVOCs, were detected in soil vapor samples throughout the site. VOCs were detected in soil vapor at concentrations up to 592  $\mu\text{g}/\text{m}^3$  in VP05. Samples collected in the northern and western parts of the site contained PCE at concentrations between 2.31  $\mu\text{g}/\text{m}^3$  and 2.87  $\mu\text{g}/\text{m}^3$ .

The CVOCs in soil vapor do not indicate the presence of an on-site source; however, active mitigation may be necessary in a localized area in the central part of the site (former Lot 0120) under the future development scenario. Soil vapor sample results are shown on Figure 6 and sub-slab and indoor air sample results are shown on Figure 7.

## **2.6 Environmental and Public Health Assessments**

### *2.6.1 Qualitative Human Health Exposure Assessment*

Based on the CSM developed based on the findings of the RI and the review of environmental data, complete on-site exposure pathways appear to be present in current conditions. Complete on-site

exposure pathways would only exist in construction-phase and future conditions in the absence of engineering controls (EC) and institutional controls (IC). The complete exposure pathways indicate that there is a risk of exposure to humans from site contaminants via exposure to soil, groundwater, and soil vapor if mitigation measures are not implemented.

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

#### *2.6.1.1 Current Conditions*

Contaminant sources include historic fill with varying concentrations of SVOCs, PCBs, pesticides, and metals; petroleum-impacted soil and groundwater containing varying concentrations of VOCs and/or SVOCs; metal-impacted soil; PCB-impacted soil; and soil vapor with PCE and petroleum-related VOCs.

Contaminant release and transport mechanisms include potential release and transport during penetration of the site cover for soil, groundwater, and soil vapor sampling and potential exposure through soil vapor intrusion into existing buildings. The potential receptor population is the on-site sampling personnel and the nearby community. Under current conditions, the likelihood of exposure to humans is limited due to the following:

- The site footprint is partially covered by continuous concrete building slabs and asphalt pavement, which prevent direct contact with soil, groundwater, and soil vapor. Exposed soil exists across the site; exposure to surficial soil through direct contact and inhalation may occur in these areas.
- The site is surrounded by locked construction fencing, and the Armory and Annex buildings are vacant and locked, preventing access to the community and limiting exposure via inhalation of impacted vapor by site workers in the existing buildings. Sampling activities are completed in accordance with a site-specific Construction Health and Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) that is designed to monitor and prevent exposure to soil, groundwater, and soil vapor contaminants.
- Groundwater at the site is not a potable water source.

#### *2.6.1.2 Construction/Remediation Activities*

During the excavation and foundation construction stage of redevelopment, which will include remediation, points of exposure include disturbed and exposed soil during excavation, dust and potential organic vapors generated during excavation, and contaminated groundwater encountered during excavation and/or dewatering operations. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of potential organic vapors arising from contaminated soil vapor and groundwater, and inhalation of dust originating from contaminated soil. The receptor population includes construction and remediation workers, and the nearby community.

All five elements exist; therefore, the potential for completed exposure pathways is present. The risk can be avoided by applying health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, maintaining site security, and wearing personal protective equipment (PPE). In accordance with a Health and Safety Plan (HASP)/CHASP, a RAWP, and a CAMP, measures such as conducting an air monitoring program, donning PPE, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. Such measures will prevent completion of these potential migration pathways.

#### *2.6.1.3 Proposed Future Conditions*

Under the proposed future conditions, some remaining contaminants may remain on site, depending on the remedy, and will, to a lesser extent, include those listed under current conditions. If remaining impacts exist and ECs and ICs are not implemented, points of exposure would potentially include cracks in the foundation of the proposed development, exposure during any future ground-intrusive work, or inhalation of vapors entering the building. The receptor population would include residential- and commercial-use occupants, employees, and the nearby community. The possible routes of exposure can be avoided or mitigated by maintenance of a site capping system (e.g., concrete building slabs, asphalt roadways and at least 2 feet of clean soil in landscaped areas); installation of a waterproofing/vapor barrier and/or active vapor mitigation controls in new buildings, if required; implementation of an SMP; and placement of an EE at the site.

#### *2.6.1.4 Human Health Exposure Assessment Conclusions*

1. In the absence of mitigation measures and controls, there is potential for exposure during remediation/construction activities. The primary exposure pathways are:
  - a. Dermal contact, ingestion, and inhalation of contaminated soil, groundwater, and/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 can be avoided or minimized by implementing CAMP and by following the appropriate CHASP, vapor and dust suppression, soil erosion and sediment control, site security measures, and following a NYSDEC-approved RAWP.

2. The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely. The site will be remediated and ICs and ECs will be in-place to mitigate any exposure risk related to remaining contamination. Further, regional groundwater is not used as a potable source in New Rochelle.
3. It is possible that a complete exposure pathway exists for the migration of site contaminants to off-site human receptors during current, construction-phase, and future conditions, primarily through exposure to surficial soil through direct contact and/or inhalation. Such exposure can be

prevented or mitigated by implementation of monitoring and control measures. Under future conditions, remediation and ECs and ICs would prevent completion of this exposure pathway.

#### *2.6.2 Fish & Wildlife Remedial Impact Analysis*

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. According to the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, an FWRIA was completed for the site and is included in Appendix K of the RIR, included in Appendix B of this RAWP. As outlined in the FWRIA, any potential soil impacts at the site are not expected to impact Echo Bay due to the proposed remediation and site redevelopment. The constructed areas that will not be improved with an impervious surface will have an at least 2-foot-thick clean soil cap, and the shoreline will be stabilized using a combination of rip rap, living shoreline, and bulkheads, which will prevent erosion of impacted soil to Echo Bay. Based on a review of groundwater data, groundwater impacts related to historical site operations are not migrating to Echo Bay.

### **3.0 DESCRIPTION OF REMEDIAL ACTION PLAN**

This section presents an evaluation of the proposed remedial alternatives. The proposed remedial alternatives are a Track 1 remedy for Alternative I and a Track 4 remedy for Alternative II. The proposed SCOs will be the UU SCOs for Alternative I (Track 1) and the RURR SCOs for Alternative II (Track 4).

The recommended remedial alternative, based on an evaluation of the alternatives, is a Track 4 restricted-residential cleanup requiring an environmental easement (EE) and an SMP to address remaining contamination.

This section is organized as follows:

- Section 3.1 describes the remedial standards, criteria, guidance, and objectives
- Sections 3.2 and 3.3 provide technical descriptions of:
  - Alternative I, a Track 1/UU remedy
  - Alternative II, a Track 4/RURR remedy
- Section 3.4 evaluates the remedial alternatives based on the BCP Remedy Selection Evaluation Criteria
- Section 3.5 discusses the recommended remedial alternative

#### **3.1 Standards, Criteria, and Guidance and Remedial Action Objectives**

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

Also, in accordance with DER-10, the remedial action objectives (RAO) 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 (SCG), which include:

- 6 NYCRR 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 Programs;
- 6 NYCRR Part 376 – Land Disposal Restrictions;
- 6 NYCRR Part 612 – Registration for Petroleum Storage Facilities (February 1992);
- 6 NYCRR Part 700-706 – Surface Water and Groundwater Classification Standards;
- 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;
- NYSDEC – Permanent Closure of Petroleum Storage Tanks (July 1988);
- NYSDEC – Sampling, Analysis, and Assessment of PFAS Under NYSDEC’s Part 375 Remedial Programs (June 2021);
- NYSDEC – Spill Response Guidance Manual;
- NYSDEC Commissioner Policy (CP)-43 – Groundwater Monitoring Well Decommissioning Policy (2009);
- NYSDEC CP-51 – Soil Cleanup Guidance (2010);
- NYSDEC DER-10 – Technical Guidance for Site Investigation and Remediation (2010);
- NYSDEC DER-23 – Citizen Participation Handbook for Remedial Programs (March 2010);
- NYSDEC DER-32 – Brownfield Cleanup Program Applications and Agreements (June 2017);
- 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) and subsequent updates; and
- Title 10 of the Official Compilation of Codes, Rules and Regulations of the State of New York, Chapter 1, Part 5-1 – Drinking Water Supplies, Public Water Systems.

Based on the results of previous subsurface investigations and the RI and SRI, the following RAOs have been identified:

RAOs	RAOs for Public Health Protection	RAOs for Environmental Protection
Soil	<ul style="list-style-type: none"> <li>Prevent ingestion/direct contact with contaminated soil</li> <li>Prevent inhalation exposure to contaminants volatilizing from soil</li> </ul>	<ul style="list-style-type: none"> <li>Prevent migration of contaminants that would result in groundwater contamination</li> </ul>
Groundwater	<ul style="list-style-type: none"> <li>Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards</li> <li>Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable</li> <li>Remove the source of groundwater contamination</li> <li>Prevent the discharge of contaminants to surface water and sediment</li> </ul>
Soil Vapor	<ul style="list-style-type: none"> <li>Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the site</li> </ul>	

### 3.2 Alternative I – Technical Description

Alternative I, a Track 1 remedy, would include implementation of the following remedial elements:

- Development and implementation of a CHASP and CAMP for the protection of on-site workers and the community during remediation
- Abatement of hazardous building materials within existing structures to remain on-site following remediation (Armory and Annex)
- As a pre-requisite to site remediation, removal of the surficial asphalt cover by the contractor and management of removed asphalt as C&D debris in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies will be the responsibility of contractors performing off-site transportation and disposal of C&D debris. The Remediation Engineer (RE) is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.
- Excavation and off-site disposal of contaminated soil exceeding Part 375 UU SCOs
- Installation of support of excavation (SOE) components as needed to facilitate the remedial excavation
- Screening of excavated soil for indications of contamination by visual, olfactory, and instrumental methods during intrusive site work
- Decommissioning and removal of any encountered USTs and ASTs in accordance with 6 NYCRR Part 613.0 and NYSDEC DER-10 Section 5.5

- Handling, transport, and off-site disposal of excavated soil in accordance with federal, state, and local rules and regulations for handling, transport, and disposal
- Dewatering as needed to allow for excavation below the groundwater table, and treatment and discharge of dewatering fluids in accordance with applicable regulations.
- Collection and analysis of confirmation endpoint soil samples to verify that Track 1 UU SCOs are met
- Import and placement of fill (e.g., virgin crushed stone, recycled concrete aggregate [RCA], soil) meeting Part 375 UU SCOs to backfill remedial excavations
- Completion of a soil vapor intrusion (SVI) evaluation

The Alternative I remediation extent is shown on Figure 8 and the requirements for each of the Alternative I tasks are described below.

### *3.2.1 On-Site Worker, Public Health, and Environmental Protection*

A site-specific CHASP has been developed and will be implemented during excavation and foundation construction to protect on-site Langan workers from accidents and acute/chronic exposures to the identified contaminated media. Each contractor performing RAWP operations on the site will be required to develop and enforce their own HASP that is consistent with Occupational Safety and Health Administration (OSHA) requirements and, at a minimum, meets the requirements of the CHASP in Appendix D. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using DustTrak aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will monitor perimeters for visible dust and odors. The environment will be protected by implementing and enforcing soil erosion prevention measures.

The CHASP is included in Appendix D. A site-specific CAMP was developed in accordance with the NYSDOH Generic CAMP included as Appendix E.

### *3.2.2 Excavation, SOE, and Contaminated Soil and Fill Removal*

Historic fill was identified from surface grade to depths of up to 18 feet bgs across the site, and contains SVOCs, PCBs, pesticides, and metals at concentrations exceeding the UU SCOs. To achieve a Track 1 remedy, soil exceeding the UU SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and disposed of off-site. An extensive SOE system would be necessary to facilitate the Track 1 remedial excavation.

The estimated remedial excavation would extend to between about 2 and 12 feet bgs. The estimated volume of soil that would require off-site disposal is about 61,100 cubic yards. The estimate is based on the removal of soil/fill across the site to depths of soil samples without any concentrations of compounds above the UU SCOs, the surface of apparent bedrock, or two feet below the deepest sample collected.

C&D debris generated during the remedial excavation will be handled, transported and disposed of in accordance with federal, state, and city regulations (including 6 NYCRR Part 360 Series regulations). Review and certification of hazardous building materials and C&D debris transport and disposal methodologies will be the responsibility of contractors performing demolition and off-site transportation and disposal of C&D debris. The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.

### *3.2.3 UST Removal*

A suspect fuel line was identified in the northeastern part of the site between the Annex building and a former building slab to the southeast. Additionally, a vent pipe was observed along the eastern corner of the Annex building proximate to the suspect fuel line. Any USTs, and/or associated appurtenances will be decommissioned, disposed of off-site, and registered with the Westchester County Department of Health and the NYSDEC PBS unit in accordance with 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC tank closure requirements including DER-10 Section 5.5. If encountered, petroleum-impacted soil will be excavated. Petroleum impacts at the groundwater table will be addressed through excavation and dewatering. Excavated petroleum-impacted soil will be stockpiled separately from non-petroleum-impacted soil, characterized, and disposed of off-site at a permitted disposal facility in accordance with applicable regulations. Given that the site-wide remedial excavation will extend beyond expected UST depths, confirmation endpoint samples will not be collected from UST excavations.

### *3.2.4 Excavation Dewatering and Treatment*

Construction dewatering will be required to accommodate excavation of soil exceeding the UU SCOs and will also act as a method of groundwater remediation (pump and treat) in conjunction with source removal and in-situ groundwater treatment (if needed). Prior to dewatering, the contractor will obtain a SPDES permit from the NYSDEC.

The dewatering system will include pretreatment (e.g., bag filters, carbon filtration, etc.) to reduce contaminant concentrations below surface water effluent limitations prior to discharge to Echo Bay. The dewatering and treatment system would be designed, operated and maintained by the Contractor's NYS-licensed Professional Engineer. Discharge of water generated during remedial construction to surface waters (e.g., Echo Bay) is prohibited without a SPDES permit.

### *3.2.5 In-Situ Groundwater Treatment (Contingency Measure)*

In the event that remedial excavation and the construction dewatering (pump and treat) system do not successfully decrease contaminant levels in groundwater, additional groundwater treatment measures would be considered. If additional groundwater treatment measures are required, a Remedial Design Document would be prepared and submitted to the NYSDEC and NYSDOH for review and approval. Depending on the concentrations remaining in site groundwater, additional treatment measures may include application of a groundwater treatment compound (i.e., oxygen release compound [ORC<sup>®</sup>], activated carbon [PetroFix<sup>™</sup>], or similar) in-situ to either degrade or adsorb petroleum-related

compounds. The Remedial Design Document will detail the in-situ groundwater treatment program including any pre-treatment investigations, the treatment plan, and performance monitoring.

### *3.2.6 Confirmation Endpoint Soil Sampling*

Confirmation soil samples will be collected from the remedial excavation base at a frequency of one per 900 square feet and from excavation sidewalls at a frequency of one per 30 linear feet per NYSDEC DER-10. Sidewall samples will be collected from within the building footprint unless SOE measures (e.g., sheeting, lagging, or secant piles) preclude access to soil sidewalls. Approximately 226 confirmation endpoint soil samples, including QA/QC samples, will be collected to confirm remedial performance and will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals (including hexavalent and trivalent chromium), PFAS, and 1,4-dioxane. Confirmation endpoint samples will not be collected where precluded by bedrock. Over-excavation may be required as necessary to remove soil found to contain contamination exceeding the UU SCOs. If over-excavation is completed, additional confirmation samples will be required.

Considering that groundwater is shallower than the remedial excavation depth in most places, samples may be collected in-situ prior to excavation during a remedial design investigation. A reduced-frequency endpoint sampling plan may be proposed, with supporting rationale, in accordance with DER-10 Section 1.6.

### *3.2.7 Excavation Backfill*

In areas that are excavated deeper than development grade for remedial purposes, the excavation areas will be backfilled to raise the site to development grade. Backfill will consist of soil/fill meeting the UU SCOs or other acceptable soil/fill such as virgin quarry stone or RCA from a NYSDEC-registered facility. All imported soil/fill must be sourced from appropriately licensed facilities with no history of environmental contamination. If sampling of the proposed soil/fill is required, qualified environmental personnel will collect representative samples at a frequency consistent with DER-10. The samples will be analyzed for 6 NYCRR Part 375 VOCs, SVOCs, pesticides/herbicides, PCBs, metals, and emerging contaminants, including PFAS, and 1,4-dioxane, by a NYSDOH ELAP-certified laboratory. No sampling of virgin quarry stone or RCA is anticipated unless the quarry stone or RCA is a blended product or contains fines in excess of 10% by weight passing through a No. 80 sieve. Documentation of the source of backfill must be provided to the NYSDEC for approval before it is imported and used on site. Upon meeting these criteria, the certified clean fill will be transported to the site and segregated from impacted soil/fill, as necessary, on plastic sheeting until used as backfill.

An estimated 65,800 cubic yards (volume of excavation plus 30% extra to account for compaction) of backfill will be required to raise the site to development grade upon completion of the Track 1 remediation. Backfill will comply with 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e), and Appendix 5.

### 3.3 Alternative II – Technical Description

Alternative II, a Track 4 remedy, would include implementation of the following remedial elements:

- Development and implementation of a CHASP and CAMP for the protection of on-site workers and the community during remediation activities
- Abatement of hazardous building materials within existing structures to remain on-site following site-wide remediation (Armory and Annex)
- As a pre-requisite to site remediation, removal of the surficial asphalt cover by the contractor and management of removed asphalt as C&D debris in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies will be the responsibility of contractors performing off-site transportation and disposal of C&D debris. The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.
- Site-wide excavation, excluding an about 19,300 square foot area in the northwestern part of the site, up to 2 feet bgs to install a composite cover system, and deeper excavation of petroleum- and PCB-impacted soil
- Screening of excavated soil for indications of contamination by visual, olfactory, and instrumental methods
- Decommissioning and removal of any encountered USTs and ASTs in accordance with 6 NYCRR Part 613.0 and NYSDEC DER-10 Section 5.5
- Handling, transport, and off-site disposal of excavated soil in accordance with federal, state, and local rules and regulations for handling, transport, and disposal
- Installation of SOE components as needed to facilitate the remedial excavation
- Dewatering as needed to allow for excavation below the groundwater table, and treatment and discharge of dewatering fluids in accordance with applicable regulations
- Collection and analysis of documentation soil samples, including QA/QC samples, in accordance with DER-10 at base of the remedial excavation
- Demarcation of remaining contaminated soil and fill outside of the proposed building footprints by survey and a high-visibility demarcation barrier for visual reference
- Import and placement of fill (e.g., virgin crushed stone, recycled concrete aggregate [RCA], soil) meeting the lower of Part 375 RURR and Protection of Groundwater (PGW) SCOs to backfill remedial excavations and facilitate EC installation. Requests for import of fill are subject to NYSDEC review and approval, and will include a Request to Import/Reuse Soil Form.

- Stabilization of the Echo Bay shoreline using a combination of rip rap, living shoreline, and bulkheads, which will prevent erosion of remaining contaminated soil to Echo Bay.
- Installation of below-grade sub-slab depressurization (SSD) system components in the proposed Block D2 (including a continuous waterproofing/vapor barrier membrane) for potential commissioning and active operation of the systems during site management, if warranted based on the results of a post-remediation SVI evaluation.
- Installation of a site-wide composite cover system consisting of concrete building foundation slabs and underlying waterproofing/vapor barrier membrane systems, exterior hardscapes (i.e., asphalt roadways, concrete sidewalks, pavers), landscaped areas with 2 feet of fill meeting the lower of Part 375 RURR and PGW SCOs, and a stabilized shoreline along Echo Bay to prevent future exposure to remaining contaminated soil.
- Establishment of use restrictions (i.e., ICs) including prohibitions on the use of groundwater from the site and prohibitions on sensitive site uses, such as farming or vegetable gardening in remaining site soil, to prevent future exposure to remaining contamination
- Recording of an EE referencing ECs and ICs to prevent future exposure to remaining contamination
- Publication of an SMP for long-term management of remaining contamination as required by the EE, including plans for: 1) IC/EC implementation, 2) monitoring, 3) operation and maintenance, and 4) reporting

Additionally, although not considered an EC, the development would include installation of a continuous waterproofing/vapor barrier membrane across future on-site building foundations. This design element would have the effect of eliminating potential exposure pathways for contaminated soil vapor that may migrate onto the site.

Track 4 SCOs are presented in Table 1. The Alternative II remediation extent is shown on Figure 9 and the requirements for each of the Alternative II tasks are described below.

### *3.3.1 On-Site Worker, Public Health and Environmental Protection*

A site-specific CHASP has been developed and will be implemented during excavation and foundation construction to protect on-site Langan workers from accidents and acute/chronic exposures to the identified contaminated media. Each contractor performing RAWP operations on the site will be required to develop and enforce their own HASP that is consistent with OSHA requirements and, at a minimum, meets the requirements of the CHASP in Appendix D. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using DustTrak aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will

monitor perimeters for visible dust and odors. The environment will be protected by implementing and enforcing soil erosion prevention measures.

The CHASP is included in Appendix D. A generic guidance for CAMP implementation is included in Appendix E.

### 3.3.2 *Excavation, SOE, and Contaminated Soil and Fill Removal*

To achieve a Track 4 remedy, contaminated soil will be excavated and disposed of off-site to remove source soil/fill and install ECs. Remedial excavation areas are presented in Figure 9 and summarized as follows:

- PCB-impacted hotspots (EB01, EB04, EB30, MM\_SB01, and MM\_SB08): PCB-impacted soil was encountered in the southwestern part of the site along the Echo Bay shoreline. PCB-impacted soil containing concentrations of PCBs above the RURR SCO will be excavated for off-site disposal. TSCA-regulated PCB-impacted soil will be excavated for off-site disposal pursuant to a USEPA-approved SIP per 40 CFR §761.61(a).
- Petroleum-impacted hotspot (MM\_SB07): excavation will extend to the surface of the groundwater table (anticipated 6 feet bgs) to remove petroleum-impacted source soil/fill, to the extent practicable.
- Lead-impacted hotspot (AMN\_SB02 and AMN\_SB03): lead-impacted soil was encountered in the southern part of the site along the Echo Bay shoreline. Excavation of an about 3,300-square-foot area will extend to up to 3 feet bgs to remove lead-impacted soil/fill, as feasible, during low-tide conditions.
- Site-wide excavation, excluding an about 19,300 square foot area in the northwestern part of the site, will extend up to 2 feet bgs, as needed, to facilitate the construction of the composite cover system (see Section 3.3.8).
  - If additional grossly contaminated soil is identified as defined by Part 375.1-2(u), remedial over-excavation will be performed and source soil/fill removed, as practicable. Remedial over-excavations will extend, at a maximum, to the groundwater table.

Metal-impacted soil with concentrations above the RURR SCOs may remain in-place following remedial excavation. In soil samples where metals were detected at concentrations above the RURR SCOs, dissolved-phase concentrations of the detected metals did not exceed the NYSDEC SGVs in adjacent groundwater samples. The absence of dissolved-phase metals in groundwater in metal-impacted soil areas indicates that metal-impacted soil is not impacting groundwater. Metal-impacted soil will be removed or managed in-place subject to implementation of engineering and institutional controls.

Any source soil/fill encountered during remedial excavation will be excavated to the extent practical and disposed of off-site. The estimated volume of historic fill and soil requiring removal and off-site disposal

for a Track 4 remedy is about 14,300 cubic yards. The extents of the anticipated Track 4 remedial excavation are shown on Figure 9.

### *3.3.3 UST Removal*

A suspect fuel line was identified in the northeastern part of the site between the Annex building and the former building concrete foundation slab to the south. Additionally, a vent pipe was observed along the eastern corner of the Annex building proximate to the suspect fuel line. Any USTs, and/or associated appurtenances will be decommissioned, disposed of off-site, and registered with the NYSDEC PBS unit in accordance with 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC tank closure requirements including DER-10 Section 5.5. If encountered in the UST grave, petroleum-impacted soil in the unsaturated zone will be excavated, as practicable. Petroleum-impacts at the groundwater table will be addressed through excavation (source removal) and/or in-situ treatment. Excavated petroleum-impacted soil will be stockpiled separately from non-petroleum-impacted soil, characterized, and disposed of off-site at a permitted disposal facility in accordance with applicable regulations. Documentation endpoint soil samples will be collected from the base and sidewalls of UST removal excavations (if any) in accordance with DER-10 Section 5.5.

### *3.3.4 Excavation Dewatering and Treatment*

Construction dewatering will be required to accommodate excavation of PCB-impacted soil in the southwestern part of the site. Dewatering will also be required to accommodate development-related excavation extending beneath the groundwater table. Prior to dewatering, the contractor will obtain a SPDES permit from the NYSDEC.

The dewatering system will include pretreatment (e.g., bag filters, carbon filtration, etc.) to reduce contaminant concentrations below surface water effluent limitations prior to discharge to Echo Bay. The dewatering and treatment system would be designed, operated and maintained by the Contractor's NYS-licensed Professional Engineer. Discharge of water generated during remedial construction to surface waters (e.g., Echo Bay) is prohibited without a SPDES permit.

### *3.3.5 Documentation and Confirmation Soil Sampling*

Post-excavation documentation endpoint samples will be collected at a reduced frequency in accordance with NYSDEC Division of Environmental Remediation (DER)-10 5.4 (b)(5)(iii), because the portions of the site-wide excavation will extend to between 2 and 12 feet bgs within clean native soil or, in the northeastern part of the site, bedrock. Endpoint samples will be collected from the base of the excavation at a frequency of one sample per 1,500 square feet. Samples will not be collected from the areas where excavation extends into bedrock. Sidewall samples will be collected from hotspot excavations where not precluded by SOE measures. Where a pre-design documentation sample meeting the NYSDEC RURR SCOs exists, a post-excavation confirmation endpoint sample will not be collected. It is anticipated that 121 post-excavation documentation endpoint soil samples and 16 post-excavation documentation sidewall samples, plus QA/QC samples, will be collected to document remedial performance. This amount may be

reduced depending on the area at which bedrock is encountered in development-related excavations. Documentation endpoint samples will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals (including hexavalent and trivalent chromium), PFAS, and 1,4-dioxane.

Confirmation endpoint samples will be collected from the excavation base within the TSCA-regulated PCB-impacted soil areas in accordance with a USEPA-approved SIP. Should an endpoint sample from the PCB-impacted areas in the southwestern part of the site not meet the cleanup goals established by the USEPA-approved SIP, over-excavation will be performed. Over-excavation will be performed to extend sidewalls and the base of the excavation by approximately 2 feet and a new confirmation sample will be collected, except where precluded by bedrock.

### *3.3.6 Excavation Backfill*

Import of fill will be required to backfill remedial excavations. An estimated 13,600 cubic yards (volume of excavation plus 30% extra to account for compaction) of backfill will be required to raise the site to development grade upon completion of the Track 4 remedial excavation. Backfill will comply with 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e), and Appendix 5. Requests for import of fill are subject to NYSDEC review and approval, and will include a Request to Import/Reuse Soil Form.

Backfill will consist of imported soil/fill meeting the lower of RURR and PGW SCOs, or consist of RCA, and/or virgin crushed stone from a mine or quarry. The fill will be segregated at a source/facility that is free of environmental contaminants. If sampling of the proposed fill is required, qualified environmental personnel will collect representative samples at a frequency consistent with DER 10. The samples will be analyzed for 6 NYCRR Part 375 VOCs, SVOCs, pesticides, herbicides, PCBs, metals, and PFAS by a NYSDOH ELAP-certified laboratory. Upon meeting these criteria, the fill will be transported to the site and segregated from impacted soil/fill, as necessary, on plastic sheeting until used as backfill. RCA imported to the site must be derived from recognizable and uncontaminated concrete and can only be used as backfill above the groundwater table. RCA is not acceptable for and will not be used as cover or drainage material. RCA must originate from a NYSDEC-permitted or registered C&D debris facility and contain less than 10% by weight passing a No. 10 sieve to be excluded from NYSDEC DER-10 sampling requirements. Virgin stone must originate from a permitted mine or quarry and contain less than 10% by weight passing a No. 10 sieve to be excluded from NYSDEC DER-10 sampling requirements.

### *3.3.7 Demarcation*

After excavation and soil/fill removal are completed and before backfilling with clean imported soil/fill and installing the composite cover systems, the top elevation of remaining contaminated soil will be surveyed by a New York State-licensed surveyor. Where impervious concrete building slabs are to be installed, installation of a demarcation layer will not be needed. Beneath landscaped areas and hardscapes (e.g., asphalt roadways, concrete sidewalks, pavers), a physical demarcation layer consisting of orange snow fencing, or equivalent, will be placed on the surface of remaining contaminated soil as a

visual reference layer. The survey and physical demarcation layer will constitute the written and physical record of the top of the subsurface zone that requires adherence to special conditions for disturbance of remaining contaminated soil defined in the SMP. The base of remedial excavation survey will be included in the Final Engineering Report (FER) and the SMP.

### 3.3.8 *Composite Cover System*

A site-wide composite cover system consisting of concrete building foundation slabs, landscaped areas with at least 2 feet of approved fill, hardscapes (i.e., asphalt roadways, concrete sidewalks, pavers), and a stabilized shoreline (e.g., rip-rap, timber bulkhead) will be installed. A site cover is required to allow for restricted-residential use of the site in areas where the upper 2 feet of exposed surface soil exceeds the applicable SCOs. Any proposed soil cover will consist of a minimum of 2 feet of fill (e.g., soil, stone, etc.) placed over a high-visibility demarcation layer. Soil covers will meet the lower of the RURR and PGW SCOs as set forth in Part 375-6.7(d). Additional requirements for imported backfill are described in Section 5.4.9. The composite cover system beneath new buildings will consist of a continuous concrete building slab underlain by a continuous waterproofing/vapor barrier membrane.

A composite cover system plan is shown on Figure 10.

### 3.3.9 *Installation of Sub-Slab Depressurization System*

To mitigate SVI, an SSD system(s) (including a continuous waterproofing/vapor barrier membrane) will be installed beneath part of the proposed Block D2 building slab(s). The SSD system(s) will be installed below occupied building spaces at the lowest level. The SSD system(s) will not be installed below building areas that extend to the groundwater table or beneath unoccupied or mechanically ventilated areas, such as parking garages. The anticipated extents of the SSD system(s) are depicted on Figure 9.

The SSD system(s) will be designed and developed in accordance with the NYSDOH Guidance. The SSD system(s) will be designed to convey a vacuum of 0.02 inches water column (inWC) but will be required to maintain a vacuum greater than 0.004 inWC. The SSD system(s) will consist of a sub-membrane collection layer (minimum 8-inch-thick layer of virgin ¾-inch stone) with horizontal perforated collection piping. The collection layer will underlie a continuous waterproofing/vapor barrier membrane that is integrally bonded to the concrete building foundation slab. The membrane will be resistant to petroleum-related contaminants and chlorinated solvents, have a minimum thickness of 20 mils, and be installed as a continuous sub-slab membrane. SSD system(s) design drawings will be provided to the NYSDEC and NYSDOH during the design development phase.

Riser pipes will be installed to convey the collected vapor to the roofs of the buildings. The riser pipes will either be connected to active vacuum blowers or passive wind turbines, pending the results of a post-remediation SVI evaluation. The SVI evaluation will include collection of co-located sub-slab vapor and indoor air samples after the concrete foundation slabs are installed and the buildings are fully enclosed. The sample results will be evaluated using the NYSDOH Guidance to determine if active SVI mitigation is

warranted. Completion and commissioning of the SSD system(s) will occur during the site management phase of the project, but prior to building occupancy.

### *3.3.10 Engineering and Institutional Controls*

An EE will be recorded referencing ICs and ECs that are part of the selected remedy, which will be binding upon all subsequent owners and occupants of the site. The ICs will restrict the site's use to restricted-residential, commercial, and industrial uses and require implementation of an SMP. The ECs will include a composite cover system and SSD system(s). The SMP will identify all use restrictions, long-term monitoring, maintenance, and certification requirements.

## **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 must be satisfied for an alternative to qualify as a selection. The remaining criteria are considered "balancing" criteria, which are used to compare the advantages and disadvantages of each alternative. A remedial alternative must satisfy the threshold criteria before qualifying for further evaluation under the balancing criteria.

- A. Protection of human health and the environment
- B. Compliance with SCGs
- C. Short-term effectiveness and impacts
- D. Long-term effectiveness and permanence
- E. Reduction of toxicity, mobility, or volume of contaminated soil/fill
- F. Implementability
- G. Cost effectiveness
- H. Community Acceptance
- I. Land use

### *3.4.1 Protection of Public Health and the Environment*

Alternative I – The Track 1 remedy will mitigate exposure pathways from on-site contaminated media by removing soil that exceeds the Track 1 UU SCOs. Groundwater contamination will be remediated through dewatering and contingent treatment of remaining impacts after the remedial excavation is complete. Soil vapor will be remediated through the removal of contaminated soil and groundwater source areas. This remedy will effectively achieve the RAOs for public health and environmental protection by eliminating the possibility for ingestion, inhalation, or dermal contact.

Alternative II – The remedy will mitigate exposure pathways to on-site contaminated media by removing on-site soil/fill that exceeds the RURR SCOs, to the extent practicable; preventing exposure to

contaminated soil left in place with a composite cover system and stabilized shoreline along Echo Bay; and, SVI mitigation via installation of SSD system(s) beneath part of the proposed Block D2 building slabs (including a continuous waterproofing/vapor barrier membrane). The RAOs for public health and environmental protection will be met through the removal, treatment, and capping of contaminated soil—which will eliminate the possibility for ingestion, inhalation, or dermal contact. An IC restricting groundwater use would prevent ingestion of groundwater. SVI will be mitigated through the installation of SSD system(s) beneath part of the proposed Block D2 building slabs and installation of new concrete building slabs underlain by waterproofing/vapor barrier membranes.

Public health will be protected during remediation under all remedial alternatives by implementing the CAMP during site work and enforcing dust, odor, and organic vapor control. The environment will be protected by implementing and enforcing soil erosion and sediment controls as needed.

#### *3.4.2 Compliance with Standards, Criteria, and Guidance*

Alternative I – The Track 1 remedy will comply with applicable SCGs due to the removal of soil that exceeds Part 375 UU SCOs, and dewatering and treatment of contaminated groundwater.

Alternative II – The Track 4 remedy will comply with applicable SCGs by installing ECs to prevent contact with remaining soil contamination exceeding the RURR SCOs, removal of source soil/fill with the potential to impact groundwater and soil vapor, and long-term SVI mitigation in the proposed Block D2 via installation of SSD system(s) with a continuous waterproofing/vapor barrier membrane.

Remedial alternatives will also comply with SCGs that involve protection of public health and the environment during the remedial action by implementing and enforcing a site-specific CHASP and CAMP. OSHA requirements for on-site construction safety will be followed by the site contractors.

#### *3.4.3 Short-Term Effectiveness and Impacts*

The most significant short-term adverse impacts and risks to the community will be through the migration of contaminants carried in soil, vapor, and dust generated during construction. Additional short-term adverse impacts and risks to the community include the potential complications and risk involved with designing and constructing SOE for the buildings and structures adjoining the site, and potential impositions on roadway and pedestrian traffic associated with construction.

The estimated volume of soil/fill requiring removal and off-site disposal is about 61,100 cubic yards for Alternative I, about four times more than Alternative II (about 14,300 cubic yards). Truck traffic will be significantly less under Alternative II, due to the significant decrease in export and import of soil/fill. The potential for short-term adverse impacts related to migration of contaminants carried in soil is higher under the Alternative I scenario.

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 greater for Alternative I and can

be avoided under Alternatives I and II by implementing control plans (including the CHASP; CAMP; and dust, odor, and vapor control measures).

#### *3.4.4 Long-Term Effectiveness and Impacts*

Alternative I – The Track 1 remedy will remove all soil/fill that exceeds the UU SCOs from the site. Because an Environmental Easement and SMP are not required as part of the Track 1 remedy, Article 141 of the NYSDOH code would be relied upon to prevent ingestion of groundwater, which prohibits potable use of groundwater without prior approval. Future site use would be unrestricted; therefore, the long-term effectiveness of this remedy would eliminate known environmental risks and satisfy the objectives of this criterion.

Alternative II – The Track 4 remedy will remove the most contaminated soil/fill that exceeds the RURR SCOs, treat impacted groundwater, and mitigate potential SVI. A site-wide composite cover system consisting of concrete building slabs, exterior hardscapes (i.e., asphalt roadways, concrete sidewalks, pavers), landscaped areas with at least 2 feet of fill meeting the lower of Part 375 RURR and PGW SCOs, and a stabilized shoreline along Echo Bay will be installed to prevent future exposure to contaminated soil remaining in-place. SSD system(s) and a continuous waterproofing/vapor barrier membrane beneath part of the proposed Block D2 building slabs will mitigate the potential for SVI from any remaining on-site or off-site contaminant sources. The potential for SVI would also be mitigated by installation of a waterproofing/vapor barrier membrane beneath all new concrete building slabs. An SMP and EE will restrict the use of groundwater on the site.

#### *3.4.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Soil/Fill*

Alternative I – The Track 1 remedy will permanently and entirely reduce the toxicity, mobility, and volume of contamination through excavation and off-site disposal of soil exceeding the Track 1 UU SCOs.

Alternative II – The Track 4 remedy will remove or treat on-site sources of groundwater contamination and remove contaminated site soil. The mobility of remaining contaminants does not represent an off-site migration concern. Exposure to remaining contamination will be prevented by ECs, including a composite cover system and SSD system(s). Installation of the SSD system(s) beneath part of the proposed Block D2 building slabs will address concerns related to the toxicity and mobility of soil vapor impacted by remaining on-site contamination or potential unknown off-site sources. The Track 4 remedy will reduce the toxicity, mobility, and volume of soil and groundwater contamination to a lesser extent than the Track 1 remedy, because contaminated soil will be left in-place.

#### *3.4.6 Implementability*

Alternative I – Implementing the Track 1 remedy will be technically challenging and is infeasible due to the large excavation volume and backfill required for the remedial excavation. Additionally, significant dewatering and SOE measures would be necessary to reach the excavation depths required to meet Track 1 standards along the Echo Bay shoreline. Implementing a Track 1 remediation would significantly

increase remediation costs and the duration of remedial activity, making this remedy more difficult to implement than Alternative II.

Alternative II – Implementing the Track 4 remedy is feasible and easily implementable with conventional construction and earthmoving methods and equipment, including the use of standard bucket excavators. The Track 4 remedy includes source soil/fill removal that will also require localized SOE systems, but on a significantly smaller scale. Implementing a Track 4 remediation would be significantly less expensive and time consuming than the Track 1 remedy, thereby making this remedy easier to implement.

#### 3.4.7 *Cost Effectiveness*

The estimated preliminary engineering and contractor remediation cost of each remedy track is:

- Alternative I – Track 1 remedy: approximately \$30.8 million
- Alternative II – Track 4 remedy: approximately \$10.5 million plus ongoing operation and maintenance costs

Tables 2 and 3 detail the costs of the individual components needed to achieve Alternatives I and II.

Alternative I – As the site will be remediated to meet UU SCOs, there will be no long-term operation, maintenance, or monitoring costs associated with the proposed remedy.

Alternative II – The Track 4 remedy has a lower cost than Track 1 because it requires less excavation, off-site disposal, backfill, and SOE. ECs and ICs will be implemented to monitor remaining contamination, which requires an SMP, an EE, and long-term costs associated with operation and maintenance of ECs. Alternative II is the most cost-effective alternative for achieving RAOs.

#### 3.4.8 *Community Acceptance*

The Track 1 remedy may be less acceptable to the community because of the increased traffic, time, and effort associated with remedial excavation. However, the potential exposure pathways to on-site contamination will be eliminated upon completion. The Track 4 remedy will be acceptable to the community, because the RAOs will be met through removal of contaminated soil/fill and ECs and ICs will be used to prevent exposure to remaining contamination. Any selected remedy will be subject to a 45-day public comment period, and any substantive public comments will be addressed before the remedy is approved by NYSDEC.

#### 3.4.9 *Land Use*

The current, intended, and reasonably anticipated future land use of the site and its surroundings are compatible with the alternatives. The future proposed development includes mixed-use residential, commercial, and light industrial buildings. Review of previous environmental and public documents 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 requirements.
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.
5. The site is located in an urban setting that is characterized by residential, commercial, and light industrial buildings. There are no areas zoned for agricultural use in the proximity of the site.
6. There are no federal or state land designations.
7. The population growth patterns and projections support the proposed land use.
8. The site is accessible to existing infrastructure.
9. The site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites.
10. The nearest ecological receptor is Echo Bay, which adjoins the site to the south.
11. Groundwater is not used as a potable water source in New Rochelle; therefore, groundwater from the site will not affect municipal water supply wells or recharge areas. Potable water provided to the City of New Rochelle is derived from surface impoundments in the Catskill and Delaware watersheds.
12. According to the Federal Emergency Management Agency September 28, 2007 Flood Insurance Rate Map Number 36119C0342F), the southern and southwestern parts of the site along Echo Bay are located within Zone AE, which is designated as the 1% annual chance floodplain (commonly referred to as the 100-year flood), with the base flood elevation of 12 feet. The remainder of the site is located in Zone X, which is determined to have a 0.2% annual chance flood hazard.
13. The site geology is described in Section 2.4.1.
14. There are no known ICs currently in effect at the site.

### **3.5 Summary of the Selected Remedy**

Based on the evaluation of the remedial alternatives described above, both alternatives would be protective of human health and the environment and meet the RAOs and SCGs. Implementation of Alternative I provides for a Track 1 remedy by removal of all impacted, on-site soil and non-native soil exceeding the UU SCOs (more than under Alternative II); however, given the extensive excavation depths required to remove all soil exceeding the UU SCOs, this alternative is not considered practical or cost-effective, and carries increased risk. The additional excavation required to achieve UU SCO endpoints

would extend into the groundwater table and would substantially complicate design of SOE and dewatering systems, increase truck traffic, and prolong potential community and construction worker exposure to noise and contaminated dust, groundwater, and vapors associated with additional excavation.

The Track 4 (Alternative II) remedy is the selected remedy for this site. The Track 4 remedy achieves the RAOs established for the project and is effective in the short- and long-term. The selected remedy effectively reduces the mobility, toxicity, and volume of contaminants. Potential exposure pathways for soil, groundwater, and soil vapor contaminants will be mitigated via construction of SSD system(s) and construction of a composite cover system.

Unlike Alternative I, Alternative II can be practically implemented in a cost-effective manner while providing similar overall protection to human health and the environment. Therefore, Alternative II is the recommended remedial alternative for this site. Figures 9 and 10 depict the Alternative II (Track 4) remedy.

## 4.0 REMEDIAL ACTION PROGRAM

### 4.1 Governing Documents

The primary documents governing the remedial action are summarized in this section. As 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:

- NYSDEC Title 6 of the New York Codes, Rules and Regulations
- NYSDEC CP-51- Soil Cleanup Guidance (2010)
- EPA Title 40, Code of Federal Regulations
- NYSDEC Sampling, Analysis and Assessment of PFAS Substances under NYSDEC's Part 375 Remedial Programs, dated June 2021

##### 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*

- Spills Technology and Remediation Series (STARS) #1 - Petroleum-Contaminated Soil Guidance Policy (1992) (Sections III and IV have been replaced by CP-51)
- STARS #2 - Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects (1996)
- Spill Response Guidance Manual (1995)
- Permanent Closure of Petroleum Storage Tanks (2003)
- Technical and Administrative Guidance Memorandum 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 760.61 - PCB Remediation Waste
- 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 360 - Solid Waste Management Facilities General Requirements
- 6 NYCRR Part 361 - Material Recovery Facilities
- 6 NYCRR Part 364 - Waste Transporters
- 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 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 Part 750 - 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*

- DER-2 - Making Changes To Selected Remedies (Revised April, 2008)
- DER-10 - Technical Guidance for Site Investigation and Remediation (May 3, 2010)
- DER-23 - Citizen Participation Handbook for Remedial Programs (March, 2010)
- TOGS 1.3.8 - New Discharges to Publicly Owned Treatment Works
- TOGS 2.1.2 - Underground Injection/Recirculation at Groundwater Remediation Sites
- 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)
- CP-43 - Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)

#### *4.1.2 Self-Implementing Cleanup and Disposal of PCB Remediation Waste Plan*

The RE will prepare and submit a SIP to the USEPA for review and approval prior to remediation of TSCA-regulated PCB-impacted soil. The SIP will detail previous investigations, including the RI and SRI, which document the nature, location, and extents of TSCA-regulated PCB-impacted soil at the site. Additionally, the SIP will describe the disposal requirements and proposed confirmation sampling to demonstrate attainment of the proposed cleanup level. The SIP will be prepared in accordance with 40 CFR §761.61(a).

#### *4.1.3 Green Remediation Principles*

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-10. The major green remediation components to be considered are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials that would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;

- Fostering green and healthy communities and working landscapes which balance ecological, economic, and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

#### 4.1.4 *Site-Specific Construction Health and Safety Plan (CHASP)*

The RE oversaw the preparation of a site-specific CHASP, which is provided as Appendix D. The CHASP requires that all remedial work performed under this plan will be in full compliance with governmental requirements, including site and worker safety requirements mandated by Federal OSHA. The CHASP provides a mechanism for establishing on-site safe working conditions, safety organization, procedures, and PPE. The CHASP meets the requirements of 29 CFR 1910 and 29 CFR 1926 (which includes 29 CFR 1910.120 and 29 CFR 1926.65, respectively). 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
- Drill rig safety
- Work zone descriptions and monitoring procedures
- Personal safety equipment and protective clothing requirements
- Decontamination requirements
- Standard operating procedures
- Contingency plan
- Safety data sheets

The Volunteer and associated parties preparing the remedial documents submitted to the State and those 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. All contractors performing work on the site must prepare their own HASP that, at a minimum, meets the requirements of the CHASP in Appendix D.

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. The Langan Site Safety Coordinator will be

William Bohrer. If required, confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses. Langan personnel will not enter confined spaces.

#### 4.1.5 Quality Assurance Project Plan (QAPP)

The RE oversaw preparation of a QAPP that describes the quality assurance and quality control components employed so that the proposed remedy accomplishes the remedial goals and RAOs and is completed in accordance with the design specifications. The QAPP is provided as Appendix F 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 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.

#### 4.1.6 Construction Quality Assurance Plan (CQAP)

The RE oversaw the preparation of a 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 design specifications. Because the remedy is being accomplished concurrent with redevelopment, the contractor and construction manager will have the primary responsibility to provide construction quality. A list of engineering personnel involved in implementation of the CQAP and procedures that will be carried out by the remedial engineering team are identified below.

<b>Role</b>	<b>Contact</b>
RE:	Gerald Nicholls, PE, CHMM
Project Manager:	Elizabeth Adkins, PE
Langan Health & Safety Officer:	Tony Moffa Jr., CHMM
Site Safety Coordinator:	William Bohrer, PG
Quality Assurance Officer:	Mimi Raygorodetsky
Field Team Leader:	Laura Grose

Project personnel résumés are provided in Appendix G.

A Qualified Environmental Professional (QEP) or 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 CAMP results that exceed the specified action levels (if any).

A QEP or 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 remedial activities in daily reports.

A QEP or the RE will directly supervise field personnel that will screen the excavation with a PID during intrusive activities. All readings will be noted in the record. Elevated readings will be reported to NYSDEC and NYSDOH in the daily reports. The field personnel will collect documentation soil samples in accordance with this RAWP.

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

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

The Field Team Leader will maintain the current field book and original field paperwork during the performance of work. The Project Manager will maintain the field paperwork after completion and will maintain submittal document files.

#### *4.1.7 Soil/Materials Management Plan (SMMP)*

The RE oversaw preparation of an SMMP that includes detailed plans for managing contaminated soil, fill, and liquids that are disturbed at the site, including excavation, handling, storage, transport and disposal. It also includes controls that will be applied to these efforts to facilitate effective, nuisance-free, to the extent practical, performance in compliance with applicable federal, state, and local laws and regulations. The SMMP is provided as Section 5.4.

#### *4.1.8 Stormwater Pollution Prevention Plan (SWPPP) and SPDES Construction Permit*

Erosion and sediment controls for the site will be designed and documented in a SWPPP in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. Best Management Practices (BMP) will be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction. Dewatering is required during construction of the sub-basement, and will be permitted under a SPDES permit. Discharge of water generated during remedial construction to surface waters (e.g., Echo Bay) is prohibited without a SPDES permit. Components of the SWPPP are further described in Section 5.4.10.

#### *4.1.9 Community Air Monitoring Plan*

A site-specific CAMP was developed in accordance with the NYSDOH Generic CAMP included as Appendix E. Community air monitoring will be conducted as outlined in Section 5.4.12.

#### *4.1.10 Contractors Site Operations Plan (SOP)*

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

#### *4.1.11 Citizen Participation Plan*

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of all 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 NYSDEC-approved Fact Sheets authorized for release by NYSDEC without written consent from the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

Document repositories have been established at the following locations, as proposed in the BCP Application, and will contain all applicable project documents:

New Rochelle Public Library  
1 Library Plaza  
New Rochelle, NY 10801  
(914)632-7878

NYSDEC – Division of Environmental Remediation  
Attn: Michael Squire  
625 Broadway  
Albany, NY 12233  
(518) 402-9546

## **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 Gerald Nicholls. The RE is a registered PE licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program for the AMN site (BCP Site No. C360201). 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 have been achieved in accordance with this RAWP. Other RE certification requirements are listed later in this RAWP.

The RE and their team will document the work of remediation contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, EC installation, emergency spill response services, import of backfill, and management of waste transport and disposal. Deviations from the procedures identified in the RAWP that are observed by Langan will be brought to the attention of the contractor, who will remedy the deviation(s). The RE, or the Project Manager under supervision of the RE, will be responsible for all communication with NYSDEC and NYSDOH.

The RE will review all pre-remedial plans submitted by remediation contractors for compliance with this RAWP and will certify compliance in the FER.

In the FER, the RE will provide the certifications listed in Section 9.1 of this RAWP.

#### *4.2.3 Remedial Action Construction Schedule*

The anticipated remedial action construction schedule is discussed below in Section 10.0 and provided in Appendix H. The NYSDEC will be promptly notified of proposed changes, delays, or deviations to the schedule.

#### *4.2.4 Work Hours*

The hours of operation of remedial construction will conform to the City of New Rochelle Department of Buildings construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Volunteer of any variances issued by the City of New Rochelle Department of Buildings. The NYSDEC reserves the right to deny alternate remedial construction hours.

#### *4.2.5 Site Security*

The site perimeter will be secured with gated and signed fencing with restricted points of entry. 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 Main Street and Huntington Place. 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*

The contingency plans described below have been developed to address unexpected discoveries of additional contaminated media and/or USTs.

#### *4.2.7.1 Discovery of Additional Contaminated Soil*

During remediation and construction, soil will be continuously monitored by the RE's field representative(s) using a PID as well as visual and olfactory field screening to identify previously unknown contamination and soil that may not be suitable for the selected disposal facility(ies). Impacted soil/fill will be segregated and sampled for lab analysis in accordance with disposal facility requirements. Laboratory analysis will be for full scan parameters (VOCs, SVOCs, PCBs, pesticides, metals, and PFAS). Analyses will not be otherwise limited without NYSDEC approval. If the facility is not permitted to receive the sampled soil/fill, the soil/fill will be disposed of off-site at a permitted facility able to receive the soil/fill based on the characterization data. Identification of unknown or unexpected contaminated media identified by screening during invasive site 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. Potential additional remedial measures will be coordinated with NYSDEC.

#### *4.2.7.2 Discovery of Unexpected USTs*

Previously unidentified USTs may be encountered during excavation. Unexpected 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. Once the tank, its contents, and associated piping are removed, post-excavation soil samples will be collected per the requirements of NYSDEC DER-10 and this RAWP. Where the base of the remedial or development-related excavation extends below the base of the tank, documentation endpoint samples will be collected from the base of the excavation. If encountered, petroleum-impacted soil in the unsaturated zone will be excavated as practicable. Petroleum impacts at the groundwater table will be addressed through excavation. Excavated petroleum-impacted soil/fill will be stockpiled separately from non-petroleum-impacted soil/fill, characterized, 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 and decommissioned with the NYSDEC PBS unit, as necessary.

If USTs are encountered during invasive site work, the findings will be promptly communicated 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, which is provided in Appendix D.

#### *4.2.9 Agency Approvals*

Permits or government approvals required for remedial construction will be obtained before the start of remedial construction. The planned end use for the site as mixed-use commercial and residential buildings and parkland space conforms to the current zoning for the property as determined by the City

of New Rochelle. Certificates of Occupancy will not be issued for the project unless conformance with the zoning designation is demonstrated.

#### *4.2.10 NYSDEC BCP Signage*

Signs are optional for BCP sites and should be discussed with the NYSDEC Project Manager. If a sign is to be displayed, it must follow NYSDEC specifications for design and content. The NYSDEC Project Manager can provide details on signage protocol.

#### *4.2.11 Pre-Construction Meeting with NYSDEC*

Prior to the onset of construction, a meeting will be held between the NYSDEC, RE, Volunteer, construction manager, and contractor to discuss project roles, responsibilities, and expectations associated with this RAWP. Notice will be provided to the NYSDEC at least seven days prior to site mobilization.

#### *4.2.12 Emergency Contact Information*

An emergency contact sheet with names and phone numbers is included in the CHASP, provided as Appendix D. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

#### *4.2.13 Remedial Action Costs*

The estimated preliminary engineering and contractor cost of the preferred remedy is about \$10.5 million, plus ongoing operation and maintenance costs. An itemized and detailed summary of estimated costs for the preferred remedy is attached as Table 3.

### **4.3 Site Preparation**

The RE will work with the Volunteer and their contractors so that site development will not interfere with, or otherwise impair or compromise, the remediation proposed in this RAWP.

#### *4.3.1 Mobilization*

Before commencing remedial construction, the contractor will mobilize to the site and prepare for remediation. 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 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 impacted soil/fill 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 Erosion and Sedimentation Controls*

Based on the size of the site and the planned excavation, common erosion and sedimentation control practices (i.e. perimeter silt fencing, inlet protection, stabilized construction entrances, dust control via water sprinkling, etc.) will be necessary and will be implemented in accordance with the project-specific SWPPP. BMPs for soil erosion will be selected to minimize erosion and sedimentation off site from the start of the remediation to the completion of development.

#### *4.3.3 Monitoring Well Decommissioning*

Existing groundwater monitoring wells to be affected by implementation of this RAWP will be decommissioned in accordance with NYSDEC policy CP-43, unless the full length of the well is to be excavated during remediation and redevelopment. If required, well decommissioning will be performed by an experienced driller and logged by the driller and Langan personnel. Decommissioning documentation will be provided in the FER.

#### *4.3.4 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 runoff water will be directed onto the site. The contractor will protect and maintain the existing sidewalks and roadway at site entrance points.

#### *4.3.5 Utility Marker and Easements Layout*

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

The presence of utilities and easements on the site will be investigated by the RE, Volunteer, and their contractors. No impediments to the planned work under this RAWP are expected due to known utilities or easements on the site.

#### *4.3.6 Sheet piling and Shoring*

Management of structural stability of on-site or off-site structures during on-site activities including excavation is the sole responsibility of the Volunteer and their contractors. The Volunteer and their

contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Volunteer and their contractors must obtain any local, state or federal permits or approvals that may be required to perform work detailed in this RAWP.

#### *4.3.7 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 as needed. 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.

#### *4.3.8 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. When 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. Any collected truck rinsate and decontamination wastewater shall be either discharged in accordance with a SPDES permit, 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. Prior to 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.

#### *4.3.9 Site Fencing*

The site perimeter will be secured with gated and signed fencing. The purpose of the fencing is to limit site access to authorized personnel, protect pedestrians from site activities and maintain site security.

#### *4.3.10 Demobilization*

The contractor will be responsible for demobilizing all labor, equipment, and materials not designated for off-site disposal. The RE will be responsible to document that the contractor performs follow-up coordination and maintenance for the following activities:

- Restoration of areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access areas);

- Removal of temporary access areas (whether on-site or off-site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- 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; Gerald Nicholls, PE, of Langan, will have this responsibility. Should Mr. Nicholls become unable to fulfill this responsibility, another suitably qualified New York State PE will take his place. Daily and monthly reports will be included as appendices to the FER. In addition to the periodic reports and the FER, copies of relevant contractor documents will be submitted to the NYSDEC.

##### *4.4.1 Daily Reports*

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day following the reporting period (or at a frequency acceptable to them) and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of soil/fill imported to 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 corrective actions for instances where action levels were exceeded;
- An explanation of notable site conditions;
- A description of anticipated site activities; and
- The NYSDEC-assigned project number.

Daily reports are not intended to be the mode of communication for notification to 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.

Daily reports will include a description of daily activities keyed to an alpha-numeric map for the site that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

#### 4.4.2 *Monthly Reports*

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the tenth of the month following the reporting period. The monthly reports will include the following information, as well as any additional information required by 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 soil/fill exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope 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 will be taken of all remedial activities and submitted to NYSDEC in digital format. Photographs will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the site before any remedial actions and of each contaminant source, source area, and site structures before, during and after remediation will be provided. Photographs will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

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

#### 4.4.4 *Complaint Management Plan*

The management plan for documenting complaints is detailed below.

<b>Item</b>	<b>Description</b>
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	<p>All complaints will be documented on a complaint register. The register will be maintained as an ongoing record.</p> <p>Each entry will include the following information:</p> <ul style="list-style-type: none"> <li>• Time, date, and nature of complaint;</li> <li>• Type of communication (telephone, letter, email, personal, etc.);</li> <li>• Name, contact address, and contact number; and</li> <li>• Response and investigation undertaken as a result of the complaint and action taken with the signature of the responsible person.</li> </ul> <p>Each complaint will be investigated as soon as practicable in relation to the requirements.</p>
Monitoring	<p>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.</p>
Reporting	<p>Upon receipt, the NYSDEC will be notified. Complaints and resolutions will be documented in the daily reports.</p>
Corrective Action	<p>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:</p> <ul style="list-style-type: none"> <li>• Conduct additional training of staff to handle environmental complaints;</li> <li>• Investigate why the environmental complaint was not addressed within the specified time frame; and</li> <li>• Investigate the complaint and action follow-up according to the investigation results.</li> </ul>

#### 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). Based on the significance of the deviation, an addendum to this RAWP may be 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 deviation(s) on the overall remedy.

## **5.0 REMEDIAL ACTION: SOURCE MATERIAL REMOVAL**

### **5.1 Soil Cleanup Objectives**

A Track 4 remediation is proposed. The SCOs for the site will be the NYSDEC RURR SCOs listed in 6 NYCRR Part 375-6.8(b). Any exposed soil areas that exceed these SCOs will be capped with impervious cover or 2 feet of clean fill that meets the lower of the PGW and RURR SCOs.

Soil management will be conducted in accordance with the SMMP described below (Section 5.4). Closure of any USTs, if encountered, will conform to the criteria defined in 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements including DER-10 Section 5.5.

### **5.2 Remedial Performance Evaluation**

#### *5.2.1 Documentation Soil Samples*

Documentation soil samples will be collected from the base of the remedial excavation areas where source soil/fill is being removed as described in Section 3.3.5, in accordance with NYSDEC DER-10. A total of 121 base-of-excavation and 16 sidewall documentation soil samples will be collected (plus QA/QC samples). Sidewall samples will not be collected where SOE and/or obstructions preclude access to soil sidewalls. Additional documentation samples may be collected if remedial excavations are larger than anticipated. Documentation endpoint samples will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals (including hexavalent and trivalent chromium), PFAS, and 1,4-dioxane. Analytical results of the soil samples collected during the RI will be used to document soil quality in areas outside of the remedial excavations.

Documentation samples will be transported under standard chain-of-custody protocol to an NYSDOH ELAP-approved laboratory. Laboratory analyses will be conducted in accordance with EPA SW-846 methods and NYSDEC Analytical Services Protocol 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 will be included in the FER. Quality control procedures for the sampling are included in the QAPP (Appendix F). Documentation soil sample results will be provided in NYSDEC electronic data deliverable format for EQuIS™. Guidance on sampling frequency is presented in Section 5.4 of DER-10. Prior to completion of validation, preliminary sample results will be appended to the monthly progress reports.

The proposed documentation soil sample locations are presented in Figure 11. The FER will provide a tabular and map summary of all documentation sample results.

### **5.3 Estimated Soil/Fill Removal Quantities**

The estimated volume of soil/fill requiring removal and off-site disposal is about 14,300 cubic yards. Soil excavation will be performed to remove source soil/fill, as practicable, and to facilitate the construction of the composite cover system and the SSD system(s). If additional grossly contaminated soil is identified as defined by Part 375.1-2(u), remedial over-excavation will be performed and source soil/fill removed, as practicable.

### **5.4 Soil/Materials Management Plan**

This section presents the approach to management, disposal and reuse of soil and fill 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 remediation. Field personnel, under the direction of the RE or QEP, will monitor and document the handling and transport of contaminated soil/fill removed from the site for disposal as a regulated solid waste. Field personnel, under the direction of the RE or QEP, will assist the remedial contractor in identifying impacted soil/fill during excavation, determining soil/fill suitable for direct load-out versus temporary on-site stockpiling, selection of samples for waste characterization, and determining the proper off-site disposal facility. Separate stockpile areas will be constructed as needed to stage various excavated soil/fill types with the intent to more efficiently manage and characterize the soil/fill and to avoid commingling of impacted soil/fill with non-impacted soil/fill.

#### *5.4.1 Soil Screening Methods*

Visual, olfactory, and PID soil screening and assessment will be performed by field personnel under the direction of the RE during all remedial and development excavations into known or potentially contaminated soil/fill. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the Certificate of Completion.

Primary contaminant sources (including but not limited to, source soil/fill and former USTs) identified during the RI, waste characterization, and 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.

Field screening will be performed by field personnel under the direct supervision of the RE or QEP. Résumés will be provided for all personnel responsible for field screening (i.e., those representing the RE) of invasive work for known or unknown contaminant sources during remediation and development work.

#### *5.4.2 Stockpile Methods*

Soil stockpile areas, if needed for different soil and fill, will be constructed for staging of site soil, pending loading or waste characterization testing. Separate stockpile areas will be constructed to avoid

commingling soil and non-native soil 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 soil/fill types are different (e.g., non-native soil on areas where non-native soil 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 to minimize the potential to jeopardize the integrity of the liner.
- Stockpiles will be covered at the designated times (see below) with minimum 8-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 that have reached their capacity will be appropriately covered until they are ready for loading for off-site transport.
- 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 soil, 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 *Characterization, Excavation and Load Out*

Excavated soil 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 procedures will be reported in the FER. All data available for soil/fill to be disposed of at a given facility must be submitted to the disposal facility for review and approval before shipment and receipt.

The Volunteer and their contractors are solely responsible for safe execution of invasive 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 or QEP will oversee all invasive work and the excavation and loading of excavated soil. 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 egress points for truck and equipment transport from the site and notifying the contractor of their obligation to immediately clean the sidewalks and or streets of soil or fill derived from the site during site remediation and development. 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 soil/fill. Loaded vehicles leaving the site will be lined, securely covered, manifested, and placarded in accordance with federal, state, and local (Westchester County Department of Transportation) requirements, and all other applicable transportation requirements. Trucks hauling soil/fill will not be lined unless the soil/fill exhibits free liquids, is grossly-impacted, or is determined to be hazardous. On-site mechanical processing of fill and contaminated soil is prohibited unless otherwise approved by the NYSDEC.

Primary contaminant sources (including but not limited to source soil/fill and former USTs) identified during implementation of the remedy 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.

#### 5.4.4 *Transport Off-Site*

Transport of soil/fill will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6 NYCRR Part 364. Haulers will be licensed and permitted and trucks properly placarded. Trucks will enter and exit the site using dedicated ingress/egress points. Trucks loaded with soil/fill will exit the vicinity of the site using only approved truck routes. Trucks will be prohibited from stopping and idling in the neighborhood 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 inbound and outbound truck routes to the site are shown on Figure 12. These routes take into account:

- Limiting transport through residential areas and past sensitive sites
- Use of city-mapped truck routes
- Minimization of off-site queuing of trucks entering the facility, to the extent possible
- Limiting total distance to major highways
- Promoting safety in access to highways
- Overall safety in transport

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 remedial construction is complete. Locations where vehicles enter or exit the site will be inspected daily for evidence of off-site sediment tracking.

If loads contain wet soil/fill capable of producing free liquid, truck liners will be used. The RE will be responsible for documenting that egress points for truck and equipment transport from the site are clean of soil or fill derived from the site during remediation and redevelopment. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived soil/fill.

#### 5.4.5 *Disposal Off-Site*

Excavated soil and fill removed from the site will be handled, transported and disposed of in accordance with local, state (including 6 NYCRR Parts 360), and federal regulations. If disposal of soil/fill 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's Project Manager. Unregulated off-site management of soil/fill from this site is prohibited without formal NYSDEC approval.

Excavated non-hazardous contaminated soil and hazardous waste (if encountered) must be disposed of at a facility licensed to accept the soil/fill. Non-hazardous fill can be sent to a C&D debris handling and recovery facility only with written approval from the NYSDEC. Hazardous waste is prohibited from being sent to a C&D debris handling and recovery facility (6 NYCRR Part 361-5). Hazardous waste derived from the site will be managed, transported, and disposed of in compliance with applicable local, state, and federal regulations. PCB remediation waste will be managed at its "as-found" PCB concentration in accordance with 40 CFR §761.61.

Non-hazardous fill and contaminated soil taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360.2. Fill and contaminated soil from the site are prohibited from being disposed of at Part 360.15 Registration Facilities (also known as Soil Recycling Facilities). Soil that is contaminated but non-hazardous and is being removed from the site is considered by the NYSDEC Division of Materials Management (DMM) to be C&D debris with contamination not typical of virgin soil. This soil may be sent to a permitted Part 360 landfill. The soil may be sent to a permitted C&D debris processing facility without permit modifications only upon prior notification of NYSDEC Region 3 DMM. This soil/fill is prohibited from being sent or redirected to a Part 360.15 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C&D debris facility that provides a detailed explanation that the soil/fill is derived from a DER remediation site, that the soil/fill is contaminated and that it must not be redirected to on-site or off-site Soil Recycling Facilities. 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 analytical data for the soil/fill being transported.

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 soil/fill derived from the site conforms to applicable laws:

1. A letter from the RE or Volunteer to the receiving facility describing the soil/fill to be disposed and requesting formal written acceptance of the soil/fill. This letter will state that soil/fill to be disposed of is contaminated soil/fill 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 analytical data for the soil/fill 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 soil/fill. These documents will be included in the FER.

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

#### 5.4.6 *Reuse On-Site*

Excavated soil may be reused on the site under the proposed remedy. Soil may be reused on site beneath the soil cover system, provided that it does not consist of source soil/fill, grossly contaminated soil, or soil exhibiting staining or odors and the requirements in this section and 6 NYCRR Part 360 are met. Excavated soil may be used as backfill, without additional sampling, for the excavation from which the soil was removed, or in areas of similar physical characteristics at the site. A Request to Import/Reuse Fill or Soil form, which can be found at <http://www.dec.ny.gov/regulations/67386.html> will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. Soil acceptable for reuse must be non-hazardous and meet the lower of the RURR.

Soil removed during the implementation of the remedy or removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site is prohibited for reuse on-site. Soil deemed unfit for reuse will be transported off-site for disposal.

#### 5.4.7 *Fluids Management*

Remedial and development-related excavation will extend below the current groundwater table and dewatering will be required to lower the groundwater table below the required excavation depths. Dewatering will occur prior to mass excavation below the current groundwater table. A temporary dewatering and treatment system will be designed by the Remediation Contractor's NYS-licensed Professional Engineer. Liquids to be removed from the site, including dewatering fluids, will be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Liquids discharged into the City of New Rochelle sanitary sewer system will be addressed through approval by the City of New Rochelle and the Westchester County Department of Environmental Facilities. Discharge of liquids into Echo Bay will be performed following pre-treatment measures and in accordance with a SPDES permit. For the remedy, dewatering is considered a remedial component as it is necessary to facilitate excavation of contaminated soil/fill.

During remedial excavation, sediment and erosion controls will be implemented to prevent groundwater encountered during excavation in saturated soil from flowing outside of the site. Trucks will be lined to contain free liquids in saturated soil from leaking out of the truck beds.

Dewatering fluids will not be recharged back to the land surface or subsurface. Dewatering fluids will be managed off-site. Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, and/or river) is prohibited without a SPDES permit.

#### *5.4.8 Demarcation*

After the completion of soil removal and any other invasive remediation and prior to backfilling with reused site fill or imported clean fill, a land survey will be performed by a New York State licensed surveyor. The survey will define the top elevation of remaining contaminated soil. A physical demarcation layer, consisting of orange snow fencing, geotextile membrane, or equivalent material will be placed on the surface of remaining soil to provide a visual reference, where the surface is capped with clean soil (e.g., landscaped area). This demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated remaining soil defined in the SMP. The survey will measure the grade covered by the demarcation layer before the placement of cover soil, pavement and sub-soil, structures, or other materials. This survey and the demarcation layer placed on this grade surface will constitute the physical and written record of the upper surface of the 'Residuals Management Zone' in the FER and SMP.

#### *5.4.9 Backfill from Off-Site Sources*

Backfill proposed for import will be approved by the RE and will be in compliance with provisions in this RAWP prior to receipt at the site. Imported soil for backfill must meet the requirements of 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e)10, and Appendix 5. Requests for import of fill are subject to NYSDEC review and approval, and will include a Request to Import/Reuse Soil Form. Backfill from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the site. Solid waste will not be imported to the site.

The FER will include the following certification by the RE: "I certify that all import of soil from off-site, including source evaluation, approval, and sampling, has been performed in a manner that is consistent with the methodology defined in the RAWP".

Backfill will consist of clean fill (as described in the following paragraph) or other acceptable fill such as RCA or virgin stone from a quarry. If RCA is imported to the site, it will be from a NYSDEC-registered or permitted facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. Import of RCA will be imported as per a site-specific Beneficial Use Determination, if required by NYSDEC. RCA imported from compliant facilities will not require chemical testing, unless required by the NYSDEC under the terms for operation of the facility. RCA imported to the site must be derived from recognizable and uncontaminated concrete. RCA is not acceptable for and will not be used as cover or drainage material. RCA must originate from a NYSDEC-permitted or registered

C&D debris facility and contain less than 10% by weight passing a No. 10 sieve to be excluded from NYSDEC DER-10 sampling requirements. Virgin stone must originate from a mine or quarry and contain less than 10% by weight passing a No. 10 sieve to be excluded from NYSDEC DER-10 sampling requirements. Sampling may be required by NYSDEC under the terms for operation of the facility.

Imported soil (i.e., clean fill) will meet the lower of RURR and PGW SCOs. Non-compliant soil will not be imported to the site. Clean fill will be segregated at a source/facility that is free of environmental contaminants. Qualified environmental personnel will collect representative samples at a frequency consistent with NYSDEC CP-51. The samples will be analyzed for Part 375 VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270), pesticides/PCBs (USEPA Method 8082/8081), metals (USEPA Method 6010), and PFAS (USEPA Method 537 or 537.1, or, if after November 1, 2022, Method 1633) by a NYSDOH ELAP-certified laboratory. Upon meeting these criteria, the clean fill will be transported to the site and segregated from impacted soil/fill, as necessary, on plastic sheeting until used as backfill.

Import facilities will be identified in the FER. A PE or QEP will review the 6 NYCRR Part 360 registrations and/or permits for the facilities for the period of acquisition of RCA. Imported RCA and virgin gravel, rock, or stone from mines or quarries must have no more than 10% by weight passing through a No. 10 sieve and will not require additional testing unless required by NYSDEC under its terms for operation of the facility. Additional exemptions from testing requirements may be approved by the NYSDEC Project Manager based on their review of requests by the PE/QEP. Prior to soil/fill import, the RE will review documentation from each import facility, including the facility name, address, permit/registration, and site history, if necessary, in accordance with DER-10. Proposed import soil/fill will be approved by both the RE and the NYSDEC. Upon arrival, import soil/fill will be screened for visual, olfactory, and instrumental evidence of contamination.

#### *5.4.10 SWPPP*

Silt fencing or hay bales will be installed around the perimeter of the remedial construction area, as required. Barriers and hay bale checks will be installed and inspected once a week and after every storm event; necessary repairs shall be made immediately. Results of inspections will be recorded in a logbook maintained at the site and available for inspection by the NYSDEC. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill. Manufacturer's recommendations will be followed for replacing silt fence damaged due to weathering. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Implementation of the SWPPP will mitigate the discharge of erosional sediment to City of New Rochelle sewer system.

#### *5.4.11 Contingency Plan*

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

#### *5.4.11.1 Discovery of Additional Contaminated Soil and Source Areas*

During remediation and construction, the soil will be continuously monitored by the RE's field representatives using a PID as well as visual and olfactory field screening techniques to identify previously unknown contamination and soil that may not be suitable for the selected disposal facility(ies). This soil/fill will be segregated and sampled for lab analysis in accordance with disposal facility requirements. If the facility is not permitted to receive the suspect soil/fill, the soil/fill will be disposed of off-site at a permitted facility able to receive the soil/fill based on the characterization data. Identification of unknown or unexpected contaminated media by screening during ground-intrusive site 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.

#### *5.4.11.2 Discovery of LNAPL*

No LNAPL was detected during the previous subsurface investigations, the RI, or SRI, and thus no LNAPL is anticipated to be encountered during remediation. However, due to the potential presence of USTs, the potential exists for LNAPL to be present. If encountered, LNAPL will be delineated and recovered either manually (e.g. bailed, absorbed) or via vacuum extraction, and transported off-site for disposal at a permitted facility.

#### *5.4.11.3 Post-Remediation Groundwater Sampling*

In the event that additional petroleum-contaminated source areas are encountered during remedial excavation that require groundwater treatment, groundwater monitoring wells will be installed in the vicinity of the source area(s) following the completion of remedial excavations and in-situ groundwater treatment, if warranted. Up to eight rounds of post-remediation groundwater sampling will be conducted to evaluate potential remaining impacts to groundwater quality and assess the effectiveness of the remedy. Groundwater samples will be analyzed for Part 375 VOCs and SVOCs by a NYSDOH ELAP-certified laboratory. Depending on the groundwater monitoring results, additional applications may be warranted. Based on groundwater sample results showing that RAOs have been achieved, a request may be made to the NYSDEC to discontinue sampling and consider the groundwater remedy complete.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated to NYSDEC's Project Manager. These findings will be also detailed in daily and subsequent monthly BCP progress reports.

#### *5.4.12 Community Air Monitoring Plan*

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

The CAMP includes real-time monitoring for VOCs and particulates at the downwind perimeter of ground-intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling and advancement of trenches and test pits. Periodic monitoring for VOCs is required during non-

intrusive activities such as the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of collecting a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and collecting 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 particulate matter less than 10 microns in diameter (PM10). Monitoring for particulates and odors will be conducted during all ground intrusive activities by the RE’s field inspector. The work zone is defined as the general area in which machinery is operating in support of remediation. A portable PID will be used to monitor the work zone and for periodic monitoring of VOCs during activities 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 measured VOC levels:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work 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 will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps work 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, work will be shut down.

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

- If the downwind particulate level is 100  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$  above the background level, work must be stopped and a re-evaluation of work initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150  $\mu\text{g}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

Concentrations above action levels established in the CAMP will be reported to the NYSDEC and NYSDOH Project Managers and included in the daily report. In addition, a map showing the locations of the downwind and upwind CAMP stations will be included in the daily report.

#### *5.4.13 Odor, Dust and Nuisance Control Plan*

Dust, odor, and nuisance control will be accomplished by the contractor as described in this section. Invasive development work will be conducted in accordance with dust and odor suppression methodology defined in the RAWP.

##### *5.4.13.1 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 all odor events and of all other complaints about the project. Documentation of odor and vapor controls, including notifying the contractor and owner of potential halt of work conditions, will be the responsibility of the RE, who is responsible for certifying the FER. Application of odor controls is the responsibility of the contractor.

All necessary means will be employed to prevent on- and off-site nuisances. If odors develop and cannot be otherwise controlled, means to eliminate nuisance conditions may include: (a) shrouding open excavations with tarps and other covers; (b) use of odor-suppressing foam; (c) use of chemical odorants in spray or misting systems; and, (d) use of staff to monitor odors in the surrounding neighborhood.

##### *5.4.13.2 Dust Control Plan*

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

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

##### *5.4.13.3 Other Nuisances*

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

A plan will be developed and employed by the contractor for all remedial work and will conform, at a minimum, to City of New Rochelle noise control standards.

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## **6.0 REMAINING CONTAMINATION**

Since remaining contaminated soil, groundwater, and soil vapor will exist beneath the site after the Track 4 remedy is complete, ECs and ICs are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC/ICs and of remaining contamination will be executed under a site-specific SMP that will be developed and included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing remaining contamination. The site will have two primary EC systems: 1) a composite cover system and 2) SSD system(s) (including continuous waterproofing/vapor barrier membrane).

The SMP and FER will provide tables and figures documenting remaining contamination at the site. This will include presentation of concentrations exceeding both UU and RURR SCOs.

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## **7.0 ENGINEERING AND INSTITUTIONAL CONTROLS**

Following completion of the remedy, it is anticipated that the site will achieve a Track 4 RURR remedy and contamination above the RURR SCOs may remain in place; therefore, ECs and ICs will be required as part of the remedial action. The ECs include a site-wide composite cover system consisting of concrete building foundation slabs with underlying waterproofing/vapor barrier membranes, landscaped areas with at least 2 feet of approved fill, hardscape areas (i.e., asphalt roadways, concrete sidewalks, pavers) , and a stabilized shoreline along Echo Bay. SSD system(s) (including continuous waterproofing/vapor barrier membrane) will be installed to mitigate the potential for SVI. The proposed ECs and ICs are detailed in the following sections.

### **7.1 Engineering Controls**

#### *7.1.1 Composite Cover System*

A site-wide composite cover system consisting of concrete building foundation slabs, landscaped areas with at least 2 feet of approved fill, hardscapes (e.g., asphalt roadways, concrete sidewalks, pavers), and a stabilized shoreline along Echo Bay will be installed. A site cover is required to allow for restricted-residential use of the site in areas where the upper 2 feet of exposed surface soil exceeds the applicable SCOs and will be required in perpetuity at the site. Any proposed soil cover will consist of a minimum of 2 feet of fill (e.g., soil, stone) placed over a high-visibility demarcation layer. Soil covers will meet the lower of the RURR and PGW SCOs as set forth in Part 375-6.7(d). The composite cover system beneath new buildings will consist of a continuous concrete building slab underlain by a continuous waterproofing/vapor barrier membrane.

A composite cover system plan is shown on Figure 10.

An Excavation Work Plan will be included in the SMP and will outline the procedures to be followed in the event that the composite cover system and underlying remaining contamination are disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the SMP.

#### *7.1.2 Sub-Slab Depressurization System*

To mitigate SVI, an SSD system(s) (including a continuous waterproofing/vapor barrier membrane) will be installed beneath part of the proposed Block D2 building slabs. The SSD system(s) will be installed below occupied building spaces at the lowest level. The SSD system(s) will not be installed below building areas that extend to the groundwater table.

The SSD system(s) will be designed and developed in accordance with the NYSDOH Guidance. The SSD system(s) will consist of a sub-membrane collection layer (minimum 8-inch-thick layer of virgin  $\frac{3}{4}$ -inch stone) with horizontal perforated collection piping. The SSD system(s) will be designed to convey a vacuum of 0.02 inches water column (inWC) but will be required to maintain a vacuum greater than 0.004 inWC. The collection layer will underlie a continuous waterproofing/vapor barrier membrane that is

integrally bonded to the concrete building foundation slab. The membrane will be resistant to petroleum-related contaminants and chlorinated solvents. SSD system(s) design drawings will be provided to the NYSDEC for review during the design development phase.

Riser pipes will be installed to convey the collected vapor to the roofs of the buildings. The riser pipes will either be connected to active vacuum blowers or passive wind turbines, pending the results of a post-remediation SVI evaluation. The SVI evaluation will include collection of co-located sub-slab vapor and indoor air samples after the concrete foundation slabs are installed and the buildings are fully enclosed. The sample results will be evaluated using the NYSDOH Guidance to determine if active SVI mitigation is warranted. Completion and commissioning of the SSD system(s) will occur during the site management phase of the project, but prior to building occupancy.

Record drawings and specifications of the SSD system(s) will be presented in the FER and SMP. The SMP will include the necessary drawings and specifications to complete the SSD system(s) installation and provisions for system operation and indoor air monitoring. The SMP will also describe procedures to be followed if the SSD system(s) are disturbed after its installation is complete. Maintenance of the SSD system(s) will be described in the SMP. The SSD system(s) drawings will be included in the FER.

## **7.2 Institutional Controls**

After the remedy is complete, the site will have remaining contamination. ECs have been incorporated into the remedy to render the overall site remedy protective of public health and the environment. An SMP will be prepared and a site-specific environmental easement will be recorded with the Westchester County Clerk to provide an enforceable means for continual and proper management of remaining contamination and protection of public health and the environment in perpetuity or until released in writing by the NYSDEC. The easement will require that the grantor and the grantor's successors and assigns adhere to all ECs and ICs placed on this site. ICs provide restrictions on site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP will describe appropriate methods and procedures to maintain and protect ECs and ICs that are required by the environmental easement. Once the SMP is approved by the NYSDEC, compliance with the SMP will be required by the grantor of the environmental easement and 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 remaining contamination is left on-site after the remedy is complete. A Track 4 remedy requires that an environmental easement approved by the NYSDEC be recorded with the Westchester County Clerk 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. The easement will list the ECs and ICs required under this remedy to prevent future exposure to remaining contamination, including

controlling disturbances of the subsurface remaining contamination and restricting the use of the site to restricted-residential, commercial, and industrial uses only. The ICs are generally subdivided between controls that support ECs and those that place general restrictions on site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides the methods and procedures to be followed to comply with this remedy.

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 is required;
- 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; and
- 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 (discussed in the next section). The use restrictions that apply to the site are:

- Vegetable gardens and farming in remaining site soil are prohibited;
- Use of groundwater underlying the site is prohibited without treatment rendering it safe for the intended purpose;
- All future activities on the site that will disturb remaining contaminated soil and non-native soil are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;
- The site may be used for restricted-residential, commercial, and industrial uses use only, provided the long-term ECs and 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 the environmental easement.

Grantor agrees to submit to the NYSDEC a written statement 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. This certification shall be submitted annually, or at a specified frequency allowed by the NYSDEC.

The NYSDEC retains the right to access the site at any time in order to evaluate the continued maintenance of any and all controls.

### *7.2.2 Site Management Plan*

A Track 4 remedy 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 finalized SMP is included as part of the FER, but will be written in a manner that allows its removal and use as a complete and independent document. Site management continues in perpetuity or until released in writing by the NYSDEC. The property owner is responsible for all site management responsibilities defined in the environmental easement and performance of the SMP.

The SMP is intended to provide a detailed description of the procedures required to manage remaining contamination left in place at the site following completion of the remedy in accordance with the NYSDEC BCA. This includes: (1) development, implementation, and management of all ECs and 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, recovery or other mechanical systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of site information to the NYSDEC; and (5) defining criteria for termination of treatment or other mechanical system operation.

To address these needs, this SMP will include three plans: (1) an EC and IC Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to 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 periodic basis, and will be submitted in a Periodic Review Report. The certification period will be determined by NYSDEC and the initial submittal will be 15 months after issuance of the Certificate of Completion.

No exclusions for handling of remaining contaminated soil will be provided in the SMP. All handling of remaining contaminated soil and non-native soil will be subject to provisions contained in the SMP.

## **8.0 CRITERIA FOR COMPLETION OF REMEDIATION/TERMINATION OF REMEDIAL SYSTEMS**

### **8.1 Composite Cover System**

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity, and following any significant storm and/or flooding events. A composite cover system plan is shown on Figure 10. The frequency of inspections will be defined in the SMP.

### **8.2 SVI Mitigation System**

An SVI evaluation will be conducted after the concrete foundation slabs are installed and the buildings are fully enclosed that will include collection of co-located sub-slab vapor and indoor air samples. The sample results will be evaluated using the NYSDOH Guidance to determine whether active SVI mitigation is warranted. Completion and commissioning of the SSD system(s) will occur during the site management phase of the project, but prior to building occupancy.

The SSD system(s) will not be decommissioned or deactivated without written approval by NYSDEC and NYSDOH. A proposal to deactivate an SSD system(s) may be submitted by the property owner based on confirmatory data that justifies such request. If an active SSD system(s) is deactivated, the system will continue to operate as a passive system. Systems will remain in-place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

## 9.0 FINAL ENGINEERING REPORT

An FER, prepared in accordance with DER-10, will be submitted to NYSDEC after implementation of the remedial action defined in this RAWP. The FER documents that the remedial work required under this RAWP has been completed and performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all soil/fill removed from the site including the surveyed map(s) of all sources. The FER will include the following documentation:

1. 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 soil/fill 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 backfill imported to the site
5. A tabular summary of documentation soil samples results and other sampling and laboratory analysis completed as part of the remedial action
6. Record drawings for ECs and commissioning test results (as necessary)

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

### 9.1 Certifications

The following certification will appear in front of the Executive Summary of the FER. The certification will be signed by the RE, Gerald Nicholls, 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, \_\_\_\_\_, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the AMN site (NYSDEC BCP Site No. C360201).*

*I certify that the site description presented in this FER is identical to the site descriptions presented in the EE, the SMP, and the BCA for the AMN site and related amendments.*

*I certify that the RAWP dated [month day year] and Stipulations [if any] in a letter dated [month day year] and approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.*

*I certify that the remedial activities were observed by engineers, geologists and scientists under my supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved.*

*I certify that all use restrictions, ICs, ECs, and all operation and maintenance requirements applicable to the site are contained in an EE created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A SMP has been submitted by the Volunteer for the continual and proper operation, maintenance, and monitoring of all ECs employed at the site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.*

*I certify that the export of all contaminated soil, fill, and liquids from the property was performed in accordance with the RAWP, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.*

*I certify that all import of soil from off-site was performed in accordance with the RAWP.*

*I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the RAWP.*

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

*It is a violation of Article 130 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 130, New York State Education Law.*

## **10.0 SCHEDULE**

Implementation of the remedy is anticipated to begin in January 2025 and be completed during the second quarter of 2026. After completion of remediation, an SMP and FER will be submitted to the NYSDEC as detailed in Section 9.0. A remedial action construction schedule is included in Appendix H.

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